



**REGULAR MEETING
AGENDA
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
JUNE 26, 2023
7:00 PM**

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

COMMENTS FROM THE GENERAL PUBLIC An opportunity for members of the public to address the City Council regarding issues or concerns not already on the agenda for this meeting. Those wishing to speak will be asked to limit comments to three minutes and to complete a speaker card.

ACCEPTANCE OF THE AGENDA

ANNOUNCEMENTS

*The City Council meets the 2nd and 4th Monday of each month
6:00 p.m. - 7:00 p.m. - Work Session
7:00 p.m. - Regular Meeting of the City Council*

CONSENT AGENDA

1. Approval of June 12, 2023 City Council Regular Meeting Minutes.

BILLS PAYABLE REPORT

For Information Only: Invoices Paid Listing 6-8-23 to 6-22-23

UNFINISHED BUSINESS

2. **Bill No. 6069- An Ordinance Adopting the Annual Budget of the City of Creve Coeur for Fiscal Year 2024. Final Reading and Passage.**
Summary: Adopting the Annual Budget of the City of Creve Coeur for the Fiscal Year 2024, commencing on July 1, 2023 and appropriating funds pursuant thereto. There were two meetings with the Finance Committee and two meetings with the City Council to review the preliminary budget. The Finance Committee submitted a letter of recommendation for the adoption of the proposed budget with some comments for the City Council's consideration.
3. **Bill No. 6070- An Ordinance Authorizing the Issuance of a Conditional Use Permit for a 19,224 Square-Foot Colleges, Universities, and Professional Schools Use, Grand Canyon University, located at 721 Emerson Road, within the Creve Coeur Center Development. Final Reading and Passage.**



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Summary: Ted Bernstein, of Orbis Education, has submitted an application for a Conditional Use Permit for Grand Canyon University, a Colleges, Universities, and Professional Schools use, (NAICS 611310) to be located within Creve Coeur Center development at 721 Emerson Road within Creve Coeur Corporate Center in the "CB" Core Business zoning district. The proposed Accelerated Bachelor's in Nursing Program would move into the existing 19,244 square foot space with no exterior changes. Under Section 405.250, Table A of the Zoning Code, NAICS 611310 requires the issuance of a conditional use permit in the "CB" zoning district subject to the recommendation of the Planning and Zoning Commission and approval of the City Council. The Planning and Zoning Commission recommended approval at the June 5, 2023 Planning and Zoning Commission meeting.

NEW BUSINESS

4. Bill No. 6071- An Ordinance of the City of Creve Coeur, Missouri, Regarding Changes to Retirement Plans for City Employees. First Reading.

Summary: The proposed ordinance establishes cost of living adjustments for retirees, changes benefit structure, closes existing plans, and transfers participants and administration of the city's closed retirement plan to LAGERS.

5. Bill No. 6072- An Ordinance Amending Section 405.390 Planned Zoning Districts of the Zoning Ordinance. First Reading.

Summary: Jason Jaggi, Director of Community Development on behalf of the City of Creve Coeur, has submitted an application to amend Zoning Ordinance Section 405.390, Planned Zoning Districts. The submitted amendments include reducing the minimum site size for planned zoning districts, modifying the eligibility criteria, establishing a new mixed-use type of planned zoning district, and introducing the requirement for approval of a site concept plan to regulate the overall components of a development. Text amendments to the Zoning Ordinance require a public hearing and review by the Planning and Zoning Commission with final approval by the City Council. This item was continued from the May 15, 2023 Planning and Zoning Commission meeting. The Planning and Zoning Commission recommended approval at the June 5, 2023 meeting.

6. Bill No. 6073- An Ordinance Amending Section 405.470.A.27 Conditional



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Uses of the Zoning Code to Remove NAICS 624410 Child Day Care Services from the Additional Requirements within the "PO"- Planned Office and "RO"-Research and Office Park Zoning Districts. First Reading.

Summary: Mark J. Goodman, of Higher Ground Education, Inc, has submitted a zoning ordinance text amendment application to amend Section 405.470.A.27, Conditional Uses, to remove NAICS 624410, Child Day Care Services, from the additional requirements currently assigned to this use when in the "PO"-Planned Office and "RO"-Research and Office Park zoning districts. Under Section 405.470, some conditional uses in certain zoning districts are assigned additional requirements to be met in order for the Conditional Use Permit to be approved, including that they be located on sites of at least 3 acres. NAICS 6244410, Child Day Care Services, is still a Conditional Use per Table A of Section 405.210, Regulation of Uses, in all zoning districts but this amendment would remove it from the additional requirements which will then only apply to this use when in the "A," "B," "C," "D," "AR," and "HE" zoning districts. The applicant plans to seek approval of a Conditional Use permit for their business to be located at 689 Craig Road after text amendment approval has been granted by the Planning and Zoning Commission and City Council.

7. Resolution No. 1649- A Resolution Authorizing the Purchase of Insurance Coverage for the Year Beginning July 1, 2023.

Summary: The City is a member of the St. Louis Area Insurance Trust (SLAIT), a self-insurance pool for liability, worker's compensation and health insurance. The proposed resolution authorizes coverage through SLAIT for the year beginning July 1, 2023, and also authorizes the purchase of other annual insurance policies not provided by SLAIT including public officials' liability, property and cyber coverages.

8. Resolution No. 1650- A Resolution Authorizing the City Administrator of the City of Creve Coeur to Enter into an Agreement with Winning Technologies for the Purchase of Information Technology Management Services.

Summary: Approval of an agreement with Winning Technologies to provide information technology services to the city for \$1,800.00 per month. Services provided by Winning Technologies serve as a supplement to our in-house IT Coordinator and allow the city to maintain IT support with one full-time staff.



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9. Resolution No. 1651- A Resolution Authorizing the Execution of a Preliminary Funding Agreement with 10300 Olive Dev, LLC in the amount of \$50,000.

Summary: Staff recommends entering into a preliminary funding agreement with 10300 Olive Dev, LLC, the developer of the former Bayer West property at the southwest corner of Olive Boulevard and Lindbergh Boulevard in the amount of \$50,000 to be paid by the developer to cover the City's costs for consultants relating to the possible use of economic incentives, land use review and other services required for the city to review the development proposal for this property.

10. Resolution No. 1652- A Resolution Approving a Task Order Agreement with PGAV Planners for Planning and Development Financing Services.

Summary: Staff recommends approving a task order with PGAV Planners for an amount not to exceed \$25,000 for planning and development financing services related to the review of the proposed redevelopment of the former Bayer West property at the southwest corner of Olive Boulevard and Lindbergh Boulevard.

11. Resolution No. 1653- A Resolution of the City Council of the City of Creve Coeur, Missouri Authorizing the Submission of a Purchase Order to Compass Minerals America Inc., under the Cooperative Salt Program, for Purchasing 1050 Tons of Salt for an Amount of \$88,252.50.

Summary: Staff is seeking approval of a contract through the Cooperative Salt Program, which provides winter road salt through a regional cooperative agreement resulting in more competitive pricing.

12. Resolution No. 1654- A Resolution of the City Council of the City of Creve Coeur, Missouri, Authorizing the Execution of the Necessary Documents for Submitting the Project Proposal Application and later for Executing an Agreement for a Grant-in-Aid from the Federal Transportation Improvement Program Grant Commission through the Transportation Alternatives Program for Fernview Drive Sidewalks Project.

Summary: Public Works staff is recommending approval of the resolution authorizing the city to submit an application to pursue grant funding for the Fernview Sidewalk Project.

13. Resolution No. 1655- A Resolution of the City Council of the City of Creve



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Coeur, Missouri, Authorizing the Execution of the Necessary Documents for Submitting the Project Proposal Application and later for Executing an Agreement with the Missouri Highway and Transportation Commission for a Grant-in-Aid through the Federal Transportation Alternatives Program (TAP) Grant for the North New Ballas Phase 3 Sidewalk Project.

Summary: Public Works staff recommends that the City pursue federal funding to assist with the expansion of the sidewalk along the west side of North New Ballas Road between Magna Carta Drive and Rocky Drive.

- 14. Resolution No. 1656- A Resolution of the City Council of the City of Creve Coeur, Missouri, Authorizing the Execution of a Contract with Total Mechanical Services, Inc. for the Replacement of the Ice Rink's R-22 Refrigerant System with an Ammonia Refrigerant System, in the amount of \$2,531,533.**

Summary: The staff is recommending the City of Creve Coeur contract with Total Mechanical Services, Inc. for the replacement of the current R-22 refrigerant system with a new Ammonia based refrigerant system.

APPOINTMENTS

- 15. Annual Board, Committee, and Commission Appointments and Reappointments.**

BUSINESS FROM MAYOR AND CITY COUNCIL

- 16. Council Liaison Reports**

BUSINESS FROM CITY ADMINISTRATOR

ADJOURNMENT

Pursuant to Section 610.022 RSMo., the City Council could, at any time during the meeting, vote to close the public meeting and move to closed session to discuss matters relating to litigation, legal actions and/or communications from the City Attorney as provided under Section 610.021(1) RSMo. and/or personnel matters under Section 610.021(13) RSMo. And/or employee matters under Section 610.021(3) RSMo. and/or real estate matters under Section 610.021(2) or other



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matters as permitted by Chapter 610.

Posted by: _____

Date/Time posted: _____

If you need special accommodations to attend a meeting, services may be arranged by contacting the Office of the City Administrator in advance.



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MINUTES
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CALL TO ORDER

A regular meeting of the City Council of the City of Creve Coeur was called to order by Mayor Robert Hoffman at the City Council Chamber, 300 North New Ballas Rd, City of Creve Coeur Government Center, Creve Coeur, MO 63141 on Monday, June 12, 2023 at 7:00 PM.

PLEDGE OF ALLEGIANCE

Mayor Hoffman led the Pledge of Allegiance.

ROLL CALL

Mayor Robert Hoffman
Council Member, Ward 1 Mark Manlin
Council Member, Ward 1 Heather Silverman arrived at 7:02 PM
Council Member, Ward 2 Tim Carney
Council Member, Ward 2 Nicole Greer
Council Member, Ward 3 Sari Neudorf
Council Member, Ward 3 David Hoffman
Council Member, Ward 4 Joseph Martinich

Council Member, Ward 4 Dan Tierney was Absent

Staff Present: City Administrator Mark Perkins, Assistant City Attorney Stephanie Karr, City Planner Bethany Moore, Director of Finance Lori Obermoeller, Director of Public Works Jim Heines, Assistant City Administrator Sharon Stott, Chief of Police Jeffrey Hartman, Public Information Officer and Management Analyst Melissa Bradford, and City Clerk Kellie Henke.

COMMENTS FROM THE GENERAL PUBLIC

No one requested to speak.

ACCEPTANCE OF THE AGENDA

RESULT: APPROVED (UNANIMOUS)

MOVER: Council Member Ward 3 Hoffman

SECONDER: Council Member Ward 2 Carney

AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf

NOT PRESENT FOR VOTE: Silverman



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The vote on the motion being 6 ayes and 0 nays, motion carried.

ANNOUNCEMENTS

***The City Council meets the 2nd and 4th Monday of each month
6:00 p.m. - 7:00 p.m. - Work Session
7:00 p.m. - Regular Meeting of the City Council***

PUBLIC HEARING

1. Presentation of the FY2024 Annual Budget

Council Member Silverman arrived at 7:02 PM.

Court reporter swore in City Administrator Mark Perkins and Director of Finance Lori Obermoeller, and Mr. Perkins made a presentation regarding the FY2024 Annual Budget.

Council Member Carney confirmed stormwater projects are listed under the Parks and Stormwater Fund and not the Capital Improvement Fund.

Mayor Hoffman recommended increasing the reimbursement amount for the Sewer Lateral Program.

Council Member Martinich confirmed that no additional costs will be made towards the LEGACY Plan once it is no longer in effect. Mr. Perkins stated the City will have sufficient assets to fully fund the liabilities associated with the retired participants and terminated vested participants in the city's defined benefit plan after the active participants are converted to LAGERS.

There being no comments from the public, Assistant City Attorney Stephanie Karr presented exhibits for the record and the public hearing was closed.



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CONSENT AGENDA

RESULT: APPROVED (UNANIMOUS)

MOVER: Council Member Ward 1 Silverman

SECONDER: Council Member Ward 3 Hoffman

AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 7 ayes and 0 nays, motion carried.

2. Approval of May 22, 2023 City Council Regular Meeting Minutes

BILLS PAYABLE REPORT

For Information Only: Invoices Paid Listing 5-18-23 to 6-7-23

UNFINISHED BUSINESS

3. Bill No. 6068- An Ordinance Amending the Personnel Policy and Procedures Manual of the City of Creve Coeur and Amending Related Ordinances. Final Reading and Passage.

City Clerk Read Bill No. 6068 for the final time.

RESULT: APPROVED (UNANIMOUS)

MOVER: Council Member Ward 1 Silverman

SECONDER: Council Member Ward 3 Hoffman

AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 7 ayes and 0 nays, motion carried. Bill No. 6066 becomes Ordinance No. 5841.

NEW BUSINESS

4. Bill No. 6069- An Ordinance Adopting the Annual Budget of the City of Creve Coeur for Fiscal Year 2024. First Reading.

City Clerk read Bill No. 6069 for the first time.



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No one requested additional information.

- 5. Bill No. 6070- An Ordinance Authorizing the Issuance of a Conditional Use Permit for a 19,224 Square-Foot Colleges, Universities, and Professional Schools Use, Grand Canyon University, located at 721 Emerson Road, within the Creve Center Development. First Reading.**

City Clerk read Bill No. 6070 for the first time.

City Planner Bethany Moore provided an overview of the application and stated the Planning and Zoning Commission recommended approval at the June 5, 2023 meeting.

- 6. Resolution No. 1646- A Resolution of the City Council of the City of Creve Coeur, Missouri, in Support of Reimbursement of First Bank for a Portion of Costs Incurred for Burial of Electric Transmission Lines along Olive Boulevard at the First Bank Location.**

City Clerk read Resolution No. 1646.

City Administrator Mark Perkins stated the proposed resolution supports the use of a portion of the remaining Olive Transportation Development District (TDD) funds as partial reimbursement for the utility burial project along Olive Boulevard for First Bank. Mr. Perkins stated the Olive TDD approved funding to First Bank at their last meeting on June 5, 2023.

RESULT: APPROVED (UNANIMOUS) MOVER: Council Member Ward 1 Silverman SECONDER: Council Member Ward 2 Greer AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf, Silverman
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The vote on the motion being 7 ayes and 0 nays, motion carried.

- 7. Resolution No. 1647- A Resolution of the City Council of the City of Creve Coeur, Missouri, Authorizing the Execution of a Contract with Two Alpha Contracting, LLC, for the Alden Lane Stormwater Improvements Project for the Not-to-Exceed Amount of \$57,144.00.**



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City Clerk read Resolution No. 1647.

Director of Public Works Jim Heines provided an overview of the recommended contract with Two Alpha Contracting LLC for the improvement of an existing stormwater management system on Alden Lane. Mr. Heines stated funding for the project will come from the Parks and Stormwater Fund.

RESULT: APPROVED (UNANIMOUS)

MOVER: Council Member Ward 3 Hoffman

SECONDER: Council Member Ward 2 Greer

AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 7 ayes and 0 nays, motion carried.

8. Resolution No. 1648- A Resolution of the City Council of the City of Creve Coeur, Missouri Endorsing Saint Louis County's Grant Program for the City's Waste Reduction Efforts.

City Clerk read Resolution No. 1648.

Public Information Officer Melissa Bradford presented an application for a grant through the St. Louis County Department of Public Health for the 2023 Waste Reduction Grant for the purpose of funding an electronics recycling event scheduled for Thursday, October 19, 2023. Ms. Bradford stated a resolution is required to be submitted along with the application. Ms. Bradford stated the funding amount requested is the same as last year.

Mayor Hoffman confirmed the location of the recycling event will take place at the Congregation B'nai Amoona.

Council Member Neudorf asked for clarification regarding payment for negative value items. To which Ms. Bradford stated if the city is awarded this grant, most of the grant funding would be used to cover fees for negative value items. Once the funding for negative value items is depleted during the event, residents would be required to pay any applicable fees. Other electronics that are not considered negative value items are free to drop off, regardless of whether the grant funding is awarded.



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RESULT: APPROVED (UNANIMOUS)

MOVER: Council Member Ward 1 Silverman

SECONDER: Council Member Ward 3 Hoffman

AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 7 ayes and 0 nays, motion carried.

BUSINESS FROM MAYOR AND CITY COUNCIL

9. Council Liaison Reports

Council Member Silverman stated the Quarterly Police Recognition Ceremony will be held on June 13, 2023 at 5:00 PM.

BUSINESS FROM CITY ADMINISTRATOR

10. City Council Meeting Schedule

City Administrator Mark Perkins confirmed with the Council that enough members will be available during the summer meetings to represent a quorum.

Council Member Silverman moved, seconded by Council Member Manlin, to move both originally scheduled Council meetings in September to Thursday, September 14, 2023 and Tuesday, September 26, 2023.

RESULT: APPROVED (UNANIMOUS)

MOVER: Council Member Ward 1 Silverman

SECONDER: Council Member Ward 3 Hoffman

AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 8 ayes and 0 nays, motion carried.



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ADJOURNMENT

RESULT: APPROVED (UNANIMOUS)

MOVER: Council Member Ward 1 Silverman

SECONDER: Council Member Ward 2 Greer

AYES: Manlin, Greer, Hoffman, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 7 ayes and 0 nays, motion carried.

The meeting adjourned at 7:55 p.m.

Submitted by:

Kellie Henke
City Clerk

Dr. Robert Hoffman
Mayor



FY 2024 Annual Budget

Public Hearing
June 12, 2023



FY24 Annual Budget Overview

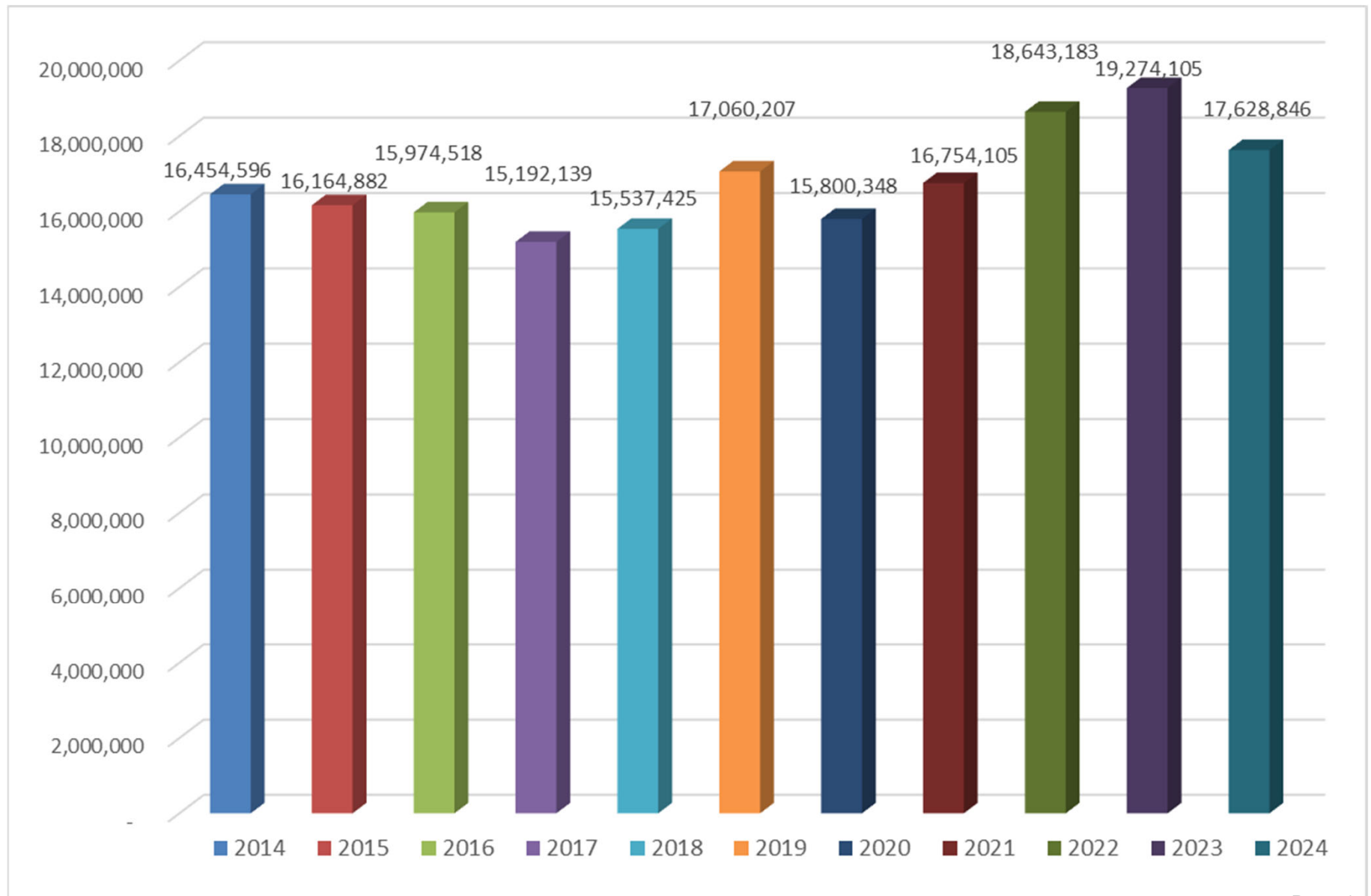
- Proposed budget provides resources for meeting high expectations of the community
- City is strong financially
 - Revenues have been trending upward
 - General Fund unassigned balance of \$17.5M, or 107% of annual expenditures
 - AAA Bond Rating



FY24 Annual Budget Overview

- Revenue growth average of 2.1% over 10 years
 - Growth of 1% over without CARES & ARPA funding
 - General Fund Revenues have increased 9% over last three years excluding CARES & ARPA
- Expenditure growth average of 0.4% over 10 years

General Fund 10 Year Operating Revenue Trend

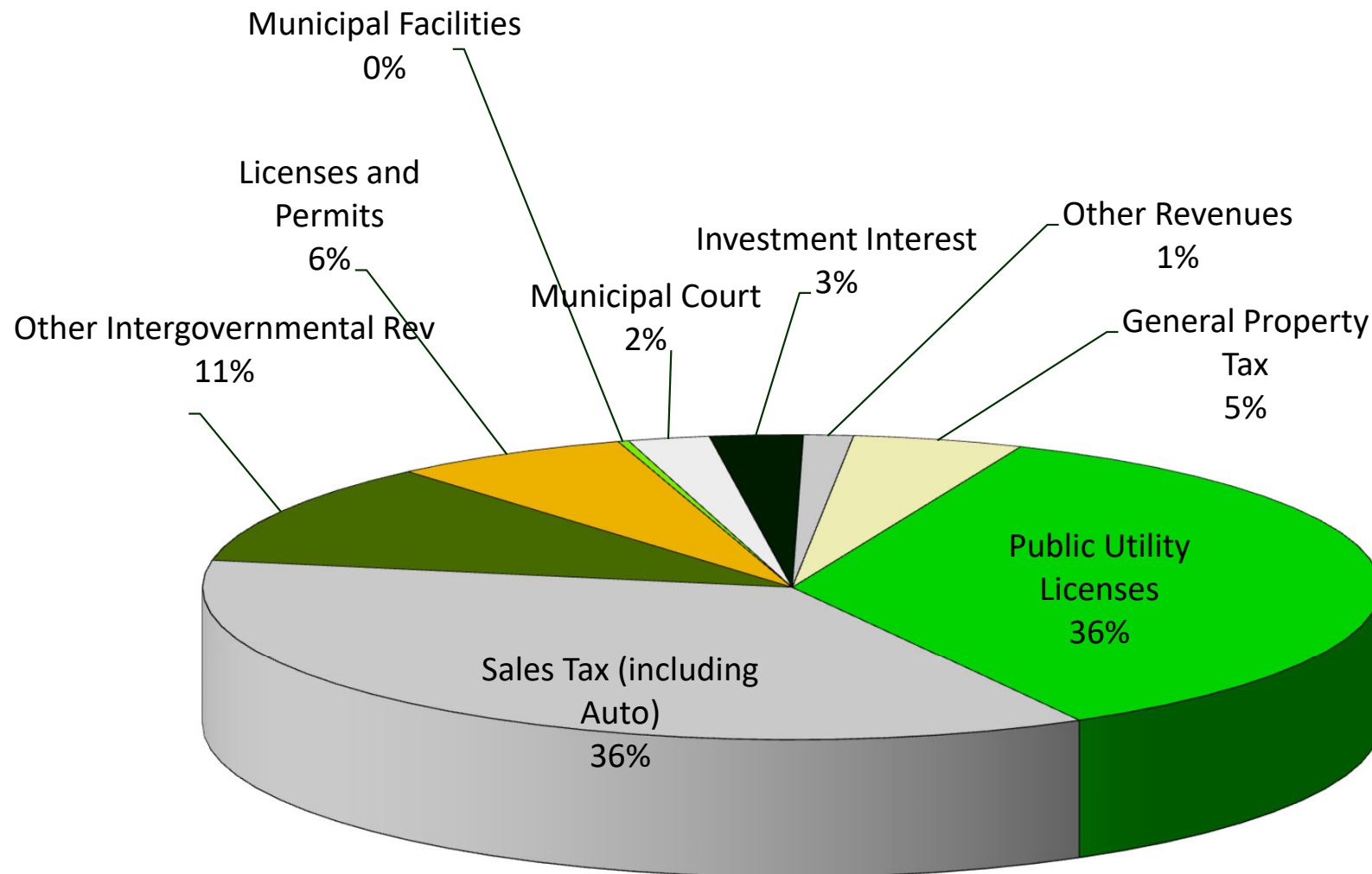




FY24 General Fund Revenues

Sales Tax (including Auto)	\$6,332,431
Public Utility Tax	\$6,269,755
Other Intergovernmental Rev	\$1,914,621
Licenses and Permits	\$1,151,285
General Property Tax	\$824,655
Investment Interest	\$450,000
Municipal Court	\$393,640
Other Revenues	\$240,459
Municipal Facilities	\$52,000
Total	\$17,628,846

General Fund Revenues by Class





General Fund Revenues

- Sales Tax: +26% since FY21;
 - Projected increase of 2% in FY24

- Utility Tax: + 11% since FY21
 - Projected increase of 4% in FY24

- Building Permits
 - Projected decrease of 23% in FY24, based on 5-year avg.



General Fund Revenues

- Real Estate Tax:
 - Projected increase of 6% in FY24
 - Amount of increase is limited to rate of inflation and any new construction
 - Real estate taxes comprise less than 5% of city's General Fund Revenues
 - Tax rate is projected to decrease from \$.073 to \$.067 for residential and from \$.083 to \$.068 for commercial per \$100 AV due to reassessment year



General Fund Revenues

- Sales Tax Sharing
 - 1993 Legislation requires sharing by “A Point of Sale” cities based on sliding scale formula
 - Annexed Areas - “B Pool” – Shared County-wide based on population
 - Creve Coeur includes both “A” and “B” Areas
 - “A” City - \$5.9M less \$1M sharing
 - “B” City - \$1.1M

FY24 General Fund Transfers



- Transfer In from Public Safety Fund: \$371,606
 - PD moved to 12-hour shift in FY19; Market equity and Step Plan pay adjustments in FY22 and FY23

- Transfer in from Park & Stormwater Fund: \$582,434
 - Represents 20% of P&S Sales Tax revenues to offset a portion of park and stormwater operations and maintenance

- Transfer out to Capital Improvement Fund: \$400,000
 - A portion of county road & bridge tax revenue, to pay for road improvements



General Fund Reserves

FY24 Projected Ending Balance - \$21.6M

- City Policy – Reserve shall be no less than 33% of annual expenditures
- A portion of city's fund balance is proposed for dedication to future specific purposes:
 - \$3M dedicated for future facility needs
 - \$1M added each year going forward
 - \$1M dedicated to future street improvements

FY24 Projected Unassigned Ending Balance - \$17.4M or 106.6%



General Fund Expenditures By Category

	FY23 Estimated	FY24 Projected	% Change
Personnel Services	\$10,911,552	\$11,818,856	8.3%
Operating Expenses	\$4,355,131	\$4,685,888	7.6%
Capital Outlay	\$515,056	\$502,980	(2.3%)
TOTAL	\$15,781,739	\$17,007,724	7.8%



General Fund Personnel FY24

- 3% Increase in Minimum & Maximum Salary Ranges for all Positions, in addition to changing many positions into higher salary grades
- 3% Cost of Living Adjustment
- Step Plan for all Non-Exempt Commissioned Officers (increase steps 3.5%)
- 4% Merit Increase for all Employees not in a Step Plan
- 3.5% Increase for each Step
- Total All Salary Adjustments is \$483,956

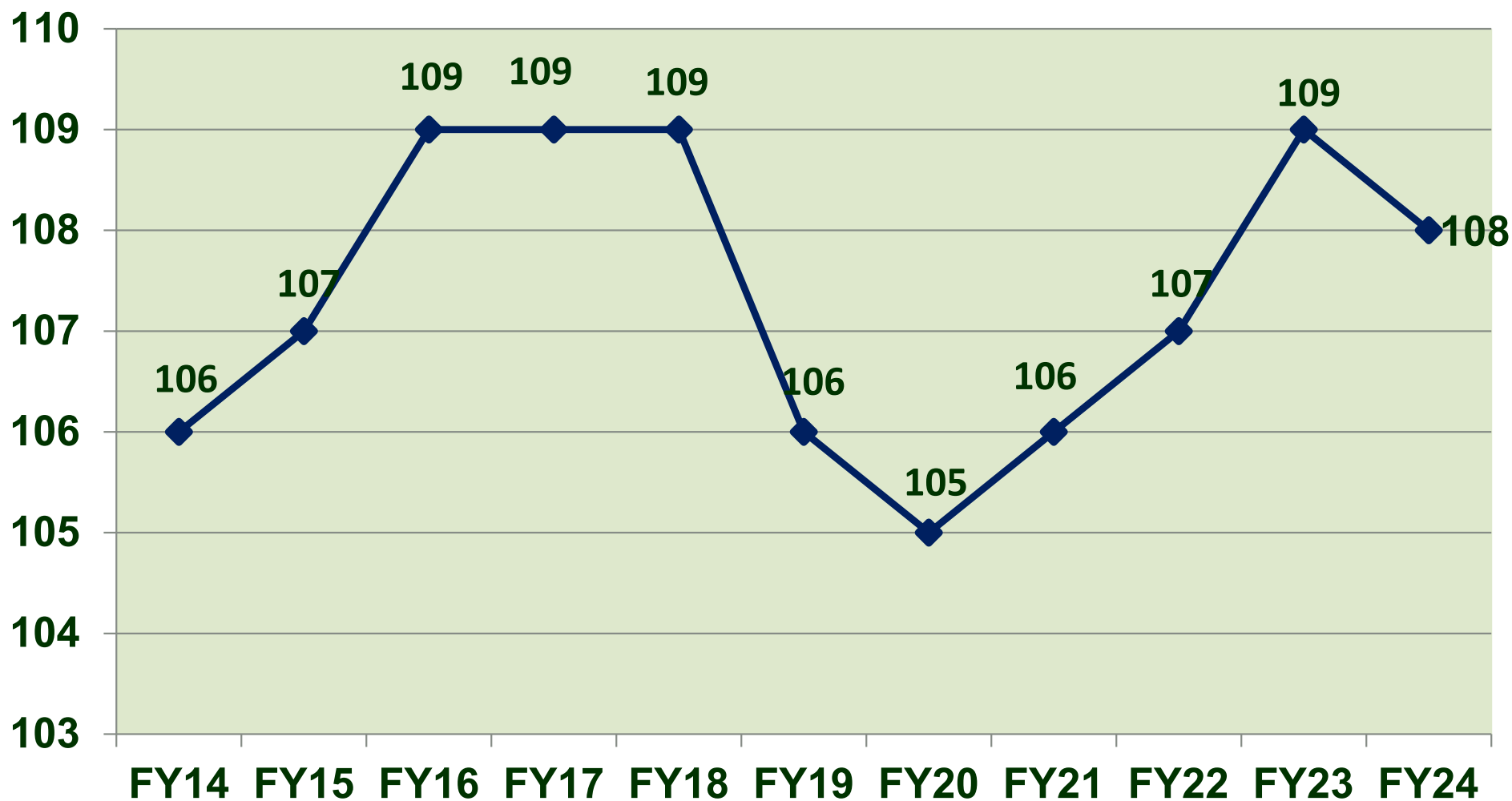


General Fund Personnel

- Full-time staffing decreased from 109 to 108
 - Added 1 Police Officer for Academy Instructor
 - Salary and benefits to be paid by County
 - Reduced 1 CD Administrative Staff to PT
 - Reduced 2 Residential Inspectors to 1 Building Inspector

10-Year Staffing Levels

FULL-TIME PERSONNEL



Local Gov't Employees Retirement System (LAGERS)



- On August 1, 2017, the City closed its Defined Contribution Plan and transitioned employees hired since June 1, 2006 to LAGERS
- Employees contribute 4% of their salary (approximately \$228,335)
- FY24 City contribution is \$422,266 up from \$358,948
- 85 Active Participants



Health Insurance

- Creve Coeur is 1 of 17 cities/agencies that comprise the St. Louis Area Insurance Trust (SLAIT) self-insured health program
- Health Insurance Premium increase of 4% for FY24 – additional \$50K per year
- Total City Cost FY24 - \$1,239,520
- Spousal Surcharge (\$200/month) – estimated city savings of \$123K annually

General Fund Operating Expenditures



- West Central Dispatch Center (\$655,977 – up \$31,237 or 5%)
- Trash & recycling service for single family homes and condos (\$871,555)
 - 18.6% of General Fund non-personnel costs
 - 4% budgeted increase in FY24 (\$33,525)

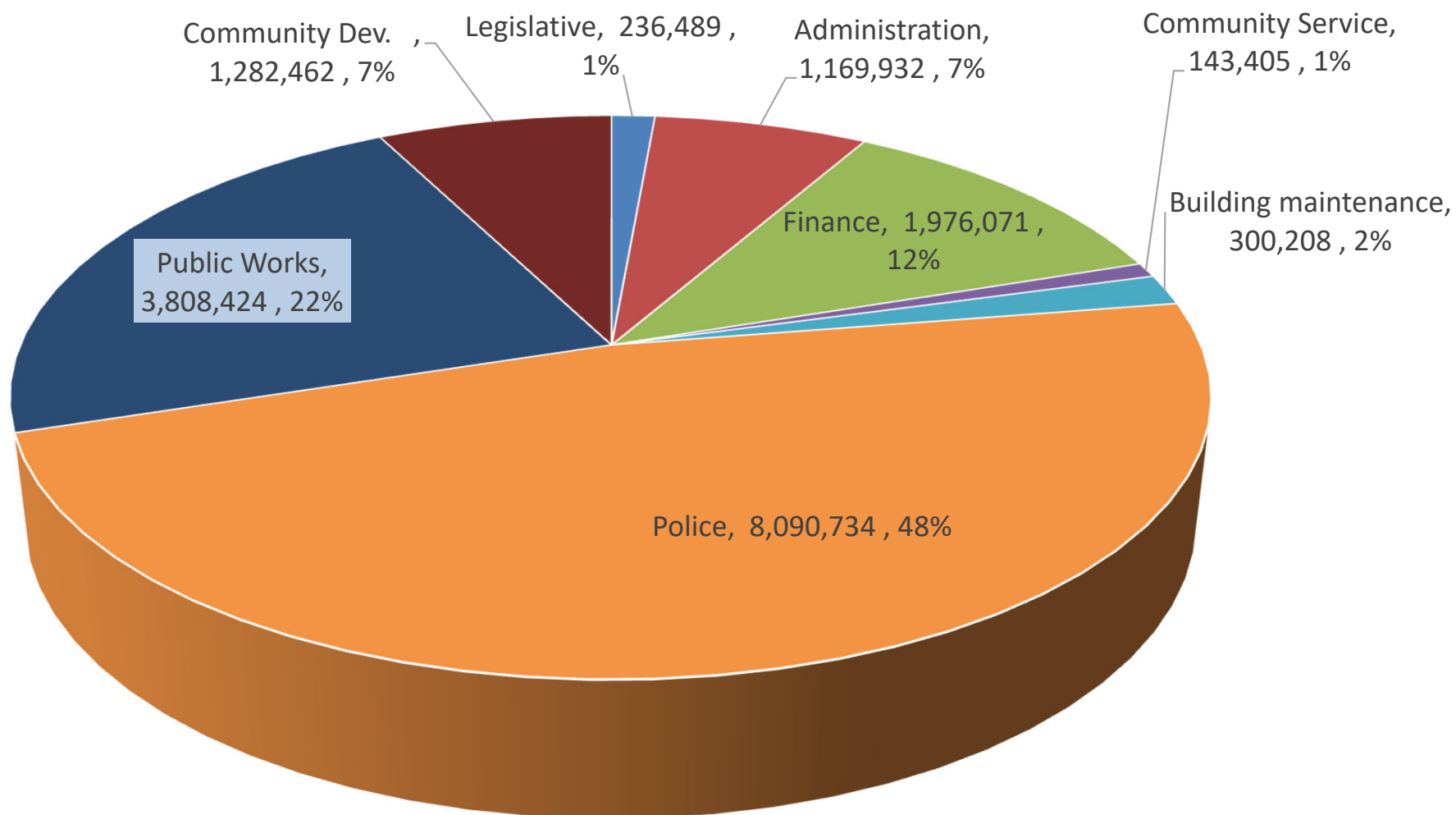


General Fund Capital Outlay

□ Police:

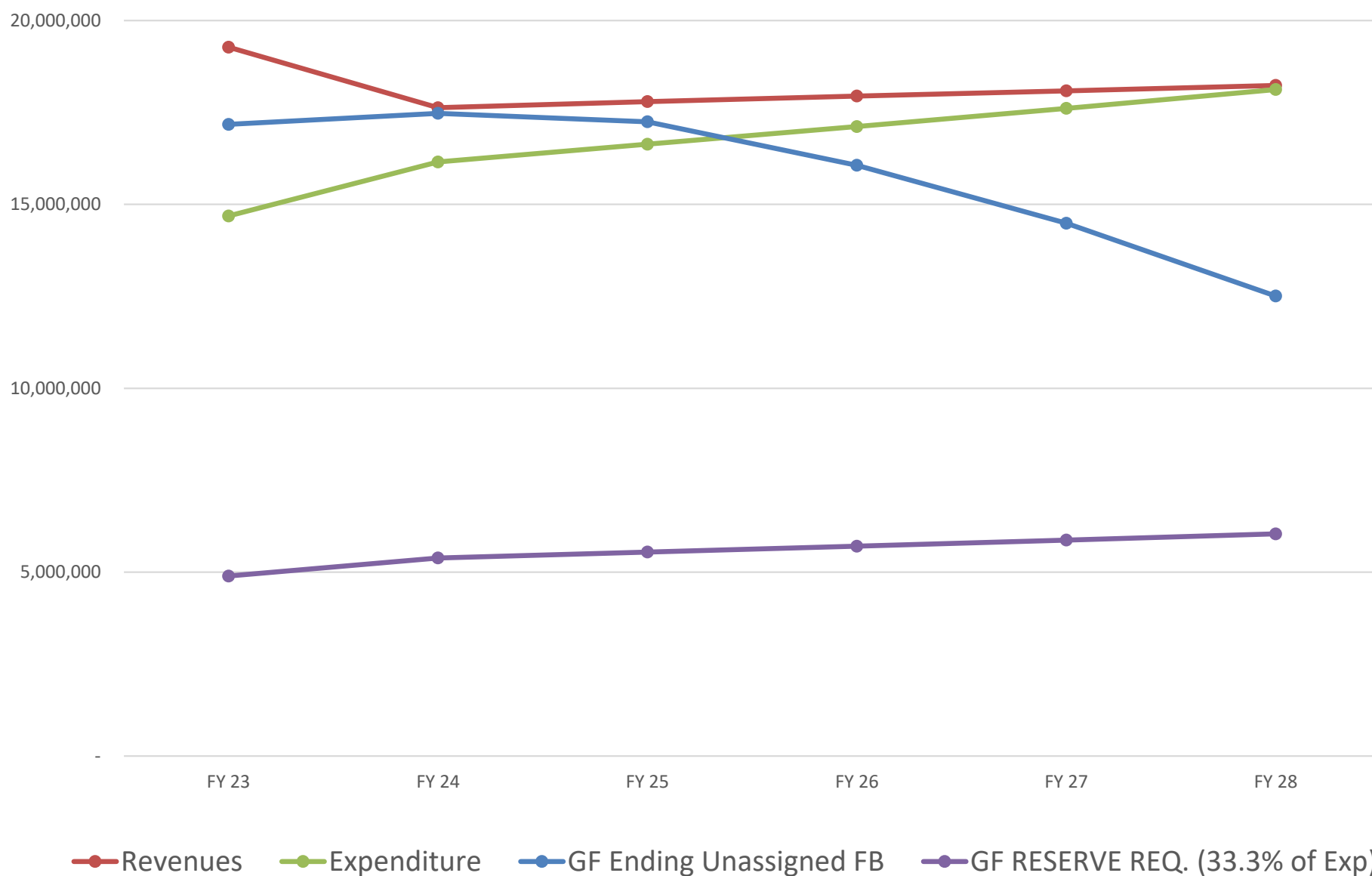
- (6) 2023 Hybrid Ford Interceptor Utility Patrol (\$388,800) - Replacement of (6) Patrol Vehicles (includes vehicle equipment & Changeover)
- Replacement Vests (22) - (\$18,700)
- Replacement Tasers (9) - \$17,010

General Fund Expenditures By Department





General Fund 5 Year Projections





Employees Retirement Fund

- Closed to new participants in 2006, known as the “Legacy Fund”

- 135 Participants as of 7/1/22
 - 27 Active Participants
 - 89 Retired Participants
 - 19 Terminated Vested Participants



Employees Retirement Fund

- FY24 budgeted City contribution \$1,062,820 up from \$965,205 (9% increase)
 - 20% of Public Safety Sales Tax Funds will offset a portion of City's cost (\$242,162)
- FY24 Employee contribution of \$78K
- Interest Earnings Assumption of 6%



Employees Retirement Fund

Beginning Year Balance	\$29,055,119
Revenues	\$2,884,327
Expenditures	(\$2,301,690)
Transfers-In GF	\$0
FY24 Ending Fund Balance	\$29,637,756

Employees Retirement Plan Proposal



- Move 23 employees to LAGERS & Upgrade to LAGERS L6
- Modify Legacy Plan to include .75% COLA for each year of retirement since 2002
- Modify Legacy Plan to include .50% COLA for each year moving forward
- Freeze Plan & have LAGERS assume Administration of the Legacy Plan



Employees Retirement Plan Proposa

- LAGERS L-6 plan will make Creve Coeur more competitive with market
- Current Retirees will receive a COLA for the first time since 2002
- Moving Administration of Legacy Plan will result in cost savings and reduced fiduciary liability.



Employees Retirement Plan Proposa

- A separate budget amendment will be presented to City Council in conjunction with Legacy Plan / COLA legislation



Capital Improvement Fund (1 of 2)

- Funding from half-cent sales tax; subject to 15% county sharing
- Revenues projected to be \$2,470,850
- Funding from outside sources projected to be \$4,415,945
 - Includes \$1,670,535 in ARPA Funds

Capital Improvement Fund (2 of 2)



- CIP Fund Expenditures for FY 2024 by category:
 - Building & Improvements (\$492,500)
 - Park and Recreational Facilities (\$2,723,000)
 - Street & Sidewalk Improvements (\$4,271,500)
 - Capital Equipment (\$674,000)
 - Personnel (\$153,104)



Debt Service Fund

- Voters approved \$10.7 million bond issue in 2016 to build a new police station
- \$0.082 tax levy on real estate and property taxes for 20 years – remains same due to defeasance in FY23
- Revenues from tax & interest in FY24: \$919,400
- Expenses from principal & interest in FY24: \$974,100



Public Safety Fund

- Half cent County-wide sales tax disbursed to cities on per capita basis
- Funding from Sales Tax projected to be \$1,235,028 in FY24 (2% increase)

Public Safety Fund (Cont.)

- Expenses in FY24 (\$1,133,437) include:
 - Ongoing Personnel Costs to transition from 8 hour shift to 12 hour shift from FY19, Market Equity adjustments in FY22 & Market Equity in FY23 (\$371,606)
 - 20% of sales tax used for offsetting police legacy retirement plan (\$242,162)
 - Operating Costs for the new Police station (\$157,539)
 - Other Police Operating Costs (\$216,870) – includes \$34,500 for Scheduling & FTO Training Software



Public Safety Fund (Cont.)

Capital Expenditures (\$145,260)

- Millennium Park Cameras (\$12,000)
- PD Interview Camera Storage (\$9,900)
- 3 Flock LPR Cameras (\$9,000)
- Snap-On Coded Reader & Scanner (\$7,000)
- 20 Replacement Carriers for Patrol (\$17,000)
- 8 Walkie Talkie Replacements (\$64,000)



Parks & Stormwater Fund

- Half cent County-wide sales tax – not subject to county sharing formula
- Funding from Sales Tax projected to be \$2,970,412 in FY24
- \$749,533 dedicated to future park improvements
 - Proceeds from sale of Fountain Park
 - Moved from General Fund

Parks & Stormwater Fund

- Expenses in FY24 (\$4,241,295) include:
 - Park Projects (\$2,953,000)
 - Stormwater Projects (\$1,120,000)
 - Capital Equipment (\$30,000)
 - Personnel Costs (\$137,795)



Municipal Enterprise Fund

- Golf Course & Ice Arena budgets are accounted for in the Municipal Enterprise Fund (MEF)
- Goal is for MEF to cover all operating costs with user fees.



Municipal Enterprise Fund

- Financial health of the MEF Continues to Improve due to:
 - Golf Course continues to see higher usage
 - Recent rate increases
- Beginning Fund Balance Projected for FY24: \$300,153
 - No Need for transfers from General Fund
 - MEF should be able to fund some capital improvements in future



Enterprise Fund FY24

- Operating revenues estimated to increase \$28,168 or 2% for FY24
- Revenues have increased average 3.9% per year over 10 years



Enterprise Fund FY24

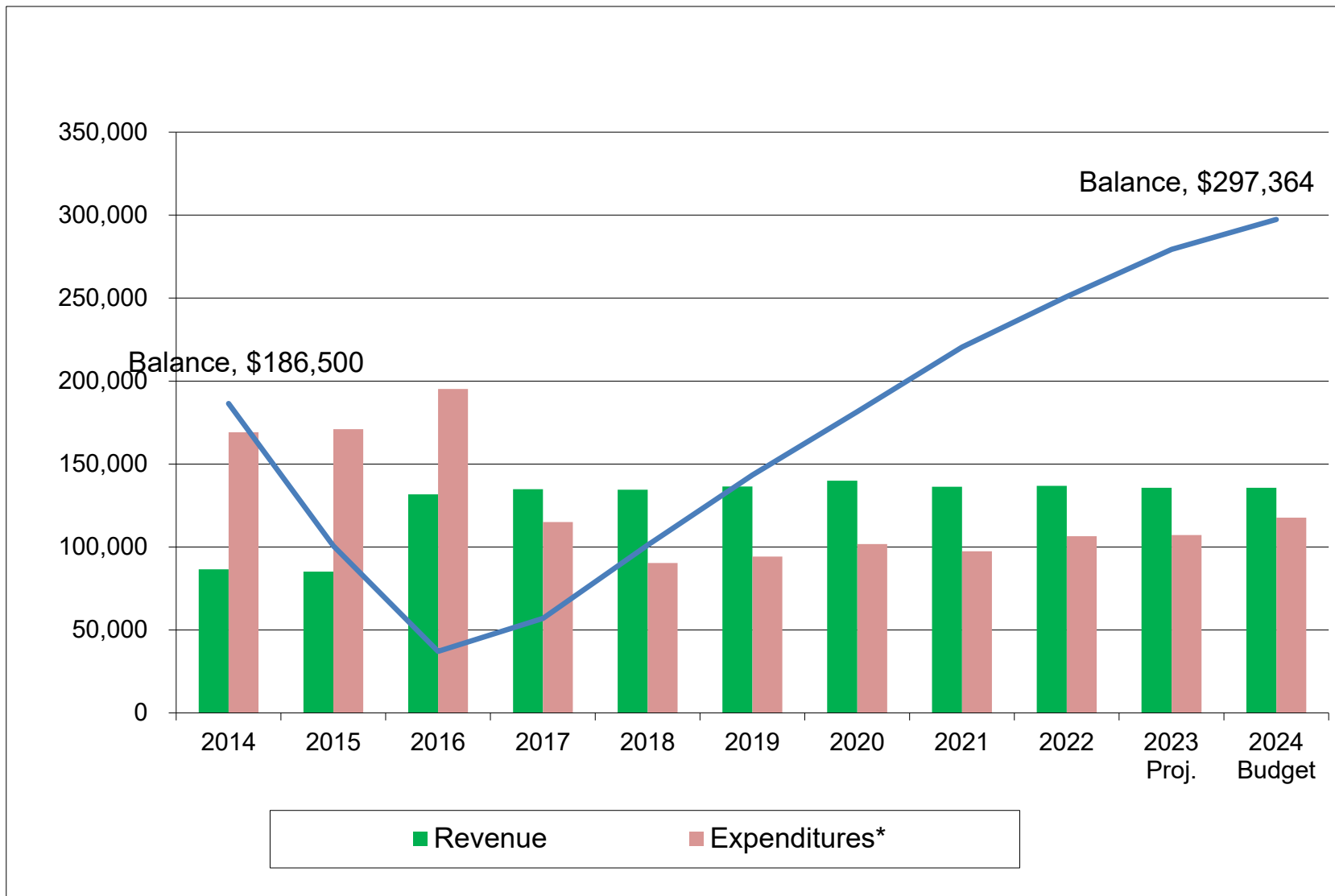
- Operating expenses estimated to increase \$37,059 or 2.9%
- Expenditures have increased average 3.4% per year over 10 years



Sewer Lateral Fund

- As of January 1, 2017, provides reimbursement of 50% or up to \$7,500 for costs associated with broken lateral lines
- Funded by \$28 property tax assessed on all residential property
- FY23 projected operating revenues \$135,500; expenditures \$107,228
- FY24 estimated operating revenues \$135,500; expenditures \$117,654

Sewer Lateral Revenues Expenses & Fund Balance



FY2024 Budget Revisions - 5/30/23



- Added 1 Police Officer as Academy Instructor – Salary and benefits to be covered by county
- Reclassified Golf Maintenance Superintendent to Golf Course Manager
- Increase Building Inspector by 1 and Decrease Residential Building Inspector by 1
- These changes primarily changed the Personnel Pages & Not the Dollar Amounts



FY2024 Annual Budget

- Finance Committee reviewed the proposed budget on April 25 and May 9, and recommended approval.



Questions & Answers



MEMORANDUM

DATE: June 22, 2023

TO: Mark Perkins, City Administrator

FROM: Lori Obermoeller, Director of Finance

SUBJECT: Invoices Paid Listing

For your information and transmittal to the City Council, attached is a list of paid invoices from June 8, 2023 through June 22, 2023 in the amount of \$470,864.22.



Creve Coeur, MO

Council Report of invoices Paid Listing

By Fund

Payment Dates 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
Fund: 01 - GENERAL FUND						
DEPARTMENT OF TREASURY	INV0001779	06/09/2023	SOCIAL SECURITY	01-2102	DFT0007124	1,833.10
DEPARTMENT OF TREASURY	INV0001779	06/09/2023	MEDICARE	01-2103	DFT0007124	428.70
DEPARTMENT OF TREASURY	INV0001779	06/09/2023	FEDERAL WITHHOLDING	01-2104	DFT0007124	503.13
PAYROLL MISSOURI	INV0001780	06/09/2023	STATE WITHHOLDING	01-2105	DFT0007125	228.00
WITHHOLDING TAXES						
PAYROLL-MS CONTRIBUTION	INV0001781	06/09/2023	ICMA ROTH IRA %	01-2319	DFT0007128	106.84
FAMILY SUPPORT DIVISION- CHILD SUPPORT OFFICE	INV0001782	06/09/2023	CHILD SUPPORT	01-2113	DFT0007129	184.62
EDB-COMMERCE BANK	INV0001783	06/09/2023	EDB EMPLOYEE DEFINED BE	01-2320	DFT0007130	2,847.66
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ER PENSION 10%	01-2312	DFT0007131	747.02
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ER PENSION 3%	01-2312	DFT0007131	1,911.62
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ICMA ROTH 457 \$	01-2318	DFT0007131	1,550.77
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ICMA ROTH 457 %	01-2318	DFT0007131	2,189.44
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ICMA ROTH IRA \$	01-2319	DFT0007131	494.62
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ICMA 457 \$	01-2322	DFT0007131	7,696.58
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ICMA 457 %	01-2322	DFT0007131	1,839.03
PAYROLL-MS CONTRIBUTION	INV0001784	06/09/2023	ICMA 457 \$	01-2322	DFT0007131	627.47
MOST-MISSOURI'S 529 SAVINGS PLAN	INV0001785	06/09/2023	MOST 529 COLLEGE SAVINGS	01-2323	DFT0007132	865.00
VOYA	INV0001786	06/09/2023	VOYA 457 %	01-2321	DFT0007133	1,976.14
DEPARTMENT OF TREASURY	INV0001787	06/09/2023	SOCIAL SECURITY	01-2102	DFT0007134	35,761.76
DEPARTMENT OF TREASURY	INV0001787	06/09/2023	MEDICARE	01-2103	DFT0007134	8,363.60
DEPARTMENT OF TREASURY	INV0001787	06/09/2023	FEDERAL WITHHOLDING	01-2104	DFT0007134	27,131.07
PAYROLL MISSOURI	INV0001788	06/09/2023	STATE WITHHOLDING	01-2105	DFT0007135	10,562.00
WITHHOLDING TAXES						
CHRISTOPHER BONADIES	23JUN INS REFUND	06/15/2023	HEALTH INSURANCE REFUND	01-2211	66125	101.06
JIM GOTTSCHALK	23JUN INS REFUND	06/15/2023	DENTAL REFUND	01-2213	66129	24.18
JIM GOTTSCHALK	23JUN INS REFUND	06/15/2023	COBRA VISION	01-2224	66129	-0.81
WASHINGTON NATIONAL INS CO	P2331651	06/15/2023	WG00006955, 02413 JUN 23	01-2215	87	437.70
BABYATION INC	23BL REFUND	06/22/2023	REFUND OVERPAYMENT BUS	01-4402	66156	30.00
M I INDUSTRIES INC	23BL REFUND	06/22/2023	REFUND OVERPAYMENT BUS	01-4402	66163	245.00
						108,685.30
						108,685.30

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
Department: 11 - LEGISLATIVE SERVICES						
Division: 13 - CITY CLERK						
BRIDGE TOWER MEDIA	745615289	06/22/2023	PUBLIC NOTICE - TEXT AMEN	01-11-13-6260	66157	79.73
Division 13 - CITY CLERK Total:						79.73
Department 11 - LEGISLATIVE SERVICES Total:						79.73
Department: 12 - ADMINISTRATION						
Division: 11 - ADMINISTRATIVE						
MERCY CORPORATE HEALTH	676417	06/15/2023	PRE-EMPLOYMENT SCREENI	01-12-11-6271	66133	55.25
ASI	A000178635057T5	06/15/2023	HRA & FSA ADMIN FEES MAY	01-12-11-6203	66122	378.00
PAYLOCITY CORPORATION	INV1427619	06/22/2023	COBRA ADMINISTRATION	01-12-11-6203	66169	26.00
Division 11 - ADMINISTRATIVE Total:						459.25
Division: 14 - MUNICIPAL COURT						
RICOH USA, INC	107265563	06/22/2023	COURT COPIER LEASE 5/18/2	01-12-14-6213	66172	259.03
MMACJA	FY23 DUES	06/22/2023	MEMBERSHIP DUES 2023 E	01-12-14-6262	66167	200.00
ENGELMEYER & PEZZANI LLC	JUDGE JUN 23	06/22/2023	FY23 JUDICIAL SERVICES JUN	01-12-14-6201	66159	1,674.00
Division 14 - MUNICIPAL COURT Total:						2,133.03
Department 12 - ADMINISTRATION Total:						2,592.28
Department: 13 - FINANCE						
Division: 11 - ADMINISTRATIVE						
PAYROLL MISSOURI	INV0001788	06/09/2023	STATE WITHHOLDING	01-13-11-6202	DFT0007135	0.50
WITHHOLDING TAXES						
TYLER TECHNOLOGIES	025-427747	06/22/2023	TYLER TUTORING SERVICES	01-13-11-6261	66175	450.00
Division 11 - ADMINISTRATIVE Total:						450.50
Division: 15 - INTERDEPARTMENTAL						
CHARTER COMMUNICATION	0353198060123	06/15/2023	PD PRI FIBER JUN 23	01-13-15-6253	66123	1,430.87
CHARTER COMMUNICATION	0403845060823	06/15/2023	CITY HALL TV WIFI 6/8/23-7/	01-13-15-6253	66124	213.80
KONICA MINOLTA BUSINESS SOLUTIONS	287356234	06/15/2023	ADMIN COPIER MAINTENAN	01-13-15-6213	66131	67.10
ODP BUSINESS SOLUTIONS LLC	315910623001	06/15/2023	LASER POINTER PEN	01-13-15-7312	66141	51.99
ODP BUSINESS SOLUTIONS LLC	315910794001	06/15/2023	ADVIL	01-13-15-7312	66141	20.19
ODP BUSINESS SOLUTIONS LLC	315910795001	06/15/2023	PENS FILE FOLDERS COIN E	01-13-15-7312	66141	125.29
ODP BUSINESS SOLUTIONS LLC	318032810001	06/15/2023	PRINTING CALCULATOR	01-13-15-7312	66141	98.25
SCHAEFER AUTOBODY CENTERS INC	744337	06/15/2023	DEDUCTIBLE FOR CAR 2427	01-13-15-6220	66146	2,500.00
PETTY CASH	MAR-JUN 23	06/15/2023	FIRST CLASS MAIL FOR COUR	01-13-15-6269	66142	3.90
ST LOUIS AREA INSURANCE TRUST	SLA220408	06/15/2023	SLA220408 DEDUCTIBLE 11/	01-13-15-6220	66149	500.00
ST LOUIS AREA INSURANCE TRUST	SLA230092	06/15/2023	SLA230092 DEDUCTIBLE 3/2	01-13-15-6220	66149	500.00

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
ODP BUSINESS SOLUTIONS LLC	313884617002	06/22/2023	TONER	01-13-15-7312	66168	875.12
AT&T	314-983-2705-076-0-06/07/	06/22/2023	MONITOR LINE ICE ARENA 6/	01-13-15-6253	66155	112.33
Division 15 - INTERDEPARTMENTAL Total:						6,498.84
Division: 51 - MIS OPERATIONS						
CHARTER COMMUNICATION	0403845060823	06/15/2023	CITY HALL TV WIFI 6/8/23-7/	01-13-51-6213	66124	97.98
DELL MARKETING LP	10678610371	06/22/2023	DELL OPTIPLEX MICRO 7010	01-13-51-7331	89	855.03
Division 51 - MIS OPERATIONS Total:						953.01
Department 13 - FINANCE Total:						7,902.35
Department: 14 - COMMUNITY SERVICES						
Division: 11 - ADMINISTRATIVE						
REGAL MIDWEST, INC.	2261	06/15/2023	H2H 5K RUN PARTICIPANT TS	01-14-11-6281	66143	2,963.05
US BANK EQUIPMENT	502538267	06/15/2023	DRC PRINTER USE CHARGES	01-14-11-6213	66152	37.04
FINANCE						
MYRLYNN HENLEY	117B	06/22/2023	TAI CHI INSTRUCTION 5/23-6	01-14-11-6202	98	513.75
Division 11 - ADMINISTRATIVE Total:						3,513.84
Department 14 - COMMUNITY SERVICES Total:						3,513.84
Department: 16 - MUNICIPAL FACILITIES MAINTENANCE						
Division: 11 - ADMINISTRATIVE						
AMERENUE	55031-62002-06/13/23	06/13/2023	ELECTRIC CITY HALL APR-MA	01-16-11-6250	DFT0007193	3,524.23
MISSOURI AMERICAN WATER CO	1017-210013915103-06-01-	06/15/2023	300 N NEW BALLAS RD DOM	01-16-11-6254	66136	860.04
KEEVEN BROTHERS INC	15131	06/15/2023	SOD FOR CITY HALL	01-16-11-6212	66130	541.08
HOME DEPOT CREDIT SERVICES	3054023	06/15/2023	TERRY CLOTH PACK FAUCET	01-16-11-6212	66128	76.23
SAMS CLUB/SYNCHRONY BANK	4201PFVYYX	06/15/2023	LOUNGE SUPPLIES FOR CITY	01-16-11-7304	66145	568.46
HOME DEPOT CREDIT SERVICES	5074452	06/15/2023	CAULK PAINTING SUPPLIES	01-16-11-6212	66128	302.49
HOME DEPOT CREDIT SERVICES	6020433	06/15/2023	ZINC PLATED SCREWS DROP	01-16-11-6212	66128	103.96
ARAMARK UNIFORM SERVICES	6170129390	06/15/2023	PD AND CITY MAINTENANCE	01-16-11-7308	82	22.62
ARAMARK UNIFORM SERVICES	6170132013	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	12.57
ARAMARK UNIFORM SERVICES	6170135192	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	23.37
ARAMARK UNIFORM SERVICES	6170137825	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	13.33
ARAMARK UNIFORM SERVICES	6170140420	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	13.33
ARAMARK UNIFORM SERVICES	6170143049	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	13.33

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
ARAMARK UNIFORM SERVICES	6170145646	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	13.33
ARAMARK UNIFORM SERVICES	6170148272	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	13.33
ARAMARK UNIFORM SERVICES	6170150843	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	13.33
ARAMARK UNIFORM SERVICES	6170153441	06/15/2023	PD AND CITY HALL MAINTEN	01-16-11-7308	82	13.33
PETTY CASH	MAR-JUN 23	06/15/2023	BRASS ELBOW SWIVEL NUT	01-16-11-7304	66142	9.01
PETTY CASH	MAR-JUN 23	06/15/2023	CONNECTORS AND BRASS N	01-16-11-7304	66142	8.36
PETTY CASH	MAR-JUN 23	06/15/2023	SWIVEL NUT AND HALF UNI	01-16-11-7304	66142	7.57
PETTY CASH	MAR-JUN 23	06/15/2023	BRASS TEE FLARE FITTING PI	01-16-11-7304	66142	28.64
CHUCKS ACQUISITION CO LL	23-1475	06/22/2023	BOOTS FOR PAT BENTRUP	01-16-11-7308	88	174.95
WIEGMANN ASSOCIATES	78767	06/22/2023	COOLING TOWER REPAIR	01-16-11-6211	103	547.50

Division 11 - ADMINISTRATIVE Total: 6,904.39

Department 16 - MUNICIPAL FACILITIES MAINTENANCE Total: 6,904.39

Department: 21 - POLICE

Division: 11 - ADMINISTRATIVE

SAMS CLUB/SYNCHRONY BANK	24014AWERA	06/15/2023	SNACKS FOR CITIZENS POLIC	01-21-11-7314	66145	16.70
ARAMARK UNIFORM SERVICES	6170129390	06/15/2023	PD AND CITY MAINTENANCE	01-21-11-7308	82	22.62
ARAMARK UNIFORM SERVICES	6170132013	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	12.57
ARAMARK UNIFORM SERVICES	6170135192	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	23.38
ARAMARK UNIFORM SERVICES	6170137825	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	13.32
ARAMARK UNIFORM SERVICES	6170140420	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	13.32
ARAMARK UNIFORM SERVICES	6170143049	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	13.32
ARAMARK UNIFORM SERVICES	6170145646	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	13.32
ARAMARK UNIFORM SERVICES	6170148272	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	13.32
ARAMARK UNIFORM SERVICES	6170150843	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	13.32
ARAMARK UNIFORM SERVICES	6170153441	06/15/2023	PD AND CITY HALL MAINTEN	01-21-11-7308	82	13.32
VERIZON WIRELESS SERVICES LLC	9936519638	06/15/2023	TABLETS AND AIRCARDS PD	01-21-11-6253	66154	320.08
FLORISSANT PSYCHOLOGICAL SERVICES I	SAYROB	06/15/2023	PRE-EMPLOYMENT SCREENI	01-21-11-6203	66127	450.00

Division 11 - ADMINISTRATIVE Total: 938.59

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
Division: 21 - INVESTIGATION						
LEXISNEXIS	1432814-20230531	06/15/2023	05/23 - 1 SEARCH 2 USERS	01-21-21-6202	66132	222.24
HOME DEPOT CREDIT SERVICES	7902756	06/15/2023	STORAGE BINS FOR INVESTIG	01-21-21-7302	66128	45.92
Division 21 - INVESTIGATION Total:						268.16
Division: 22 - PATROL						
APPLIED CONCEPTS STALKER RADAR	S286382	06/13/2023	DSR 2 ANTENNA RADAR	01-21-22-9503	66121	2,995.00
VALVOLINE LLC	213624	06/15/2023	OIL CHANGE FOR CAR 2413	01-21-22-6210	66153	39.98
MERCY CORPORATE HEALTH	677682	06/15/2023	PRE-EMPLOYMENT SCREENI	01-21-22-6271	66133	700.25
HOME DEPOT CREDIT SERVICES	9378911	06/15/2023	MODULAR TOOL BOX	01-21-22-7302	66128	49.97
Division 22 - PATROL Total:						3,785.20
Department 21 - POLICE Total:						4,991.95
Department: 31 - PUBLIC WORKS						
Division: 11 - ADMINISTRATIVE						
US BANK EQUIPMENT FINANCE	502537871	06/15/2023	Copier Lease & Maintenance	01-31-11-6213	66152	224.51
PETTY CASH	MAR-JUN 23	06/15/2023	VEHICLE REGISTRATION FOR	01-31-11-6202	66142	14.50
Division 11 - ADMINISTRATIVE Total:						239.01
Division: 41 - STREET MAINTENANCE						
AMERENUE	55031-62002-06/13/23	06/13/2023	ELECTRIC STREET DEPT APR-	01-31-41-6250	DFT0007193	1,036.27
AMERENUE	55031-62002-06/13/23	06/13/2023	ELECTRIC STREET LIGHTING	01-31-41-6251	DFT0007193	10,458.15
HUMAN RESOURCE STAFFIN	1001073961	06/15/2023	PW TEMPORARY EMPLOYEE	01-31-41-6207	83	945.94
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	160 N NEW BALLAS RD IRRIG	01-31-41-6254	66138	59.19
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	198 N NEW BALLAS RD IRRIG	01-31-41-6254	66138	65.15
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	1030 N LINDBERGH BLVD 04/	01-31-41-6254	66138	18.20
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	533 N NEW BALLAS RD IRR3	01-31-41-6254	66138	40.56
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	451 N NEW BALLAS RD IRR3	01-31-41-6254	66138	35.35
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	6 BEACON HILL LN IRRIG 04/	01-31-41-6254	66138	53.02
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	740 N NEW BALLAS RD IRR1S	01-31-41-6254	66138	33.11
NEW FRONTIER MATERIALS LLC	12657107	06/15/2023	BOOTH BAY PATCH	01-31-41-7305	85	597.65
NEW FRONTIER MATERIALS LLC	12657936	06/15/2023	BOOTH BAY BELLINGTON PAT	01-31-41-7305	85	341.15
NEW FRONTIER MATERIALS LLC	12658808	06/15/2023	BELLINGTON PATCHES	01-31-41-7305	85	599.36

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	130993163-001	06/15/2023	BALLAS IRRIGATION REPAIR	01-31-41-6212	66147	18.03
SUNTRUP FORD INC	326792	06/15/2023	HOSE LEAK	01-31-41-6210	66151	261.88
HOME DEPOT CREDIT SERVICES	4373130	06/15/2023	QUIKRETE CONCRETE MIX	01-31-41-7305	66128	31.86
ARAMARK UNIFORM SERVICES	6170124179	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	113.71
ARAMARK UNIFORM SERVICES	6170126799	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	169.15
ARAMARK UNIFORM SERVICES	6170129388	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	125.32
ARAMARK UNIFORM SERVICES	6170132010	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	116.66
ARAMARK UNIFORM SERVICES	6170135190	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	124.65
ARAMARK UNIFORM SERVICES	6170137824	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	141.26
ARAMARK UNIFORM SERVICES	6170140419	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	127.70
ARAMARK UNIFORM SERVICES	6170143047	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	127.70
ARAMARK UNIFORM SERVICES	6170145644	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	188.72
ARAMARK UNIFORM SERVICES	6170148271	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	130.76
ARAMARK UNIFORM SERVICES	6170150842	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	130.76
ARAMARK UNIFORM SERVICES	6170153440	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-41-7308	82	130.76
HOME DEPOT CREDIT SERVICES	7021626	06/15/2023	YELLOW PINE LUMBER SATI	01-31-41-6210	66128	108.70
PETTY CASH	MAR-JUN 23	06/15/2023	BAGELS FOR CIP MEETING	01-31-41-7304	66142	12.18
PETTY CASH	MAR-JUN 23	06/15/2023	DONUTS FOR SAFETY MEETI	01-31-41-7304	66142	22.14
MISSOURI-LTAP	WZF 022223	06/15/2023	LANE DROP TRAINING	01-31-41-6261	66139	135.00
MIDWESTERN SAFETY EQUIPMENT COMPANY, INC	032174	06/22/2023	HARNESS FOR BUCKET TRUC	01-31-41-9503	66164	176.00
HUMAN RESOURCE STAFFIN	1001074047	06/22/2023	PW TEMPORARY EMPLOYEE	01-31-41-6207	92	600.60
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	309 S NEW BALLAS RD IRRIG	01-31-41-6254	66165	604.80
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	201 N NEW BALLAS RD IRRIG	01-31-41-6254	66165	112.86
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	12136 OLIVE BLVD IRRIG 04/	01-31-41-6254	66165	1,410.13
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	11702 OLIVE BLVD IRRIG 04/	01-31-41-6254	66165	45.41

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	12015 OLIVE BLVD IRRIG 04/	01-31-41-6254	66165	1,615.12
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	12536 OLIVE BLVD IRRIG 04/	01-31-41-6254	66165	606.60
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	145 S NEW BALLAS RD IRRIG	01-31-41-6254	66165	62.17
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	241 S NEW BALLAS RD IRRIG	01-31-41-6254	66165	78.57
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	996 E RUE DE LA BANQU 04/	01-31-41-6254	66165	80.45
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	12301 CONWAY RD IRRIG 04	01-31-41-6254	66165	62.17
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	1000 BARNES WEST DR FRFL	01-31-41-6254	66165	927.56
NEW FRONTIER MATERIALS LLC	12659725	06/22/2023	BELLINGTON LN PATCH	01-31-41-7305	99	429.21
NEW FRONTIER MATERIALS LLC	12660593	06/22/2023	BELLINGTON LN PATCH	01-31-41-7305	99	429.21
WARNING LITES OF SOUTHERN ILLINOIS LLC	27854	06/22/2023	STOP AND SLOW PADDLES	01-31-41-7305	102	300.00
MISSOURI-LTAP	BTS 041923	06/22/2023	BUCKET TRUCK TRAINING	01-31-41-6261	66166	540.00
GREENSPRO INC	INV0052912	06/22/2023	FERTILIZER AND PRE-EMERG	01-31-41-7303	66160	369.00
Division 41 - STREET MAINTENANCE Total:						24,949.90
Division: 43 - PARKS MAINTENANCE						
AMERENUE	55031-62002-06/13/23	06/13/2023	ELECTRIC PARKS DEPT APR-	01-31-43-6250	DFT0007193	1,081.47
HUMAN RESOURCE STAFFIN	1001073961	06/15/2023	PW TEMPORARY EMPLOYEE	01-31-43-6207	83	315.32
MISSOURI AMERICAN WATER CO	1017-210013559299-05-26-	06/15/2023	12301 CONWAY RD 04/27/2	01-31-43-6254	66134	18.20
MISSOURI AMERICAN WATER CO	1017-210041135520-05-23-	06/15/2023	902 MASON RD 04/21/23-05	01-31-43-6224	66138	23.21
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	130874632-001	06/15/2023	RAIN BIRD PVC BLUETOOTH	01-31-43-6212	66147	546.44
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	131040519-001	06/15/2023	MILL PARK IRRIGATION	01-31-43-6212	66147	950.57
SUNTRUP FORD INC	326792	06/15/2023	HOSE LEAK	01-31-43-6210	66151	87.29
HOME DEPOT CREDIT SERVICES	3512321	06/15/2023	CHARLOTTE PIPE COUPLING	01-31-43-6212	66128	30.10
HOME DEPOT CREDIT SERVICES	4522944	06/15/2023	ELBOW FITTING PVC PRIME	01-31-43-6212	66128	33.79
ARAMARK UNIFORM SERVICES	6170124179	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	37.90
ARAMARK UNIFORM SERVICES	6170126799	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	56.38
ARAMARK UNIFORM SERVICES	6170129388	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	41.78

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Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
ARAMARK UNIFORM SERVICES	6170132010	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	38.89
ARAMARK UNIFORM SERVICES	6170135190	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	41.55
ARAMARK UNIFORM SERVICES	6170137824	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	47.09
ARAMARK UNIFORM SERVICES	6170140419	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	42.57
ARAMARK UNIFORM SERVICES	6170143047	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	42.57
ARAMARK UNIFORM SERVICES	6170145644	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	62.91
ARAMARK UNIFORM SERVICES	6170148271	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	43.58
ARAMARK UNIFORM SERVICES	6170150842	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	43.58
ARAMARK UNIFORM SERVICES	6170153440	06/15/2023	PW SHOP UNIFORM SERVICE	01-31-43-7308	82	43.58
HOME DEPOT CREDIT SERVICES	7021626	06/15/2023	YELLOW PINE LUMBER SATI	01-31-43-6210	66128	36.24
HUMAN RESOURCE STAFFIN	1001074047	06/22/2023	PW TEMPORARY EMPLOYEE	01-31-43-6207	92	200.20
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	601 COEUR DE VILLE DR 04/	01-31-43-6254	66165	183.66
MISSOURI AMERICAN WATER CO	1017-210041137908-06-06-	06/22/2023	12100 CONWAY RD PARK 04/	01-31-43-6254	66165	66.28
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	131066254-001	06/22/2023	IRRIGATION	01-31-43-6212	66173	7.11
GREENSPRO INC	INV0052912	06/22/2023	FERTILIZER AND PRE-EMERG	01-31-43-7303	66160	369.00
Division 43 - PARKS MAINTENANCE Total:						4,491.26
Department 31 - PUBLIC WORKS Total:						29,680.17
Department: 32 - COMMUNIITY DEVELOPMENT						
Division: 11 - ADMINISTRATIVE						
MCLAUGHLIN COURT REPORTING SERVICES INC	060723-1	06/22/2023	P&Z PROJECT 23-013 23-014	01-32-11-6202	96	156.80
LOCHMUELLER GROUP INC	916706	06/22/2023	TRAFFIC STUDY - CHICK-FIL-A	01-32-11-6202	95	3,287.50
Division 11 - ADMINISTRATIVE Total:						3,444.30
Division: 61 - BUILDING DEPARTMENT						
PERALES AE LAWN CARE LLC	115335	06/15/2023	HIGH WEEDS/GRASS 200 S	01-32-61-6215	86	517.50
PERALES AE LAWN CARE LLC	115336	06/15/2023	HIGH WEEDS/GRASS 204 S	01-32-61-6215	86	517.50
PERALES AE LAWN CARE LLC	115337	06/15/2023	HIGH WEEDS/GRASS 10195	01-32-61-6215	86	457.50

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Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
VERIZON WIRELESS SERVICES LLC	9936519638	06/15/2023	TABLETS AND AIRCARDS BLD	01-32-61-6253	66154	240.06

Division 61 - BUILDING DEPARTMENT Total: 1,732.56

Department 32 - COMMUNIITY DEVELOPMENT Total: 5,176.86

Fund 01 - GENERAL FUND Total: 169,526.87

Fund: 02 - CAPITAL IMPROVEMENT FUND

Department: 61 - CIP

Division: 71 - CIP

ST LOUIS COUNTY TREASURE	151386	06/15/2023	CONCRETE TESTING FOR STR	02-61-71-9510	66150	33.00
HR GREEN, INC.	162230	06/22/2023	DIELMANN ROOF DRAINAGE	02-61-71-9506	66161	867.10
SPENCER CONTRACTING COMPANY	2 05-01-23	06/22/2023	STREET RECONSTRUCTION P	02-61-71-9510	66174	216,035.81

Division 71 - CIP Total: 216,935.91

Department 61 - CIP Total: 216,935.91

Fund 02 - CAPITAL IMPROVEMENT FUND Total: 216,935.91

Fund: 05 - PARKS & STORMWATER FUND

Department: 61 - CIP

Division: 71 - CIP

HR GREEN, INC.	162231	06/22/2023	GOLF COURSE POND AERATI	05-61-71-9509	66161	1,950.00
HR GREEN, INC.	162232	06/22/2023	Stormwater Designs for Hibl	05-61-71-9509	66161	1,213.46
INTUITION AND LOGIC ENGINEERING INC	230505	06/22/2023	NEW BALLAS CULVERT DESI	05-61-71-9509	93	11,411.32
INTUITION AND LOGIC ENGINEERING INC	230512	06/22/2023	WATERSHED MANAGEMENT	05-61-71-9509	93	27,093.15

Division 71 - CIP Total: 41,667.93

Department 61 - CIP Total: 41,667.93

Fund 05 - PARKS & STORMWATER FUND Total: 41,667.93

Fund: 06 - MUNICIPAL ENTERPRISE FUND

Department: 14 - COMMUNITY SERVICES

Division: 31 - ICE ARENA

MISSOURI AMERICAN WATER CO	1017-210013831700-05-23-	06/15/2023	DRC IRRIGATION	06-14-31-6254	66135	893.12
MISSOURI AMERICAN WATER CO	210013831861 JUNE 2 - JULY	06/15/2023	11400 OLDE CABIN FIRE SER	06-14-31-6254	66137	75.68
MURPHY COMPANY	234606	06/15/2023	TROUBLESHOOT COMPRESS	06-14-31-6268	84	1,857.00
MURPHY COMPANY	237063	06/15/2023	COMP #1 REPAIR AND OTHE	06-14-31-6268	84	1,008.00
MURPHY COMPANY	241352	06/15/2023	ICE MONTHLY WALKTHROUG	06-14-31-6211	84	504.00
US BANK EQUIPMENT FINANCE	502538267	06/15/2023	DRC PRINTER USE CHARGES	06-14-31-6213	66152	37.03
ARAMARK UNIFORM SERVICES	6170153442	06/15/2023	DRC MOPS	06-14-31-7301	82	31.22

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
RHINE PARACO GAS OF ST LOUIS	723980	06/15/2023	PROPANE FOR OLYMPIA DRC	06-14-31-7307	66144	147.87
NEW SYSTEM LLC	099880	06/22/2023	CUSTODIAL SUPPLIES FOR D	06-14-31-7301	100	490.84
KURT SCHAMEL	234088	06/22/2023	BACKFLOW TESTS FOR IRRIG	06-14-31-6202	66162	190.00
RHINE PARACO GAS OF ST LOUIS	716998	06/22/2023	PROPANE FOR OLYMPIA	06-14-31-7307	66171	103.23
H AND G SALES INC	772973	06/22/2023	DRC MAINTENANCE TO FRO	06-14-31-6212	91	250.00
GRAINGER	9726850564	06/22/2023	MISC MAINT SUPPLIES DRC	06-14-31-6212	90	60.08
Division 31 - ICE ARENA Total:						5,648.07
Division: 32 - GOLF MAINTENANCE						
MISSOURI AMERICAN WATER CO	1017-210013831700-05-23-	06/15/2023	DRC IRRIGATION	06-14-32-6254	66135	1,267.98
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	130851189-001	06/15/2023	FOLIAR FERTILIZER GREENS	06-14-32-7303	66147	310.19
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	131297272-001	06/22/2023	RIP RAP FOR AMPHITHEATRE	06-14-32-6212	66173	58.50
KURT SCHAMEL	234088	06/22/2023	BACKFLOW TESTS FOR IRRIG	06-14-32-6202	66162	125.00
GREENSPRO INC	INV0052766	06/22/2023	RECOGNITION HERBICIDE	06-14-32-7303	66160	327.60
Division 32 - GOLF MAINTENANCE Total:						2,089.27
Division: 33 - PRO-SHOP						
US BANK EQUIPMENT FINANCE	502538267	06/15/2023	DRC PRINTER USE CHARGES	06-14-33-6213	66152	37.03
JAMES F HEALEY	1169	06/22/2023	FIRST PAYMENT FOR CENTEN	06-14-33-6260	94	500.00
METROPOLITAN AMATEUR GOLF ASSOCIATION INC	5016123	06/22/2023	COURSE MEMBERSHIP	06-14-33-6262	97	1,300.00
Division 33 - PRO-SHOP Total:						1,837.03
Division: 34 - FOOD SERVICES						
D AND D DISTRIBUTORS LLP	421979	06/15/2023	BEER FOR RESALE	06-14-34-8316	66126	542.50
ARAMARK UNIFORM SERVICES	6170153442	06/15/2023	DRC SODA TOWELS	06-14-34-7301	82	13.38
RL MUELLER NATIONAL DIST INC	113341	06/22/2023	FOOD FOR RESALE	06-14-34-8315	101	127.60
RL MUELLER NATIONAL DIST INC	113341	06/22/2023	SNACKS FOR RESALE	06-14-34-8319	101	402.35
RL MUELLER NATIONAL DIST INC	113341	06/22/2023	MISC RESALE DRC	06-14-34-8321	101	119.30
D AND D DISTRIBUTORS LLP	427093	06/22/2023	BEER FOR RESALE	06-14-34-8316	66158	545.00
PEPSICO BEVERAGE SALES LL	46952707	06/22/2023	PEPSI/RESALE	06-14-34-8317	66170	514.94
Division 34 - FOOD SERVICES Total:						2,265.07
Department 14 - COMMUNITY SERVICES Total:						11,839.44
Fund 06 - MUNICIPAL ENTERPRISE FUND Total:						11,839.44

Council Report of invoices Paid Listing

Payment Dates: 6/8/2023 - 6/22/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
Fund: 19 - PUBLIC SAFETY FUND						
Department: 21 - POLICE						
Division: 23 - COUNTY PUBLIC SAFETY-PROP P						
NEW SYSTEM LLC	099881	06/15/2023	8 PARAMOUNT DISPENSERS	19-21-23-6212	66140	531.96
SAMS CLUB/SYNCHRONY BANK	3801N222WY	06/15/2023	LOUNGE SUPPLIES FOR PD	19-21-23-7304	66145	376.18
SAMS CLUB/SYNCHRONY BANK	4Z01PFVYYX	06/15/2023	LOUNGE SUPPLIES FOR PD	19-21-23-7304	66145	665.38
SNAP-ON INDUSTRIAL	ARV/57573843	06/15/2023	DIAGNOSTIC SCANNER FOR	19-21-23-9503	66148	6,095.32
SAMS CLUB/SYNCHRONY BANK	C3801N222WY	06/15/2023	SAM'S CASH CREDIT	19-21-23-7304	66145	-13.47
SAMS CLUB/SYNCHRONY BANK	C4Z01PFVYYX	06/15/2023	SAM'S CASH CREDIT	19-21-23-7304	66145	-5.17
SAMS CLUB/SYNCHRONY BANK	CREDMARCH23	06/15/2023	CREDITS FOR INTEREST FEES	19-21-23-7304	66145	-79.48
AMERENUE	0427008070-05/30/23	06/21/2023	350 N NEW BALLAS POLICE 4	19-21-23-6250	DFT0007192	4,822.50
Division 23 - COUNTY PUBLIC SAFETY-PROP P Total:						12,393.22
Department 21 - POLICE Total:						12,393.22
Fund 19 - PUBLIC SAFETY FUND Total:						12,393.22
Fund: 99 - POOLED CASH						
ARVEST BANK	1797-06/12/23	06/14/2023	EPAYMENT 6/14/23	99-2809	DFT0007203	13,140.34
ARVEST BANK	1797-06/19/23	06/21/2023	EPAYMENT 6/21/23	99-2809	DFT0007204	5,360.51
						18,500.85
Fund 99 - POOLED CASH Total:						18,500.85
Grand Total:						470,864.22

Report Summary

Fund Summary

Fund	Payment Amount
01 - GENERAL FUND	169,526.87
02 - CAPITAL IMPROVEMENT FUND	216,935.91
05 - PARKS & STORMWATER FUND	41,667.93
06 - MUNICIPAL ENTERPRISE FUND	11,839.44
19 - PUBLIC SAFETY FUND	12,393.22
99 - POOLED CASH	18,500.85
Grand Total:	470,864.22

Account Summary

Account Number	Account Name	Payment Amount
01-11-13-6260	ADVERTISING	79.73
01-12-11-6203	PROFESSIONAL SERVICE	404.00
01-12-11-6271	MEDICAL SUPPLIES	55.25
01-12-14-6201	LEGAL AND ACCOUNTIN	1,674.00
01-12-14-6213	OFFICE EQUIPMENT MAI	259.03
01-12-14-6262	DUES MEMBERSHIPS &	200.00
01-13-11-6202	TECHNICAL AND PERSO	0.50
01-13-11-6261	EDUCATION & TRAINING	450.00
01-13-15-6213	OFFICE EQUIPMENT MAI	67.10
01-13-15-6220	LIABILITY INSURANCE	3,500.00
01-13-15-6253	TELEPHONE	1,757.00
01-13-15-6269	POSTAGE	3.90
01-13-15-7312	OFFICE SUPPLIES	1,170.84
01-13-51-6213	OFFICE EQUIPMENT MAI	97.98
01-13-51-7331	COMPUTER HARDWARE	855.03
01-14-11-6202	TECHNICAL AND PERSO	513.75
01-14-11-6213	OFFICE EQUIPMENT MAI	37.04
01-14-11-6281	5K RUN EXPENSES	2,963.05
01-16-11-6211	EQUIPMENT MAINTENA	547.50
01-16-11-6212	BUILDING AND GROUND	1,023.76
01-16-11-6250	ELECTRICITY	3,524.23
01-16-11-6254	WATER AND SEWER	860.04
01-16-11-7304	GENERAL SUPPLIES	622.04
01-16-11-7308	WEARING APPAREL AND	326.82
01-2102	FICA WITHHOLDING	37,594.86
01-2103	MEDICARE WITHHOLDIN	8,792.30
01-2104	FEDERAL TAX WITHHOL	27,634.20
01-2105	MISSOURI TAX WITHHOL	10,790.00
01-21-11-6203	PROFESSIONAL SERVICE	450.00
01-21-11-6253	TELEPHONE	320.08

Account Summary

Account Number	Account Name	Payment Amount
01-21-11-7308	WEARING APPAREL AND	151.81
01-21-11-7314	CRIME PREVENTION SUP	16.70
01-2113	PAYROLL CHILD SUPPOR	184.62
01-21-21-6202	TECHNICAL AND PERSO	222.24
01-21-21-7302	SMALL TOOLS	45.92
01-21-22-6210	VEHICLE MAINTENANCE	39.98
01-21-22-6271	MEDICAL SUPPLIES	700.25
01-21-22-7302	SMALL TOOLS	49.97
01-21-22-9503	EQUIPMENT	2,995.00
01-2211	HEALTH INSURANCE	101.06
01-2213	DENTAL INSURANCE PAY	24.18
01-2215	INTENSIVE CARE/CANCE	437.70
01-2224	VISION CARE-COBRA	-0.81
01-2312	401 - ICMA	2,658.64
01-2318	ICMA ROTH 457	3,740.21
01-2319	ICMA ROTH IRA	601.46
01-2320	EMPLOYEE DEFINED BEN	2,847.66
01-2321	457 - VOYA	1,976.14
01-2322	457 - ICMA	10,163.08
01-2323	MOST PROGRAM	865.00
01-31-11-6202	TECHNICAL AND PERSO	14.50
01-31-11-6213	OFFICE EQUIPMENT MAI	224.51
01-31-41-6207	TEMP PROFESSIONAL SE	1,546.54
01-31-41-6210	VEHICLE MAINTENANCE	370.58
01-31-41-6212	BUILDING AND GROUND	18.03
01-31-41-6250	ELECTRICITY	1,036.27
01-31-41-6251	STREET LIGHTING	10,458.15
01-31-41-6254	WATER AND SEWER	5,910.42
01-31-41-6261	EDUCATION & TRAINING	675.00
01-31-41-7303	HORTICULTURAL SUPPLI	369.00
01-31-41-7304	GENERAL SUPPLIES	34.32
01-31-41-7305	STREET & SIDEWALK MA	2,728.44
01-31-41-7308	WEARING APPAREL AND	1,627.15
01-31-41-9503	EQUIPMENT	176.00
01-31-43-6207	TEMP PROFESSIONAL SE	515.52
01-31-43-6210	VEHICLE MAINTENANCE	123.53
01-31-43-6212	BUILDING AND GROUND	1,568.01
01-31-43-6224	TAPPMAYER HOUSE MAI	23.21
01-31-43-6250	ELECTRICITY	1,081.47
01-31-43-6254	WATER AND SEWER	268.14
01-31-43-7303	HORTICULTURAL SUPPLI	369.00
01-31-43-7308	WEARING APPAREL AND	542.38

Account Summary

Account Number	Account Name	Payment Amount
01-32-11-6202	TECHNICAL AND PERSO	3,444.30
01-32-61-6215	WEED CUTTING AND TR	1,492.50
01-32-61-6253	TELEPHONE	240.06
01-4402	OCCUPATIONAL LICENSE	275.00
02-61-71-9506	PARK AND RECREATION	867.10
02-61-71-9510	STREETS	216,068.81
05-61-71-9509	STORMWATER PROJECTS	41,667.93
06-14-31-6202	TECHNICAL AND PERSO	190.00
06-14-31-6211	EQUIPMENT MAINTENA	504.00
06-14-31-6212	BUILDING AND GROUND	310.08
06-14-31-6213	OFFICE EQUIPMENT MAI	37.03
06-14-31-6254	WATER AND SEWER	968.80
06-14-31-6268	ICE REPAIRS	2,865.00
06-14-31-7301	CHEMICALS & CLEANING	522.06
06-14-31-7307	GASOLINE, PROPANE &	251.10
06-14-32-6202	TECHNICAL AND PERSO	125.00
06-14-32-6212	BUILDING AND GROUND	58.50
06-14-32-6254	WATER AND SEWER	1,267.98
06-14-32-7303	HORTICULTURAL SUPPLI	637.79
06-14-33-6213	OFFICE EQUIPMENT MAI	37.03
06-14-33-6260	ADVERTISING	500.00
06-14-33-6262	DUES MEMBERSHIPS &	1,300.00
06-14-34-7301	CHEMICALS & CLEANING	13.38
06-14-34-8315	SANDWICHES AND HOT	127.60
06-14-34-8316	BEER	1,087.50
06-14-34-8317	COFFEE,TEA & SOFT DRI	514.94
06-14-34-8319	SNACKS	402.35
06-14-34-8321	MISCELLANEOUS SUPPLI	119.30
19-21-23-6212	BUILDING AND GROUND	531.96
19-21-23-6250	ELECTRICITY	4,822.50
19-21-23-7304	GENERAL SUPPLIES	943.44
19-21-23-9503	EQUIPMENT	6,095.32
99-2809	EPAYABLES LIABILITY	18,500.85
Grand Total:		470,864.22

Project Account Summary

Project Account Key	Payment Amount
None	212,293.38
202E	867.10
400E	27,093.15
401E	1,213.46

Project Account Summary

Project Account Key	Payment Amount
403E	11,411.32
404E	1,950.00
601E	<u>216,035.81</u>
Grand Total:	470,864.22

**AN ORDINANCE ADOPTING THE ANNUAL BUDGET OF THE
CITY OF CREVE COEUR FOR THE FISCAL YEAR 2024
COMMENCING JULY 1, 2023 AND
APPROPRIATING FUNDS PURSUANT THERETO**

WHEREAS, THE ANNUAL BUDGET FOR THE FISCAL YEAR COMMENCING ON JULY 1, 2023 HAS BEEN PROPOSED IN ACCORDANCE WITH STATE LAWS AND THE CITY CHARTER, AND

WHEREAS, THE FINANCE COMMITTEE REVIEWED AND RECOMMENDED APPROVAL OF THE PROPOSED BUDGET, AND

WHEREAS, A COPY OF THE PROPOSED BUDGET HAS BEEN AVAILABLE FOR PUBLIC INSPECTION AT THE CREVE COEUR GOVERNMENT CENTER AND A PUBLIC HEARING ON THE BUDGET WAS CONDUCTED ON JUNE 12, 2023, AT WHICH TIME ALL PERSONS WERE GIVEN AN OPPORTUNITY TO BE HEARD IN ACCORDANCE WITH CITY CHARTER REQUIREMENTS AND A NOTICE OF THE PUBLIC HEARING AND A GENERAL SUMMARY OF THE PROPOSED BUDGET WERE PUBLISHED IN THE ST. LOUIS COUNTIAN ON MAY 12, 2023, AND

WHEREAS, A COPY OF THIS ORDINANCE HAS BEEN MADE AVAILABLE FOR PUBLIC INSPECTION PRIOR TO ITS ADOPTION AND THIS BILL WAS READ BY TITLE IN AN OPEN MEETING TWO TIMES BEFORE FINAL PASSAGE.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI AS FOLLOWS:

SECTION 1: THE ANNUAL BUDGET FOR THE CITY OF CREVE COEUR, MISSOURI FOR THE FISCAL YEAR COMMENCING ON JULY 1, 2023, A COPY OF WHICH IS ATTACHED HERETO AND MADE A PART HEREOF AS IF FULLY SET FORTH HEREIN IS HEREBY ADOPTED. PURSUANT TO CHARTER SECTION 9.5(D), ADOPTION OF THE BUDGET CONSTITUTES APPROPRIATION OF THE AMOUNTS SPECIFIED THEREIN AS EXPENDITURES FROM THE FUNDS INDICATED. APPROPRIATION SHALL BE AS SPECIFIED BY ENUMERATED BUDGET LINE ITEM. FURTHER DETAIL WITHIN A BUDGET LINE ITEM EXPLAINS THE INTENDED USE OF FUNDS AS OF THE TIME OF BUDGET DEVELOPMENT, BUT SUCH USES MAY BE CHANGED AS AUTHORIZED BY THE CITY ADMINISTRATOR WITHIN THE LIMITS OF THE BUDGET LINE ITEM.

SECTION 2: AS AUTHORIZED IN RESOLUTION NO. 987 (FUND BALANCE POLICY), COUNCIL HEREBY APPROVES AN ADDITIONAL ASSIGNMENT OF \$1,000,000 DURING FY 2024 RESULTING IN AN ASSIGNED FUND BALANCE OF \$3,000,000 FOR THE INTENDED USE OF PAYING FOR PUBLIC FACILITIES. \$1,000,000 REMAINS ASSIGNED FOR STREET IMPROVEMENTS PER ORDINANCE 5479. LASTLY, THE PROCEEDS FROM THE SALE OF FOUNTAIN PARK (\$749,533) REMAINS RESERVED IN THE PARKS & STORMWATER FUND FOR THE INTENDED USE OF THE PURCHASE OF LAND OR CONSTRUCTION OF IMPROVEMENTS IN CITY PARKS OR OTHER PUBLIC RECREATIONAL SPACES OR FACILITIES PER ORDINANCE NO. 5380.

SECTION 3: THIS ORDINANCE SHALL BECOME EFFECTIVE PURSUANT TO THE PROVISIONS OF SECTION 3.11(G) OF THE CHARTER.

BILL NO. 6069

ORDINANCE NO. _____

PASSED THIS _____ DAY OF _____, 2023.

NICOLE GREER
PRESIDENT OF CITY COUNCIL

APPROVED THIS _____ DAY OF _____, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



MEMORANDUM

DATE: May 30, 2023

TO: Mark Perkins, City Administrator

FROM: Lori Obermoeller, Director of Finance

SUBJECT: Amendments to Proposed FY 2024 Budget

On April 17, 2023 the proposed FY 2024 budget was submitted to City Council and the Finance Committee. The first City Council work sessions was held on April 24th to discuss the proposed budget. The proposed budget was also reviewed by the Finance Committee on April 25th and May 9th. Then at the May 8th budget meeting, the following three changes were presented as a revision to the proposed budget (Revised as of 5/2/23):

- Excess Olive TDD Funds will be added as revenue (\$340K) to the Capital Fund in FY 2024; First Bank Utility Burial expenditures (\$225K) will be added to the Capital Fund in FY 2024; the Excess Olive Funds will be used for this project. **This will increase the Capital Fund balance by \$115K for FY 2024.**
- Economic Development Agreement with 39N expenditures (\$50K) will be added to FY 2024. This is the first of a 3-year agreement. ARPA Funds will be used to offset all of these costs, so this will also be reflected in FY 2024. **This reduces the General Fund balance by \$50K in FY 2024.**
- Record \$33,750 in the Parks & Stormwater Fund in FY 2023 instead of FY 2024 since the contract and PO to encumber the funds was done in FY 2023. **This does not change the ending fund balance for the Parks & Stormwater Fund.**

As of today, the following revisions have been made (Revised as of 5/30/23):

- Added 1 Police Officer position as an Instructor with the St. Louis County and Municipal Police Academy; cost of salary and fringe benefits reimbursed by St. Louis County (see attached memo from Chief Hartman). **No change to the ending General Fund balance.**
- Reclassify the Golf Maintenance Superintendent to Golf Course Manager. **Could increase the ending fund balance slightly for the Enterprise Fund.**
- Increase Building Inspector by 1 and decrease Residential Building Inspector by 1. **Could decrease then ending fund balance slightly for the General Fund.**

Attached are the changed budget pages from 5/30/23, and the revised budget as of 5/30/23 has been posted to the website. The Finance Committee offered one comment (continue to review other revenue sources) for the Council's consideration, in addition to recommending adoption of the proposed FY 2024 Budget. I would be pleased to respond to any questions.



MEMORANDUM

DATE: May 11, 2023
TO: M. Perkins, City Administrator
FROM: J. Hartman, Chief of Police
SUBJECT: Staffing Request

In line with the goal of retaining personnel through growth and development opportunities, the Police Department has an opportunity to provide an Officer with the opportunity to join the St. Louis County and Municipal Police Academy as part of their instructor staff. This is a full-time detachment and the Police Officer would be selected through a competitive process determined by the Academy Director.

The officer's gross wages and "direct fringe benefits" are reimbursed by St. Louis County.

Some benefits of this assignment to the City of Creve Coeur include:

- 1) Skill development as an instructor/trainer for a Creve Coeur Police Officer
- 2) Direct access to Police Officer Recruits attending the Police Academy which provides a natural advantage in recruiting new officers
- 3) It is a good opportunity for representation and recognition in the St Louis Area law enforcement region (branding)
- 4) The salary and most paid benefits of the Police Officer are reimbursed to the City.

For this opportunity to not have a negative impact on staffing, I am requesting an increase in staffing by one (1) full-time police officer during the time in which we have an officer on assignment at the St. Louis County Police Academy.

This would increase the total full-time commissioned staffing from 49 to 50. The Police Officer assigned to the Police Academy would be assigned to the Administrative Division. This would increase the total full-time commissioned staffing in the Administrative Division from five (5) to six (6), with the *Position Title* of "Police Officer – Administrative Detachment."



POLICE DEPARTMENT – ADMINISTRATIVE DIVISION

Mission Statement:

It is the mission of the Creve Coeur Police Department to partner with our community to safeguard life and property, enforce the law, preserve the peace, and reduce the fear of crime within the framework of the Constitution.

Administrative and Support Division:

The Administrative and Support Services Division includes a full-time sworn staff consisting of a Chief of Police, a Police Captain, a Professional Standards Lieutenant, two (2) Community Relations and Crime Prevention Officers, and a police officer assigned to instruct to the St. Louis County and Municipal Police Academy. The division has a non-sworn staff consisting of two (2) Records Associates, a Support Services/Fleet Maintenance Assistant, an Executive Assistant to the Chief of Police, a Building Maintenance Worker, a part-time Evidence Custodian, a part-time CALEA Accreditation Assistant, and a Maintenance Worker II/Mechanic cost shared (25%) with Public Works-Streets (75%).

The Investigations Bureau also falls under the command of the Administrative and Support Services Captain but for budgetary purposes, has a separate budget. For further on the Investigations Bureau, refer to the Investigations Budget (Acct. 2121).

It is the responsibility of the Chief of Police to review all essential job functions of department personnel to ensure that efficient and professional services are provided to the public. Staff reports and assessments of services are regularly provided to the City Administrator for review to ensure that this is achieved.

Department Description

The Administrative Captain oversees and supervises the Records Bureau, the Support Services Bureau, the Professional Standards Bureau, and the Investigations Bureau. The Support Services Bureau is responsible for:

- Fleet purchasing, maintenance, and surplus vehicle disposal
- Records management & purging
- Driving While Intoxicated Tracking System (DWITS)
- Department Training Coordinator
- Oversee the hiring process for commissioned and reserve police officers
- In-car & body-worn camera video system maintenance
- Sale/collection/maintenance of all police records, reports, data, and statistics
- Deer mitigation program
- Emergency management/preparedness; including policies, practices, and procedures
- Management of officer and department equipment
- Building maintenance and security, including surveillance cameras and in-house phone recording
- Sunshine law and discovery requests

Fund: 01
Dept: 21-11



The Professional Standards Lieutenant reports directly to the Chief of Police. The Professional Standards Lieutenant is responsible for:

- Supervising the accreditation assistant responsible for maintaining policies, proofs, and best practices
- Coordinating the annual accreditation remote evaluation
- Manage and coordinate the quadrennial CALEA onsite accreditation comprehensive evaluation
- Submitting policy and procedure updates in compliance with accreditation requirements
- Submitting annual reports as required for accreditation
- Working cooperatively with all divisions to maintain accreditation standards
- Ensuring milestones are met for the CALEA accreditation process (ongoing)
- Coordinating and implementing special projects as assigned by the chief of police
- Supervising the evidence custodian and the evidence function. This includes proper management of evidence submission, proper storage, packaging, laboratory examinations & transfers, and disposal through court-ordered destruction, and collection, and disposal of prescription drug take-back supply.
- Investigating all department complaints, internal and external
- Implementing corrective training and discipline from complaints
- Ensuring the department's public information officer provides professional-level and effective police communication
- Overseeing the Crime Prevention and Community Relations functions (See Crime Prevention Service Standards)

Administrative Service Standards

- Maintain a professional and polite demeanor in all phone contacts with the public and radio contacts with officers and other police agencies. Operate within FCC regulations, with no violations.
- Enter timely and accurate law enforcement computer data with no "sunshine" or "right of privacy" violations.
- Manage active criminal wanted entries and wanted cancellations. Immediate notification to personnel regarding Adult Abuse Court Orders. Immediate entry of arrest records (booking sheets). Update and/or dispose of arrest files and reports according to Missouri retention laws.
- Process police reports, arrest files, and traffic tickets daily.
- Respond to public requests for reports within 72 business hours.
- Maintain membership in the West Central Dispatch Center (WCDC) which provides police dispatching services and remote prisoner monitoring.
- Respond to citizen complaints within 24 hours and resolve internal investigations within 90 days.
- Complete required monthly crime statistics reports within 10 days. Submit all DWI reports within 15 days and all accident reports within 20 days to the proper authority. Submit

Fund: 01
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quarterly financial status reports relative to federal Community Oriented Policing and Problem Solving (COPPS) grants within 15 days.

- Enter “false alarm” incidents in the alarm database within 48 hours. Submit false alarm reports and distribute false alarm notifications semi-monthly.
- Manage and schedule equipment and fleet maintenance. Schedule repairs within one business day, when possible.
- Conduct annual inventory of fixed assets and non-expendable items by April 30.
- Administer and complete the hiring process within 90 days from application processing and testing.
- Provide support to the Patrol Division for purchases of equipment, overseeing repair, replacement, and updates of equipment necessary for daily job performance.
- Update Standard Operating Procedures, as well as complete the CALEA re-accreditation process.

Crime Prevention Office Service Standards

- Educate the general public on crime prevention methods to limit exposure to becoming a victim.
- Provide timely alerts about criminal activity occurring in the local area.
- Present the DARE program in accordance with established national standards.
- Conduct Citizen Police Academy classes to educate residents on the complexities of police work.
- Conduct Rape Aggression Defense training to educate females on self-defense techniques and strategies to escape an attack.
- Conduct safety assessments for homeowners and educate subdivision associations about crime prevention in their neighborhoods.
- Conduct 4E Active Shooter Preparation classes for businesses, schools, and other citizen groups as requested.
- Conduct Safety assessments for businesses, notifying them of criminal activity and trends.
- Partner with local banking facilities to review and improve hold-up and notification procedures.
- Review reported criminal activity and related data to determine possible crime patterns and ensure all patrol officers and citizens are informed of criminal information and activity within the city.
- Crime prevention through environmental design (CPTED)
- Crime statistics and analysis
- Review false alarm calls with follow-up with repeat offenders to mitigate future false alarms.
- Serve as liaison for Neighborhood Watch and the Creve Coeur Crime Prevention Partnership
- Conduct building tours with community groups and coordinate DEA Prescription Drug Take-Back events (bi-annual).

WCDC Consortium Standards

- Answer and dispatch 911 calls immediately. Answer all non-emergency calls as soon as practical, not to exceed three (3) rings, if at all possible. Dispatch non-emergency calls as soon as practical, based on priority. Immediately call back and dispatch a patrol unit on

Fund: 01
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“911” hang-ups. Re-contact and inform the complainant if priorities prevent dispatching non-emergency calls within five (5) minutes.

- Maintain immediate response or acknowledgment to radio calls from police officers. Immediately dispatch assists units in accordance with department policy.
- Provide regular reports and assessments to the Chief of Police and City Administrator of calls for service, records updates, and budgetary expenditures.

Benchmarking/Budgetary Savings

- The consolidation of services through the West Central Dispatch Center (WCDC) continues to realize significant annual cost savings in personnel and equipment when compared to self-providing dispatch services since its inception in 2011. Additionally, the Police Department benefits from a highly professional level of service from the dispatch center.

Objectives

- Continue to reduce storage costs and paper usage by managing records through the use of Computer Assisted Report Entry (CARE).
- Continue to manage dispatch operating costs through the partnership with the WCDC.
- Offer online purchases of accident reports, as well as walk-in records services five days a week.
- Maintain Police Department vehicles and equipment in excellent condition, providing the best equipment and technology available. Provide monthly reports of expenditures for vehicle maintenance and upkeep.
- Continue to maximize the use of mobile ticketing by officers and sergeants. The use of mobile ticketing by officers and sergeants is at the 99th percentile. Mobile ticketing is a computer application available through REJIS, which allows officers to electronically issue traffic tickets. The tickets download directly into the court system, eliminating the need to enter the tickets into the municipal court docket system.
- Recruit high-quality applicants for police officer positions.
- Review building requirements and department procedures for CALEA compliance.
- Continue to upgrade and monitor the security of the Police Department, Government Center, and Community Center.
- Reduce crime and the fear of crime through community engagement and crime prevention programs.

Budget Highlights

- Acct. 5101 – Increase due to cost sharing of Maintenance Worker II/Mechanic position (Police-Administration 25%/Public Works-Streets 75%) to assist with Police Department general fleet maintenance.
- Acct. 5101 – Increase due to the addition of one (1) full-time position (police officer) assigned to instruct at the St. Louis County and Municipal Police Academy; cost of salary and fringe benefits reimbursed by St. Louis County.
- Acct. 6202 – Increase in fees associated with WCDC Consortium membership (\$655,977).
- Acct. 6202 – Annual maintenance for PowerDMS software for all department personnel to efficiently document training and testing proofs required for CALEA (\$6,476).

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- Acct. 6203 – Pre-employment background checks and mileage (\$940).
- Acct. 6253 – Replacement of three (3) mobile phones for Command Staff (\$2,190).
- Acct. 7310 – Emergency preparedness/housing for PD staffing during inclement weather (\$1,000).
- Acct. 9503 – Replacement refrigerator for breakroom (\$1,500).
- Acct. 9503 – Replacement ice maker in the breakroom (\$2,500).
- Acct. 9503 – Vehicle upfitting for Administrative Vehicle #2414 (\$2,000).
- Acct. 6213 – Increase due to transfer of FileOnQ Annual Maintenance from Investigations (2121) to the Administrative budget (\$7,550).

Fund: 01
Dept: 21-11



**ALL FUNDS
SUMMARY OF FULL-TIME AUTHORIZED PERSONNEL
BY DEPARTMENT/FUND**

DEPARTMENT/DIVISION	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
<u>GENERAL FUND:</u>					
Legislative Services	1	1	1	1	1
Legal Services	0	0	0	0	0
Administrative Services	4	4	4	4	4
Municipal Court	2	2	2	2	2
Finance Department	5	4	4	4	4
Information Services	1	1	1	1	1
Community Services/Recreation	0.70	1.20	1.20	1.20	1.20
Maintenance of Property	2.50	2.50	1	1	1
Police-Sworn	49	49	49	49	50
Police-Non-Sworn	3	4	5	5	5.25
Public Works-Administration	3.5	3.3	3.3	4.3	4.3
Public Works-Street Maintenance	9	9	9	9	8.75
Public Works-Health & Environment	0	0	0	0	0
Public Works-Parks Maintenance	3.5	3.5	4	5	5
Community Development-Planning	3.5	3.5	3.5	2.5	2.5
Community Development-Building	10	10	10	10	8
Subtotal*	97.70	98.00	98.00	99.00	98.00
<u>CAPITAL IMPROVEMENT FUND:</u>					
Capital Improvement-Administration	1	1	1	1.5	1.5
Subtotal	1	1	1	1.5	1.5
<u>SEWER LATERAL FUND:</u>					
Sewer Lateral-Administration	0	0.2	0.2	0.2	0.2
Subtotal*	0	0.2	0.2	0.2	0.2
<u>PARKS & STORMWATER FUND:</u>					
Parks & Stormwater-Administration	0	0	1	1.5	1.5
Subtotal	0	0	1	1.5	1.5
<u>MUNICIPAL ENTERPRISE FUND:</u>					
Ice Arena	2.50	3.00	3.00	3.00	3.00
Golf Course	3.80	3.80	3.80	3.80	3.80
Subtotal*	6.30	6.80	6.80	6.80	6.80
TOTAL AUTHORIZED FULL-TIME EMPLOYEES:	105.00	106.00	107.00	109.00	108.00

* Decimals are due to sharing of some full-time positions among more than one department.
See section on "Authorized Positions" for additional detail.



**CITY OF CREVE COEUR
FISCAL YEAR 2024
FULL-TIME EMPLOYEE CLASSIFICATION PLAN AND PAY RANGES**

GRADE	POSITION TITLE	DEPARTMENT/DIVISION	ANNUAL*	
			Min	Max
7	Building Maintenance Technician	Community Services, Ice Arena	41,666.80	58,295.69
	Maintenance Worker	Golf Course, Ice Arena, Police-Administration,		
	Records Associate	Public Works-Streets, Parks Police-Administration		
8	Accounting Associate	Finance	44,516.02	62,279.57
	Administrative Services Associate	Community Development-Building, Public Works-Administration, Recreation		
	Court Clerk I	Administrative Services-Municipal Court		
	Maintenance Worker I	Building Maintenance, Golf Course, Public Works-Streets, Parks		
	Support Services Associate	Police-Administration		
9	Apartment Re-Occupancy Inspector/Code Enforcement Officer	Community Development-Building	48,575.54	67,952.81
	Court Clerk II	Administrative Services-Municipal Court		
	Executive Assistant to Chief of Police	Police-Administration		
	Maintenance Worker II	Building Maintenance, Public Works-Streets, Parks, Golf Course		
	Maintenance Worker II/Mechanic	Police-Administration, Public Works-Streets		
	Payroll Associate	Finance		
	Police Academy Recruit	Police-Patrol		
	Recreation Supervisor	Community Services, Ice Arena		
10	Administrative Services Supervisor	Community Development-Planning, Public Works-Administration	54,916.96	76,840.88
	Foreman I	Public Works-Parks, Streets		
	Golf Course Manager	Golf Course		
	Human Resources Generalist	Administrative Services		
	Residential Building Inspector	Community Development-Building		
	Senior Accounting Associate	Finance		
11	Assistant Director of Recreation	<i>vacant</i>	61,485.31	86,031.53
	Building Inspector	Community Development-Building		
	City Planner	Community Development-Planning		
	Court Administrator	Administrative Services-Municipal Court		
	Golf Maintenance Superintendent	Golf Course		
	Plans Examiner	Community Development-Building		
	Public Information Officer & Management Analyst	Administrative Services		
	Project Manager-Engineering	Public Work-Administration		

**GENERAL FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS			
COMMUNITY SERVICES - ADMINISTRATION			
	⁽¹⁾ Director of Recreation	0.2	0.2
	⁽¹⁾ Administrative Services Associate	0.5	0.5
	⁽¹⁾ Recreation Supervisor	0.5	0.5
		<u>1.2</u>	<u>1.2</u>
PART-TIME POSITIONS			
COMMUNITY SERVICES - ADMINISTRATION			
	⁽¹⁾ Receptionist - Comm. Serv./Ice	0.38	0.30
		<u>0.38</u>	<u>0.30</u>
		800	630
FULL-TIME POSITIONS			
MAINTENANCE OF MUNICIPAL FACILITIES			
	Building Maintenance Worker II	1	1
		<u>1</u>	<u>1</u>
FULL-TIME POSITIONS			
POLICE - ADMINISTRATION			
	Chief of Police	1	1
	Police Lieutenant-Professional Standards	1	1
	Police Captain-Support Services	1	1
	Police Officer-CPO	2	2
	Police Officer- SLCMPA Instructor	0	1
	Executive Assistant to Police Chief	1	1
	⁽²⁾ Maintenance Worker II/Mechanic	0	0.25
	Support Services/Fleet Maintenance Associate	1	1
	Records Associate	2	2
	Building Maintenance Worker	1	1
		<u>10</u>	<u>11.25</u>
PART-TIME POSITIONS			
POLICE - ADMINISTRATION			
	CALEA Accreditation Assistant	0.7	0.7
	Evidence Custodian	0.7	0.7
		<u>1.4</u>	<u>1.4</u>
		2912	2912
FULL-TIME POSITIONS			
POLICE - INVESTIGATIONS			
	Police Lieutenant	1	1
	Police Detective	5	5
	Police Officer-SRO	1	1
		<u>7</u>	<u>7</u>

**GENERAL FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS			
COMMUNITY DEVELOPMENT - BUILDING			
	Chief Building Official	1	1
	Senior Plans Examiner	1	0
	Plans Examiner	1	2
	Building Inspector	2	3
	Residential Building Inspector	2	0
	Apartment Re-Occupancy Inspector/Code		
	Enforcement Officer	1	1
	Administrative Support Associate	2	1
		<u>10</u>	<u>8</u>
PART-TIME POSITIONS			
COMMUNITY DEVELOPMENT - BUILDING			
		HRS	HRS
	Community Development Clerk	0.00 0	0.70 1456
		<u>0.00 0</u>	<u>0.70 1456</u>
GENERAL FUND TOTAL FULL-TIME (FTEs)		99.00 *	98.00 *
GENERAL FUND TOTAL PART-TIME (FTEs)		4.53	5.14

**MUNICIPAL ENTERPRISE FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS			
ICE ARENA			
	⁽¹⁾ Director of Recreation	0.8	0.8
	⁽¹⁾ Recreation Supervisor	0.5	0.5
	⁽¹⁾ Administrative Services Associate	0.5	0.5
	Building Maintenance Technician	1	1
	⁽⁶⁾ Maintenance Worker	0.2	0.2
		<u>3</u>	<u>3</u>
PART-TIME POSITIONS			
ICE ARENA			
		HRS	HRS
	Building Supervisor - Ice	1.44 3000	1.73 3600
	Custodian - Ice	0.38 780	0.00 0
	Learn to Skate Instructor	0.17 350	0.29 610
	Learn to Skate Coordinator	0.07 150	0.04 75
	⁽¹⁾ Receptionist-Comm. Serv./Ice	0.38 800	0.30 630
	Recreation Aide - Ice	0.53 1100	0.38 800
		<u>2.97 6180</u>	<u>2.75 5715</u>
FULL-TIME POSITIONS			
GOLF COURSE - MAINTENANCE			
	Golf Maintenance Superintendent	1	1
	Maintenance Worker II	1	1
	⁽⁶⁾ Maintenance Worker	0.8	0.8
		<u>2.80</u>	<u>2.80</u>
PART-TIME POSITIONS			
GOLF COURSE - MAINTENANCE			
		HRS	HRS
	Greenskeeper	0.91 1900	0.82 1700
		<u>0.91 1900</u>	<u>0.82 1700</u>
FULL-TIME POSITIONS			
GOLF COURSE - PRO SHOP			
	Assistant Director of Recreation	1	0
	Golf Course Manager	0	1
		<u>1</u>	<u>1</u>
PART-TIME POSITIONS			
GOLF COURSE - PRO SHOP			
		HRS	HRS
	Recreation Aide - Golf	1.58 3285	1.68 3500
		<u>1.58 3285</u>	<u>1.68 3500</u>
PART-TIME POSITIONS			
GOLF COURSE - FOOD SERVICES			
		HRS	HRS
	Concession Attendant	0.26 550	0.29 600
		<u>0.26 550</u>	<u>0.29 600</u>

**MUNICIPAL ENTERPRISE FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
ENTERPRISE FUND TOTAL FULL-TIME (FTEs)		6.80	6.80
ENTERPRISE FUND TOTAL PART-TIME (FTEs)		5.73	5.54
TOTAL FULL-TIME FTEs (ALL FUNDS)		109.00	108.00
TOTAL PART-TIME FTEs (ALL FUNDS)		10.25	10.68

Notes: ⁽¹⁾ Shared between Community Services and Ice Arena
⁽²⁾ Shared between Public Works-Streets and Police-Administration
⁽³⁾ Shared between Public Works-Administration and Sewer Lateral Fund
⁽⁴⁾ Shared between Public Works-Administration and Community Development-Planning
⁽⁵⁾ Shared between Capital Improvement Fund & Parks & Stormwater Fund
⁽⁶⁾ Shared between Golf Maintenance and Ice Arena



City of Creve Coeur

FY 2024

Preliminary Operating Budget



city
of

CREVE COEUR

300 North New Ballas Road • Creve Coeur, Missouri 63141
(314) 432-6000 • Fax (314) 872-2539 • Relay MO 1-800-735-2966
www.creve-coeur.org

April 17, 2023

Mayor Hoffman and Members of the City Council:

I am pleased to present the Fiscal Year 2024 (FY 2024) budget for your consideration. The proposed budget provides the resources necessary to continue to meet the high expectations of our community over the next year.

In the recent years, state and local governments everywhere continued to face similar long-term challenges of stagnant revenues, rising costs and fallout of the COVID-19 pandemic. Due to a concerted effort to limit expenditures to the extent possible, the City of Creve Coeur continues to be financially strong while providing high quality service to the community. The effect of inflation is witnessed both in revenues to some extent and in the rising costs of labor, services and commodities for equipment and supplies.

Long Range Planning

In developing the annual budget, the city staff relies upon a variety of planning documents, including the city's Strategic Plan, Comprehensive Plan, five-year Capital Improvement Plan, and the Parks and Recreation Master Plan. The annual budget provides many of the resources necessary for implementing the long-range objectives as identified in city's planning documents. In April 2022, a new Strategic Plan was adopted establishing and prioritizing goals for the next three years and was updated last month with new action items for FY 2024 by the City Council.

The city's Strategic Plan includes the following goals:

Strategic Goal 1: Invest in city services to make them effective and efficient.

One approach to investing in city services is to attract and retain qualified employees through competitive pay and benefits. In FY 2023, the city completed a comprehensive review of the city's benefit package in completion of a first year action item and results showed the city is a strong competitor in many benefits areas, but has opportunities for enhancements. Several benefit enhancements proposed in FY 2024 are soft costs, such as modifying paid time off schedules, while others will require an additional investment by the city, such as providing a cost of living adjustment (COLA) to Legacy Plan retirees and enhancing the level of the LAGERS retirement plan to be more comparable with cities in the St. Louis Metropolitan Area. City staff reviewed salaries and pay ranges of employees as part of its annual budget planning process and compared them with peer cities in the area and is proposing a 3% cost of living adjustment (COLA) in FY 2024 for all full-time staff along with increases for the annual merit plan and step plans to provide some relief from income loss due to inflation. Competitive pay is particularly important now when facing a depleted applicant pool

and to remain competitive with peer cities. Also in FY 2024, staff will be developing an individualized compensation report to efficiently communicate the value of city benefits to employees annually.

City staff made progress in several areas designed to streamline and improve city processes in FY 2023 including the acquisition and implementation of new building permitting and agenda management software programs. Both new software systems will provide electronic access to city files while reducing the city's carbon footprint by utilizing more paperless processes to the extent possible. Also in FY 2023, the city transitioned from semi-monthly to biweekly payroll which improved the efficiency of the payroll process and increased the pay frequency for employees. In FY 2024, digital archiving of permanent records is anticipated to be completed, possibly through a state grant as well as exploring staff scheduling software to improve efficiency.

An ongoing goal of staff and City Council is to seek opportunities for revenue enhancements to continue being a community of choice with high-level services. On April 4, 2023, voters approved Prop M, a 3% additional tax on recreational marijuana which was legalized in Missouri in November 2022. This new tax revenue will be dedicated to public safety purposes including equipment, training and other program costs related to public safety. In FY 2024, staff will continue educating residents about the local use tax, the uses of it in maintaining current service levels, and how it is a more equitable to Creve Coeur businesses that invest and reside in our community and must compete with online and out-of-state companies that do not pay local sales tax.

Strategic Goal 2: Invest in infrastructure and facilities to support the local economy and quality of life.

The Government Center – previously an elementary school built in the 1950s and renovated for its current use in 1989 – lacks adequate office, meeting and archival space, and needs equipment and infrastructure replacements. In FY 2023, an updated space needs analysis was completed including cost estimates to renovate the existing building, or build a new one. The high estimated costs deterred proceeding further with construction at this time. To prepare for the cost of a new Government Center in the future, the FY24 budget for FY24 proposes to set aside funds for this purpose in each of the next five years. By FY28, this reserve will reach \$7 million and reduce the amount of future debt required for a new facility. In the meantime, staff will undertake short-term repairs and renovations to the Government Center including much needed roof repairs to ensure the facility remains functional, safe and inviting for employees and the public.

The automotive market is rapidly moving towards electric vehicles (EVs). In response, in FY 2024 new EV charging stations will be installed at the Police Building to make it possible for the city to invest in more hybrid and electric city vehicles in support of green energy and be more accommodating to the public. This project is eligible for rebates under an Ameren Missouri Program that covers half of the cost of EV charging station equipment and installation.

The Ice Arena located in the Dielmann Recreation Complex requires maintenance and capital upgrades to address an aging facility and aging and/or obsolete equipment including conversion or replacement of the R-22 coolant system, HVAC and flooring replacement, and roof repairs which are included in the 5-year CIP plan (FY 2024 - FY 2028). Alternative uses to the Ice Arena were considered in FY 2023, and there was a City Council decision to proceed with the \$2.2M ice refrigerant system conversion and other repairs in FY 2024, all of which were made possible by a \$525K Municipal Park Grant, \$1.6M in American Rescue Plan Act (ARPA) funds, and the Capital Improvement Fund.

Street and sidewalk projects represent significant investments made by the city each year which are primarily paid for through Capital Improvement Fund revenues coupled with staff's success in obtaining federal and state grants to offset costs whenever possible. The quinquennial street condition analysis was updated in FY 2023 and will guide the pavement management program for the next five years. In addition, the \$1.3M Mosley Road Improvement Project, partially-funded Surface Transportation Project (STP) grant project (\$760K), was completed and included realignment and resurfacing of the road and sidewalk improvements between Olive Boulevard and Ladue Road. ARPA funds (\$1.5M) will also be used to support capital improvements to city streets in late FY23 a year in which the city's street and sidewalk construction program exceeded \$5.4M. Anticipated to be completed in FY 2024, is the \$1.3M New Ballas Road Improvement Project – Phase I, also partially-funded by an STP grant (\$960K), includes concrete pavement replacement, right-of-way acquisition and construction for the area between Olive Boulevard to Craig Road.

In FY 2023, the early stages of the development of a Watershed Management Plan (\$448K) are underway and anticipated to be complete in FY 2024. Included in the cost are funds to develop stormwater concept plans for long-standing priority level projects in FY 2024 partially funded by Missouri Sewer District's Operations, Maintenance and Construction Improvements (OMCI) grants. The Watershed Management Plan will include an in-depth study of stormwater behavior and needs throughout Creve Coeur to provide a sound, proactive basis by which the city can approach stormwater management investments in the future.

Strategic Goal 3: Promote safety and well-being of the community.

The Creve Coeur Police Department – specifically the quality of employees who serve – are the keystone to providing safe and secure community for residents, businesses and visitors. Following record high post-COVID employee turnover across the nation, police officer recruitment was a priority in FY 2023 and many benefit enhancements such as mental health checks on a triennial basis and other policy changes were implemented to attract and support the next generation of police officers in the community. In FY 2023, the Police Department expanded the use of license plate readers at intersections in the city as an important crime-solving tool, and research costs associated with upgrading security systems in various parks.

The well-being of the community includes a having spaces where people can play and enjoy the great outdoors. In FY 2021, the Parks and Stormwater tax was passed by voters providing much-needed revenues to make many new projects possible. In FY 2023, one-mile of resurfaced asphalt paths was completed in Conway Park along with the removal of two historic log cabins – Cluster and Hackmann – which were donated by the City of Creve Coeur to St. Louis County. In FY 2023, the log cabins were disassembled and relocated to Faust Park where they will be rebuilt and restored by preservationists for future generations to learn about the life of early settlers in the region.

In FY 2024, approximately \$4.8M is budgeted for parks and stormwater projects as outlined in the Capital Improvement Plan. A significant park projects planned in FY 2024 includes \$2.3M for Millennium Park Improvements – Phase I which includes a site design for the west half of the park, a new playground, splash pad, and park benches, and walkway connections in this section with construction beginning in late summer 2023 and continuing into spring 2024.

Strategic Goal 4: Actively engage Creve Coeur residents and seek input from diverse perspectives.

One of the many ways the city seeks input from residents is through face-to-face conversations. In FY 2023, the city resumed the Subdivision Trustee Annual Meeting after a two-year hiatus following the COVID pandemic. This type of public venue is an effective way for City Council and staff to engage with subdivision leaders to listen to concerns and also talk about city projects and services that may benefit them. Another way the city engages residents is by making access to public information easy, thereby being good stewards of public trust through transparency. The City implemented a new agenda management software for governing bodies to promote public meetings and more efficiently share information about local government activities. Mayor Hoffman was elected to serve on the Board of Directors of the Municipal League of Metro St. Louis (MML) and members of the City Council attended the MML and National League of Cities conferences where they can learn about the significant part they play in protecting and preserving the quality of life in their own respective cities and towns, regionally and statewide.

A multi-year project is anticipated to be completed in FY 2024, namely the construction of a commemorative artwork project (\$228K) planned for Venable Park which resides on land acquired by the city in the late 1950s from Dr. H. Phillip Venable through eminent domain and motivated by bigotry and racial animus. The memorial artwork design will be selected to provide a lasting and engaging memorial in honor Dr. Venable. In addition, the Arts Committee and Parks and Historic Preservation Committee will be collaborating to find new ways of encouraging cultural events in the city and brainstorming ways to celebrate the City's 75th anniversary and the 100th anniversary of the golf course in calendar year 2024.

Strategic Goal 5: Encourage high quality development in order to strengthen and diversify the economy and provide additional services and amenities to residents.

One way the city supports economic diversity is through effective zoning codes to ensure the city has a portfolio of different zoning districts to support commercial and residential life. In FY 2023, the Planning and Zoning Commission (P&Z) and City Council approved a revised drive-thru ordinance in fall of 2022 which was prompted by a rise in contactless food service during the pandemic and concerns with several components of the prior ordinance. Amending the ordinance allows more flexibility for drive-throughs that do not abut single-family homes, more restaurant and business choices for residents, and improves opportunities for revenue enhancements. In FY 2024, staff and the P&Z will work on revising the zoning ordinance to address and encourage electric vehicle infrastructure in support of market trends toward use of electric vehicles to expand opportunities for additional amenities to businesses, residents and visitors to Creve Coeur.

The 39 North Agtech District (39N) continues to be an area of significant importance for Creve Coeur and the entire region. The 600-acre mixed-use area is anchored by the Donald Danforth Plant Science Center, BRDG Park, Helix Incubator, Benson Hill, Bayer Crop Science, the Yield Labor and others. In FY 2023, Bayer – the largest landowner in Creve Coeur – sold its 95-acre west campus. Staff has received an application from the developer proposing a mixed-use development which will include multifamily housing, office space, ground floor retails and a hotel which will help support the growing synergy of this ag-tech business and research area. In FY 2024 staff will be working on a Comprehensive Plan update to include redevelopment of the former Bayer West Campus and updating the City's planned development ordinance to serve as a flexible zoning alternative for the city along with looking at ways to encourage redevelopment in the East Olive Corridor.

By the end of FY 2023, construction preparation will begin for a grant project involving partial reconstruction of the intersection of Lindbergh Boulevard and Old Olive Street Road. This project will include a signalized intersection and a pedestrian crossing. The project will connect Old Olive east and west of Lindbergh, a critical step toward implementation of the Old Olive Great Street Plan and the 39N Master Plan.

GENERAL FUND

Long-range revenue and expenditure projections for the General Fund are included in Section 2 of the proposed budget. In FY 2024, operating revenues are projected to outpace operating expenditures by \$671,122. After interfund transfers, the fund balance is expected to decrease by \$445,373. This decrease is due to a one-time transfer of \$1.9M in ARPA funds to the Capital Fund.

Long-Range Outlook

Prior to FY 2022, despite a very strong local economy in Creve Coeur, the city continued to experience flat revenue growth, as the city's general fund revenues increased an average of only 1.07% for the previous ten-year period. However, starting in FY 2022, sales tax and utility taxes have increased and continue to increase, accounting for 72% of the city's General Fund revenue.

The long-term global trend from brick and mortar to on-line shopping accelerated during the pandemic. Cities across the state and nation have increasingly adopted a use tax to recover the revenue losses resulting from the trend to on-line purchases, and is a matter which the City Council and Finance Committee continue to discuss and consider for the future.

General Fund Reserves

Creve Coeur continues to maintain a substantial reserve in its General Fund, projected at \$21.6 million at the end of FY 2024 or 132.1% of annual operating expenditures. The city's substantial reserves provides the opportunity to set aside funds for long-term capital needs:

- \$3M is reserved for future replacement of the Government Center; and this reserve is proposed to increase by \$1M each year over the next five years;
- \$1M is reserved for unforeseen street construction or repairs;

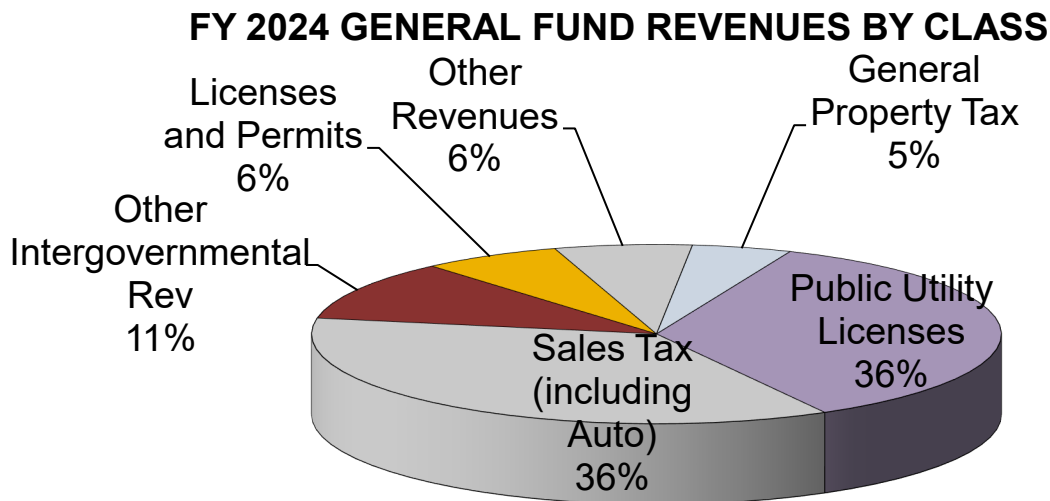
After accounting for these assigned purposes, the city is projected to have an unassigned fund balance of \$17.4M or 106% of annual expenditures. By FY 2028, the city's General Fund unassigned reserves are projected to be reduced to \$12.4 million, or 66% of annual operating expenditures. This figure is still well above the city's reserve policy of maintaining at least four months of the previous two years average expenditures, or 33% of annual expenditures.

An annual transfer of \$400,000 of County Road and Bridge Tax revenues is made each year to the Capital Improvement Fund, consistent with the intended use of these revenues for road improvements and repairs. The balance of these funds support Street Division operations in the General Fund.

By maintaining a substantial reserve, the city has been able to respond to emergencies, pursue grant-match opportunities and maintain a triple-A credit rating.

General Fund Revenues

The city's revenue stream relies heavily on retail sales tax (35.9% of General Fund revenues) and utility licenses (35.6% of General Fund revenues). For FY 2024, operating revenues for the General Fund are projected to increase 1.4% from projected FY 2023 revenues when you exclude the one-time payment from ARPA Funds of \$1.9M. This increase is primarily due to an increase in sales tax and an increase in utility tax rates. The City received half of the ARPA funds in FY 2022 and FY 2023 (\$3.9M), but these are one-time revenues. The City plans to utilize most of these funds on Street and Ice Rink projects in FY 2023 and FY 2024. A brief explanation of revenue projections for FY 2024 is provided below:



Intergovernmental Revenues, which include sales tax, gas tax, and county road and bridge tax, comprise 47% of operating revenue, are projected to decrease by .2%, but only because of the one-time ARPA Funds received in FY 2023. Without the ARPA Funds, the Intergovernmental Revenues are projected to increase 11.5% in FY 2024.

The city sales tax portion of Intergovernmental Revenues, based on the city's sales tax rate of 1.25% but is subject to the St. Louis County sharing formula, whereby a portion of revenues are shared with other cities and the county. The city's sales tax for FY 2023 is projected to be \$5,934,458, or 10.5% more than FY 2022 and 16% more than FY 2019, which is the last full year not impacted by the pandemic. For FY 2024, staff is projecting a modest 2% increase.

Public Utility Licenses, which comprise 36% of the city's operating revenue, is projected to increase 6.9% in FY23 over FY22. For FY 2024, an overall increase of 4.3% to \$6,269,755 is budgeted due for public utility licenses due to recent or anticipated rate increases.

The city's current **Real Estate Tax** rates per \$100 of assessed value are \$.073 for residential and \$.083 for commercial property and are expected to decrease for FY 2024 since it is a reassessment year. Higher reassessments will result in lower property tax rates due to Missouri state law. General Fund real estate tax revenues for FY 2024 are projected to increase 6% to \$824,655. The city's General Fund portion of property tax represents one percent of the total property tax bill including the school and fire districts and other taxing authorities.

The City of Creve Coeur, unlike all other taxing jurisdictions serving our residents, does not include a tax on personal property for its general levy.

Licenses and Permits are projected to decrease by 17.8% to \$1,151,285 for FY 2024. Building permit revenues are projected to decrease by 23.4% to \$675,000 following three consecutive exceptional years, where we saw several large projects being initiated.

Apartment Re-Occupancy permit revenues are projected to decrease to \$96,000 in FY 2024 as a result of apartment facilities improving their new occupant procedures.

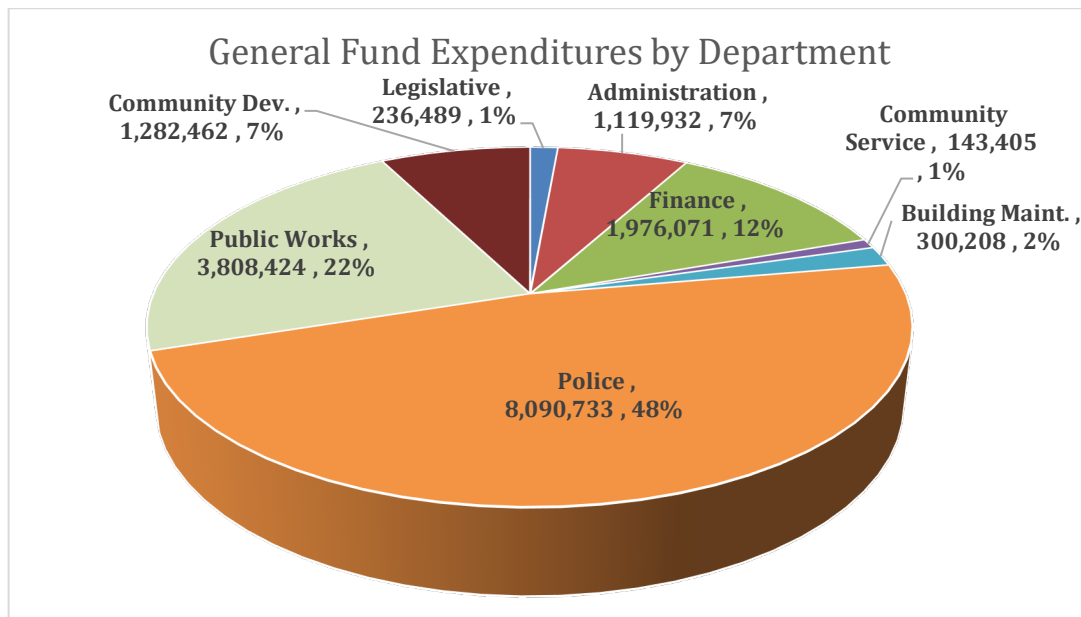
Business license revenues are projected to increase 1% in FY 2024, at \$210,406. While a number of businesses closed during the pandemic, the City continues to gain a number of new businesses to help offset the loss. Therefore, this revenue was only slightly affected by COVID-19. The city's business license rates have not been adjusted since the early 1990s.

Municipal Court revenues are projected to increase by 1% in FY 2024 to \$393,640, as Municipal Court sessions was substantially curtailed in FY 2021 and FY 2022 due to the pandemic, but have slowly returned to normal.

Interest on Investments increased in FY 2023 a result of interest rates continuously increasing after COVID-19, but interest rates are expected to level off for FY 2024, with interest revenue budgeted at \$450,000.

Charges for Municipal Facilities are projected to increase 3% at \$52,000, and can be attributed to the increase in park programs since they declined in FY 2021 due to the COVID-19 pandemic. This is down \$20K or 28.2% from the last full pre-pandemic year of FY 2019 as a result of not opening up reservation of the Multi-Purpose Room or either one of the two meeting rooms.

General Fund Expenditures



Fiscal Year 2023 expenditures are projected to be 3.7% lower than budgeted mainly due to many vacancies. FY 2024 is projected to be 7.4% higher than projected expenditures for FY 2023 mainly as a result of personnel and benefit increases in addition to the large number of full-time position vacancies in FY 2023. As the chart below demonstrates, personnel services comprise 71.28% of our General Fund budget.

<u>Expenditure Category</u>	<u>FY 2023 Projected</u>	<u>FY 2024 Budget</u>	<u>Percentage Change</u>
Personnel Services	\$10,911,552	\$11,818,856	8.3%
Operating Expenses	\$4,355,131	\$4,635,888	6.4%
Capital Outlay	\$515,056	\$502,980	-2.3%
TOTAL	\$15,781,739	\$16,957,724	7.5%

Personnel Services

The Police Department composes the majority (55%) of the General Fund personnel expenditures. The Public Works Department makes up the next largest portion of the city's personnel costs (14.4%).

Major factors affecting personnel expenditures in FY 2024 are outlined below.

- The total full-time employee population has decreased two full-time positions in FY 2024 which were vacated in FY 2023 through attrition, namely a building inspector and administrative services associate. The administrative services associate position was reclassified to part-time bringing the total full-time employee count to 107 in FY 2024.
- Minimum and maximum salary ranges are recommended to increase 3% for all merit plan grades and 3.5% for all commissioned grades in addition to reclassifying a few positions to higher salary grades due to traction lost in recent years following salary freezes and/or conservative merit increases and to be more comparable with competitor cities.
- A 3% cost of living adjustment (COLA) is proposed for all merit based employees; a 3.5% COLA for all step based employees (police officers and sergeants); and a few market equities to adjust actual salaries to be more comparable with select cities at a cost of \$252,439.
- A 4% merit increase is proposed for merit plan employees and a 3.5% step increase for step plan employees as well as a few market equity adjustments for certain positions whose actual salaries are lagging based on salary data with comparator cities at a total cost of \$231,517.
- Longevity pay has been frozen since FY 2011, and will decline rapidly as long-term employees retire from the city. Only employees hired before August 1, 2004 are eligible for longevity pay and receive \$8 pay per month, for each year of service to the city (a 10-year employee receives \$80 per month, or \$960 per year in longevity pay). For FY 2024, longevity pay will total \$23,424, down sharply from \$79,700 ten years ago.

- Effective July 1, 2009, the city elected to pool its health insurance with other municipalities in the St. Louis Area Insurance Trust (SLAIT) in an effort to reduce rate volatility and gain more control of the plan from year to year. In FY 2024, rates are projected to increase 4% which will increase the premiums \$49,573 to \$1,289,093*. As previously discussed, the city also implemented a spousal surcharge program effective January 1, 2021, which results in an annual savings of approximately \$125K in spousal premiums costs and spousal surcharge fees. The surcharge applies only to spouses who are provided with health insurance coverage through their employer but have opted for the city's plan. In addition, SLAIT and the City of Creve Coeur have implemented an ambitious wellness program to encourage healthy life-styles among our workforce.
- The city's legacy defined benefit (DB) pension plan covers employees hired on or before June 1, 2006. In previous years, the unfunded liability costs associated with the legacy plan had been dispersed and shared among all of the department operating budgets with active members in the plan; however, beginning in FY2022, these unfunded liability costs were expensed to the Finance Department-Interdepartmental budget for more accurate tracking of these expenses totaling approximately \$528,379 for FY 2024, which is up from the \$472,760 in FY 2023 as a result of less active employees in the legacy plan to contribute to the costs. The employee contribution to the legacy pension plan (4%) is projected to generate \$78,199 to offset a portion of the city's total contribution to the pension fund, budgeted at \$1,062,820*. The city's FY 2024 budgeted contribution is \$97,615 more than the contribution for FY 2023. The City Council and Pension Board adopted a 10-year amortization schedule to retire the unfunded pension liability, but due to adopting the current mortality table and reducing the earnings assumption from 7% to 6.75% in FY 2019, and then to 6% in FY 2022, the amortization schedule has been extended to a 14-year period. Additionally, in FY 2021 the percentage of funds transferred from the Public Safety Fund to the General Fund was increased from 15% to 20% to offset a portion of the expenses associated with police officers in the legacy DB plan. This transfer will offset General Fund pension costs associated with the legacy DB plan by \$242,162 in FY 2024.
- Employees hired after June 1, 2006, are in the LT-8(65) Missouri Local Government Employees Retirement System (LAGERS) and contribute 4% of their salary to the plan. The 4% employee contribution is projected to generate \$228,335*. The city's contribution to LAGERS is budgeted at \$422,266*.

**Combined General Fund, Capital, Sewer Lateral, Parks & Stormwater and Enterprise Fund.*

Operating Expenses are projected to increase by 6.4% to \$4,635,888 in FY 2024. The city's trash and recycling contract represents the city's largest non-personnel related operating cost. The city entered into a 5-year contract extension with Republic Waste in FY2021, which calls for up to a 4% annual increase. For FY 2024, trash and recycling contract costs are budgeted at \$874,955. Building & ground maintenance, auditing services, office equipment maintenance, utilities, planning & design services, education & training, travel & conferences, temporary personnel services, property & liability insurance, snow removal, vehicle maintenance and fuel represent other large areas of non-personnel related costs.

Capital Outlay Expenses in the General Fund budget are projected to be \$502,980 for FY 2024. This amount represents a 20.9% decrease over the estimated FY 2023 expenditures with most of the decrease due to a decrease in police vehicle replacement.

A listing of capital outlay expenditures may be found in the department budget in accounts 9501 through 9505. Capital outlays are generally one-time expenditures or expenditures for items which have a useful life of longer than one year such as building improvements, vehicles, equipment, office machines and furniture and fixtures.

Significant capital outlay expenditures are identified in each of the departmental budgets.

Budget Highlights

Within each departmental budget you will find a section titled “Budget Highlights,” describing new or expanded programs, purchases or trends of note.

CAPITAL IMPROVEMENT FUND

The city’s capital program reflects an emphasis on preservation of existing infrastructure, and aggressively pursuing outside funding to offset the city’s cost where possible.

The five-year plan (FY 2024–FY 2028) includes approximately \$21.8 million in total capital outlay with the major emphasis on street reconstruction and resurfacing. Staff evaluates and prioritizes specific streets and types of treatment based on the city’s street rating system, most recently updated by a third party consultant in FY 2023.

The proposed Capital Fund budget is based on the five-year Capital Improvement Plan (FY 2024 – FY 2028), which was submitted to the City Council on February 27 and scheduled for approval on April 24, 2023.

Capital Fund Revenues

Funding sources for infrastructure and city facilities’ needs are limited to our capital improvement sales tax, grants and transfers from the General Fund. As sales tax revenues have been stagnant over the last decade until FY 2022, transfers from the general fund will continue to be an important revenue source to ensure proper maintenance of our infrastructure.

The half-cent capital improvement sales tax is the major funding source for the Capital Improvement Fund. Capital sales tax revenues are projected to be \$2,422,402 at the end of the current fiscal year, up 10.3% from FY 2022 and up \$255K over FY 2019, which was the last full pre-pandemic fiscal year. A 2% increase in sales tax revenue is projected in year 2024 due to businesses returning to normal after the COVID-19 pandemic.

Historically, General Fund transfers of \$400,000 have been recommended and included in the Capital Improvement Plan to provide funding to maintain a robust street maintenance program and consistent with the intended use of county road and bridge revenues.

The city has been successful in obtaining grant funding for street and park projects, and it is anticipated that we will be able to obtain future grant funding to supplement the plan as presented.

The city received a total approximately \$3.89 million in Federal ARPA funds in FY 2022 and FY 2023. As these funds are one-time in nature, it is the recommendation of city staff to use these funds for one-time, capital investment. These funds have been allocated in the FY 2023 and FY 2024 budget

for street and sidewalk maintenance program that was delayed during the COVID-19 pandemic and for several projects related to the ice arena refrigerant switchover, dehumidification system and compressor repairs.

Capital Fund Expenditures

The FY 2024 projects are outlined in detail in the Capital Improvement Program (CIP) budget. Expenditures by major category in the Capital Fund are as follows:

- Building and Improvements - \$492,500
- Park Development Projects - \$2,723,000 (offset by \$1,670,535 from ARPA Funds)
- Street and Sidewalk Improvements - \$4,271,500 (offset by \$2,705,410 from grant funding)
- Capital Equipment - \$674,000
- Administration - \$153,104

PARKS AND STORMWATER FUND

As previously mentioned, in November 2020, voters in Creve Coeur approved a half-cent tax increase (Prop C), that is dedicated to capital improvements, operations and maintenance of city parks and stormwater infrastructure. Use and allocation of revenues generated by the parks and stormwater sales tax is guided by city policy included in the “Financial Policies” section of the budget.

Parks and Stormwater Revenues

The new half-cent tax went into effect on April 1, 2021 and revenues for FY 2023 are projected to be \$2,912,168 and \$2,970,412 is budgeted for FY 2024, which is a 2% increase.

The city also projects \$400,000 in funding from other agencies, including funding from the re-established Operations, Maintenance and Capital Improvement (OMCI) Deer Creek Watershed District by MSD.

Parks and Stormwater Expenses

The FY 2024 projects are outlined in detail in the CIP. Expenditures by major category in the Parks-Stormwater Fund are as follows:

- Parks and Recreational Facilities - \$2,987,250
- Stormwater - \$1,120,000
- Capital Equipment - \$30,000
- Administration - \$137,795

BUILDING PROJECT BOND FUND

In FY 2017, voters approved a \$10.635 million general obligation bond measure to finance the construction of a new police building on the existing property of the Creve Coeur Government Center and make safety and security improvements to the Government Center. Construction of the police building was completed by FY 2021.

PUBLIC SAFETY SALES TAX FUND

A countywide Public Safety sales tax was approved by voters on April 4, 2017. Cities in St. Louis County share 5/8 of the revenues based on population. The budgeted amount to be received by the City of Creve Coeur in FY 2024 is \$1,235,028. These revenues will help offset the increasing cost of providing high quality police services including maintaining competitive salaries and benefits, moving to a step pay plan, equipment, technology, training, and maintenance and operating expenses for the new Police Station. The city's adopted policy on use of these funds can be found under the "Financial Policies" section of the budget.

FY 2024 includes transfers out of the Public Safety Fund into the General Fund to cover the increase in pension contributions for the Police Department \$242,162. This amount increased from 15% to 20% of the sales tax in FY 2021.

Operating expenditures for the new Police Station, including utilities and maintenance, are budgeted at \$157,539 for FY 2024.

Part of the fees collected by municipal court provide funding for police training, but these revenues have been in decline due to Senate Bill 5 and other changes in the municipal court rules. The Public Safety Fund provides another source of training revenue, budgeted at \$43,250 in FY 2024.

Other capital items, including building upgrades, firing range lead abatement, replacement of carriers for patrol, Millennium Park cameras, police interview room camera and 3 additional Flock license plate recognition (LPR) cameras are just a few of the items included in FY 2024.

BUILDING PROJECT DEBT SERVICE

The debt associated with the Building Project Fund will be paid through real and property tax assessment and will sunset after 20 years (2037). The current rate of \$.082 is also budgeted for FY 2024.

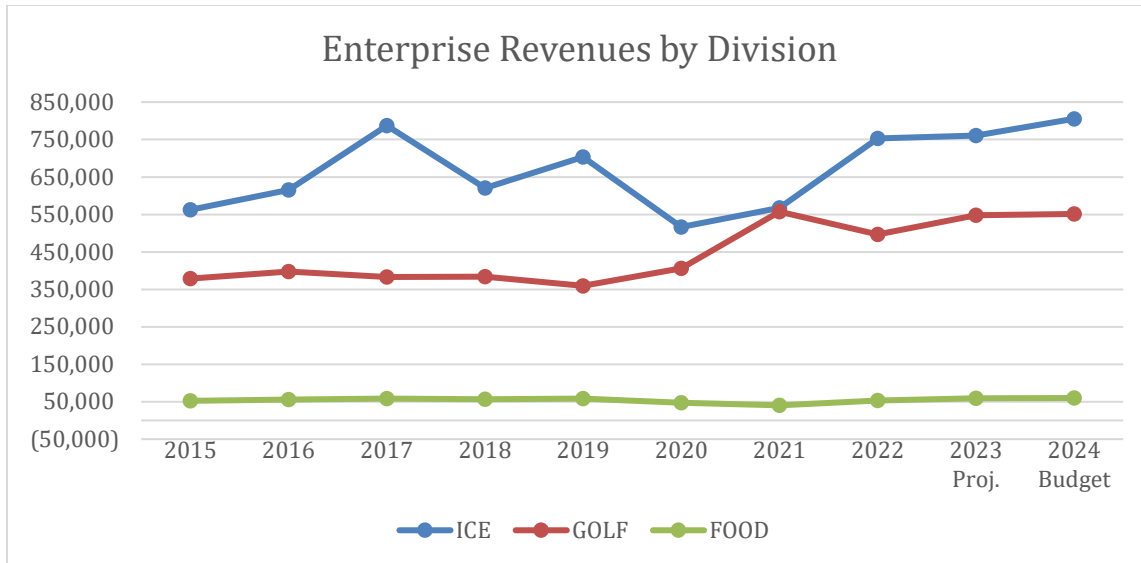
In FY 2023, the City executed a bond defeasance allowing the City to set the debt levy back to the original \$.082 per \$100 of Assessed Valuation. Doing this will allow the City to defease a portion of the Series 2017 Bonds maturing on March 1, 2037, in the aggregate principal amount of \$575,000. Doing a defeasance allows the City to pay off the bonds faster and also allows the City the option of issuing bonds again before the 20-year maturity at the same rate (subject to voter approval).

In FY 2024, property tax revenue is budgeted to be \$964,600, with interest revenue of \$9,500.

Interest expense is estimated to be \$215,588, and principal expense is anticipated to be \$480,000 in FY 2024.

MUNICIPAL ENTERPRISE FUND

The Municipal Enterprise Fund (MEF) includes the operations, maintenance and capital outlay of the city's golf course and ice arena. The fund is comprised of four divisions: Golf Course/Pro Shop, Golf Course/Maintenance, Ice Arena, and Food Services.



MEF Revenues are projected to be 3.6% higher in FY 2024 (\$1,416,861). The golf course has seen a substantial increase over FY 2019, up 53.8%, as residents and non-residents have sought outdoor activity while schools and businesses have been closed. The ice arena, even saw an increase over FY 2019 of \$100,112 or 14.2%.

Operating Expenses for the Enterprise Fund are anticipated to increase by 2.9% to \$1,313,641. This increase is mainly due to an increase in personnel costs.

We continue to strive for the MEF to offset all operating expenses with operating revenues. No General Fund transfers to support MEF operations are projected over the next five (5) years.

Ice Arena

Ice Arena revenues are estimated to increase 3.1% over projected FY 2023 revenues to \$784,188 in FY 2024. Estimated expenses for FY 2024 are projected to increase 4.71% to \$644,766 when compared to projected expenses for FY 2023. An increase in expenses resulted primarily from an increase in personnel costs. The decrease in revenues is due to a projected one-month shut-down of the ice arena during renovations related to installation of a new refrigeration system. A temporary chiller will be used for the majority of the construction period.

Golf Course

Golf Course revenues are budgeted to increase in FY 2024 by .74% to \$551,563 when compared to projected revenues for FY 2023. Estimated expenses for FY 2024 are projected to increase by 1.76% to \$619,430 over projected FY 2023 expenses of \$608,695.

The city entered into a 4-year lease agreement for golf carts in FY 2023. The lease arrangement is financially advantageous to the city as well as providing a better level of service to course patrons.

Food Services

Food Service revenues are projected to increase slightly in FY 2024 to \$59,800 compared to projected FY 2023 revenues of \$59,300. Estimated expenses are projected to decrease to \$49,445 compared to projected FY 2023 expenses of \$52,143.

Budget highlights and detail for Golf, Food, and Ice are included within the proposed budget.

EMPLOYEE RETIREMENT FUND

The city maintains a legacy defined benefit retirement plan for vested city employees hired prior to June 1, 2006. Contributions are made to the fund annually based on actuarial assumptions and investment performance. The employer contributions for FY 2024 are budgeted at \$1,062,820 including interest compared with FY 2023 employer contributions of approximately \$965,205 plus interest. .

In addition to the Employee Pension Board adopting a more conservative investment earnings assumption of 6% starting in FY 2022 (down from 6.75%), the most current mortality table was implemented in FY 2022 and the 10-year amortization schedule was extended to a 14-year schedule.

The FY 2024 budget includes an employee contribution of 4% of salary by participating employees with less than 30 years of service (\$78,200) to help offset a portion of the cost of the legacy defined benefit pension plan.

CONCLUSION

Accountability to our community is the cornerstone upon which trust and support are built. Continuously setting high standards and determining priorities to meet the expressed needs of our community continues to set Creve Coeur apart from other cities.

The FY 2024 budget is hereby presented for your consideration, setting forth a work plan we believe will provide the services Creve Coeur residents have come to expect from the city. We look forward to the upcoming budget discussions with the Mayor and City Council and the Finance Committee.

Many members of the staff have worked long hours to prepare this year's budget. They have labored to make it as accurate as possible and organized it so that the budget will serve as both a tool for decision-making and a communicator of policy. Special recognition goes to Finance Director Lori Obermoeller, Senior Accounting Associate Tracy Brothers, and Assistant City Administrator Sharon Stott for their diligence in developing this budget for your consideration.

Sincerely,



Mark C. Perkins
City Administrator



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CITY OFFICIALS

MAYOR

Robert Hoffman

CITY COUNCIL

Ward I

Mark Manlin
Heather P. Silverman

Ward II

Tim Carney
Nicole Greer

Ward III

David Z. Hoffman
Sari Neudorf

Ward IV

Joe Martinich
Dan Tierney

ADMINISTRATIVE STAFF

City Administrator

Mark C. Perkins, ICMA-CM

Assistant City Administrator

Sharon M. Stott, MBA

City Attorney*

Carl Lumley

Prosecuting Attorney*

Stephanie Karr

Alternate Prosecuting Attorney*

Melissa Price Smith

Municipal Judge*

Timothy Engelmeyer

Provisional Municipal Judge*

Mary Bruntrager

City Clerk

Kellie Henke

Chief of Police

Jeffrey Hartman

Director of Finance

Lori Obermoeller, CPFO, MBA

Director of Public Works

Jim Heines

Director of Community Development

Jason W. Jaggi, AICP

Chief Building Official

Gregory B. Tate, CBO, MCP

Director of Recreation

Jason E. Valvero

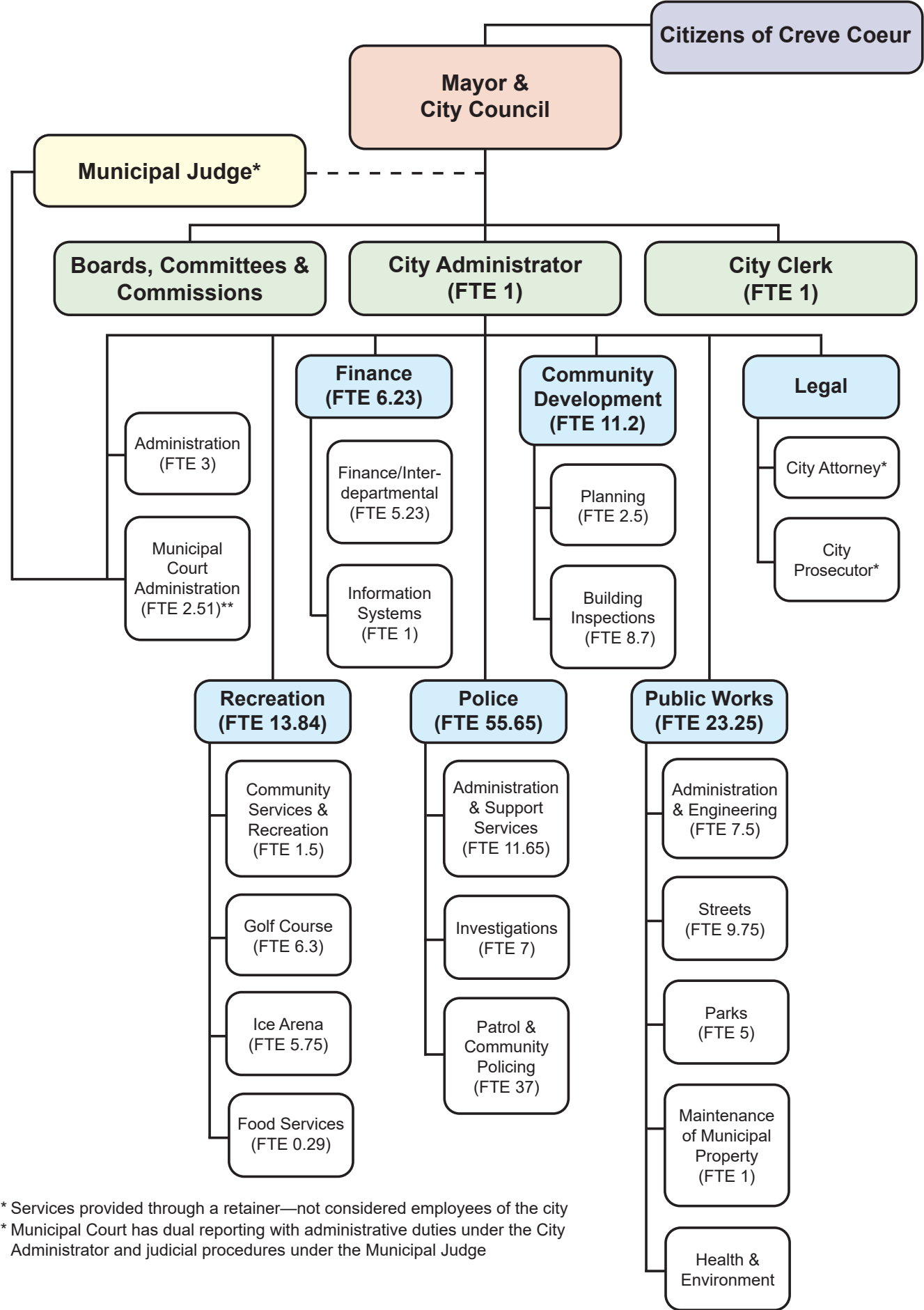
Assistant Director of Recreation

Tim Brinks

**Independent contractors.*



Organizational Chart



* Services provided through a retainer—not considered employees of the city

** Municipal Court has dual reporting with administrative duties under the City Administrator and judicial procedures under the Municipal Judge



GOVERNMENT FINANCE OFFICERS ASSOCIATION

*Distinguished
Budget Presentation
Award*

PRESENTED TO

**City of Creve Coeur
Missouri**

For the Fiscal Year Beginning

July 01, 2022

Christopher P. Morill

Executive Director



BILL NO. _____

ORDINANCE NO. _____

**AN ORDINANCE ADOPTING THE ANNUAL BUDGET OF THE CITY OF CREVE COEUR
FOR THE FISCAL YEAR 2024 COMMENCING JULY 1, 2023 AND
APPROPRIATING FUNDS PURSUANT THERETO**

WHEREAS, THE ANNUAL BUDGET FOR THE FISCAL YEAR COMMENCING ON JULY 1, 2023 HAS BEEN PROPOSED IN ACCORDANCE WITH STATE LAWS AND THE CITY CHARTER, AND

WHEREAS, THE FINANCE COMMITTEE REVIEWED AND RECOMMENDED APPROVAL OF THE PROPOSED BUDGET, AND

WHEREAS, A COPY OF THE PROPOSED BUDGET HAS BEEN AVAILABLE FOR PUBLIC INSPECTION AT THE CREVE COEUR GOVERNMENT CENTER AND A PUBLIC HEARING ON THE BUDGET WAS CONDUCTED ON JUNE MAY 12, 2023, AT WHICH TIME ALL PERSONS WERE GIVEN AN OPPORTUNITY TO BE HEARD IN ACCORDANCE WITH CITY CHARTER REQUIREMENTS AND A NOTICE OF THE PUBLIC HEARING AND A GENERAL SUMMARY OF THE PROPOSED BUDGET WERE PUBLISHED IN THE ST. LOUIS COUNTIAN ON MAY 12, 2023, AND

WHEREAS, A COPY OF THIS ORDINANCE HAS BEEN MADE AVAILABLE FOR PUBLIC INSPECTION PRIOR TO ITS ADOPTION AND THIS BILL WAS READ BY TITLE IN AN OPEN MEETING TWO TIMES BEFORE FINAL PASSAGE.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI AS FOLLOWS:

SECTION 1: THE ANNUAL BUDGET FOR THE CITY OF CREVE COEUR, MISSOURI FOR THE FISCAL YEAR COMMENCING ON JULY 1, 2023, A COPY OF WHICH IS ATTACHED HERETO AND MADE A PART HEREOF AS IF FULLY SET FORTH HEREIN IS HEREBY ADOPTED. PURSUANT TO CHARTER SECTION 9.5(D), ADOPTION OF THE BUDGET CONSTITUTES APPROPRIATION OF THE AMOUNTS SPECIFIED THEREIN AS EXPENDITURES FROM THE FUNDS INDICATED. APPROPRIATION SHALL BE AS SPECIFIED BY ENUMERATED BUDGET LINE ITEM. FURTHER DETAIL WITHIN A BUDGET LINE ITEM EXPLAINS THE INTENDED USE OF FUNDS AS OF THE TIME OF BUDGET DEVELOPMENT, BUT SUCH USES MAY BE CHANGED AS AUTHORIZED BY THE CITY ADMINISTRATOR WITHIN THE LIMITS OF THE BUDGET LINE ITEM.

SECTION 2: AS AUTHORIZED IN RESOLUTION NO. 987 (FUND BALANCE POLICY), COUNCIL HEREBY APPROVES AN ADDITIONAL ASSIGNMENT OF \$1,000,000 DURING FY 2024 RESULTING IN AN ASSIGNED FUND BALANCE OF \$3,000,000 FOR THE INTENDED USE OF PAYING FOR PUBLIC FACILITIES. \$1,000,000 REMAINS ASSIGNED FOR STREET IMPROVEMENTS PER ORDINANCE 5479. LASTLY, THE PROCEEDS FROM THE SALE OF FOUNTAIN PARK (\$749,533) REMAINS RESERVED IN THE PARKS & STORMWATER FUND FOR THE INTENDED USE OF THE PURCHASE OF LAND OR CONSTRUCTION OF IMPROVEMENTS IN CITY PARKS OR OTHER PUBLIC RECREATIONAL SPACES OR FACILITIES PER ORDINANCE NO. 5380.

SECTION 3: THIS ORDINANCE SHALL BECOME EFFECTIVE PURSUANT TO THE PROVISIONS OF SECTION 3.11(G) OF THE CHARTER.

PASSED THIS 26TH DAY OF JUNE, 2023.

JOSEPH MARTINICH
PRESIDENT OF CITY COUNCIL

APPROVED THIS 26TH DAY OF JUNE, 2023.

ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



Budget and Financial Policies

The City of Creve Coeur financial policies compiled below set forth the basic framework for the overall fiscal management of the City. Operating independently of changing circumstances and conditions, these policies assist the decision-making process of the City Council and the Administration. These policies, which are reviewed annually and adopted by City Council through the budget adoption process, provide guidelines for evaluating both current activities and proposals for future programs.

Most of the policies represent long-standing principles, traditions and practices that have guided the City in the past and have helped maintain a financially stable community. Below are examples of some of the policies used to guide daily operations. A more in-depth version of the policies can be found with the Finance Department. Minor changes have been made in wording and organization to clarify the intent of some of the policies.

Operating Budget Policy	Performance Against Policy
The City will maintain at least minimum cash reserve levels established by the Fund Reserve Policy. Per Ordinance 2286, the City will maintain a minimum fund balance reserve in the General Operating Fund which represents 4 months of the last two years average expenditures.	The City complies with this policy. FY 2024 Unassigned Fund Balance is 106.3%.
Medical insurance is a shared responsibility between the City and its employees. The City shall diligently seek cost containment measures while maintaining a competitive benefit structure.	The City complies with this policy. January 2021, the City implemented a spousal surcharge to those employees whose spouse could get coverage through their employer, but chose to stay on the City's insurance.
Overtime expenditures shall be no more than 2% of personnel costs.	The City projects .78% overtime expenditures in FY 2023 and 1.3% in FY 2024.
The City shall aggressively seek regional and national financial partners to support major capital projects. Shared services with our citizens, the business community and other local jurisdictions shall be encouraged.	The City pursues federal, state and county grants every year. We have become quite successful with STP, CDBG, TAP, and Muni-Park grants to name a few.
The City shall continue to support a scheduled level of maintenance and replacement of its infrastructure and fleet. Expansions to the fleet must be offset through reductions in other equipment and/or costs.	The City supports a robust maintenance pavement program for City owned streets. Our fleet has been reduced in past years to a level which allows staff to provide basic services and programs. Our superior fleet maintenance program is what allows our equipment to remain in service throughout the year and to maximize equipment life.
The City shall support investments which reduce future operating costs.	The City complies with this policy.
The City will strive to maintain a balanced budget in its operating funds.	The City forecasts \$2.1M surplus in FY 2023 largely due to funding from the ARPA Funds, and \$443K deficit in FY 2024 due to the anticipated expenditures of the ARPA Funds.

**Budget and Financial Policies (Continued)**

Revenue Policy	Performance Against Policy
The City will attempt to maintain a diversified and stable revenue system to shelter it from short-run fluctuations in any one revenue source.	The City complies with this policy. The City has Sales Tax, Utility Tax, Property Tax, User Fees, Grants, Business License Tax, etc.
The City will attempt to obtain additional major revenue sources as a way of ensuring a balanced budget.	The residents approved a Parks & Stormwater Sales Tax effective April 1, 2021. The City is actively considering additional revenue sources, specifically, the Local Use Tax.
The City will establish all user charges and fees at a level related to the full costs (operating, direct, indirect and capital) of providing the service.	The City evaluates our costs and sets fees to cover all of our costs to the extent that is practical
The City will review fees/charges annually and will design or modify revenue systems to include provisions that automatically allow charges to grow at a rate that keeps pace with the cost of providing the service.	The City evaluates and updates fees every 2 years. Most recently updated on January 1, 2023 for Ice, Golf and Room Rentals.
The City will consider market rates and charges levied by other public and private organizations for similar services in establishing tax rates, fees and charges.	As part of the evaluation process, we regularly poll surrounding cities to determine their fees for similar services.
The City will not rely on municipal court revenues other than to partly offset the costs of fulfilling police and court responsibilities.	The City complies with this policy.
Cash Management/Investment Policy	Performance Against Policy
The City will deposit all funds on the same day the funds are received.	The City complies with this policy.
Investments of City funds will emphasize preservation of principal; the yield objective will be in accordance with the City's Investment Policy.	The City complies with this policy.
The City will collect revenues aggressively, including past due bills of any type.	The City complies with this policy.

**Budget and Financial Policies (Continued)**

Reserve Policy	Performance Against Policy
Per Ordinance 2286, the City will maintain a minimum fund balance reserve in the General Operating Fund which represents 4 months of the last two years average expenditures.	The City complies with this policy. FY 2024 Unassigned Fund Balance is 106.3%.
The City will annually review its fund balance reserve and consider the allocation of reserves beyond the required minimum levels for the Capital Improvement Program.	The City complies with this policy.
Accounting, Auditing and Financial Reporting Policy	Performance Against Policy
An independent audit will be performed annually.	The City complies with this policy.
The City will produce annual financial reports in accordance with Generally Accepted Accounting Principles (GAAP) as outlined by the Governmental Accounting Standards Board.	The City complies with this policy.
The City will maintain a strong internal audit capability.	The City complies with this policy.
Performance measures will be utilized in financial reporting to evaluate the city's effectiveness and efficiency in providing services.	The City complies with this policy in the Budget Document.

**Budget and Financial Policies (Continued)**

Debt Policy <u>Purpose:</u> The purpose of this policy is to establish debt issuance guidelines. <u>Scope:</u> This policy is applicable to all debt issuance for the City of Creve Coeur.	Performance Against Policy
The City will seek to maintain, and if possible, improve its current bond rating so its borrowing costs are minimized and its access to credit is preserved. Sound financial practices, debt management and capacity, and competent management support the maintenance of the City's current bond rating. In its relations with rating agencies and the investment community, the City will follow a policy of full disclosure, as required by legal and professional practices.	The City complies with this policy.
The City will have a specific set of debt issuance guidelines consistent with Federal, State, and local laws and policies. The debt guidelines will recognize how much debt the community can support, not only based on debt of the City, but debt of overlapping jurisdictions as well. Debt should not be used for the provision of routine operation unless it is only for cash flow purposes or the borrowing costs are less than the rate of invested funds. Debt should never be issued for a period longer than the estimated useful life of an improvement or asset.	The City complies with this policy.
Credit Worthiness (a) The City will maintain good communications about its financial condition with bond and credit rating institutions. (b) The City will follow a policy of full disclosure for all disclosure documents, which meets or exceeds the disclosure guidelines as developed by the Government Finance Officers Association.	The City complies with this policy.

**Budget and Financial Policies (Continued)**

Debt Policy (Continued)	Performance Against Policy
Debt Repayment (a) When the City uses long-term debt financing, it will repay the debt within a period not to exceed the useful life of the improvements or equipment. (b) Whenever possible debt shall be self-supporting, and will be revenue debt, or revenue-backed with a general obligation pledge. (c) The general obligation pledge will be used only for projects that have a general benefit to City residents that cannot be self-supporting. (d) Neighborhood Improvement Bonds may be issued for extra-territorial assessments. Such bonds shall be secured by the assessment payments and by reserves funded from other payments made by the benefited parties. The term of the bonds shall match the projected cash flow from assessment payments and foreclosure sales. (e) Advance refunding will be undertaken only when the net present value savings exceeds 4% or when the restructuring of debt is in the City's financial interest. (f) Lease purchase debt, including certificates of participation, will be considered as an alternative to long-term vendor leases when cost effective. Such debt will be subject to annual appropriation and administered by the Finance Department. (g) Long-term lease purchases for buildings and facilities will be used when the cost of lease purchases is lower than other options or if deemed appropriate because of time constraints, etc.	The City complies with this policy. In FY 2023, the City appropriated money from the City's Debt Service Fund in the amount of \$598,712 for a Partial Defeasance of General Obligation Bonds, Series 2017 (\$575,000 principal amount to be redeemed and paid on the first optional redemption date of March 1, 2025). The money was transferred from the Debt Service Fund to the Escrow Agent for credit to the Escrow Fund for the purchase of escrowed securities in November 2022.

**Budget and Financial Policies (Continued)**

Debt Policy (Continued)	Performance Against Policy
Conduit Financing (a) Recognizing that the City is able to issue debt for broad purposes, it may be appropriate to issue on behalf of another party when the City Council after a complete review process, determines that the proposed project will provide a general benefit to City residents. (b) The City will consider issuing conduit financing which will not impair the City's credit rating. Any financing issued through the City shall qualify for an investment grade rating by one or both of the two top rating agencies. (c) All expenses related to conduit financing will be borne by the applicants. The City shall establish review procedures for projects, including public contracting and financial fees. (d) In order to facilitate future economic development within the City, all applicants for conduit financing will pay to the City one percent (1%) of the total conduit-financing amount.	The City complies with this policy. The City does not have any Conduit Financing.
Public Safety Sales Tax Policy	Performance Against Policy
The City will allocate the Public Safety Sales Tax revenue based on the following guidelines: (a) Police operating costs – 45-55% • Future police compensation increases as may be needed to maintain competitive salaries and benefits. • Training. • Contractual and other expenditures to maintain police service levels. (b) Public safety capital expenditures – 15-25% • Police equipment and capital improvements, including technology and communication upgrades, enhanced in-car cameras. • Public safety improvements such as security enhancements at city facilities or parks; or future improvements to the new police station. (c) Police building maintenance and operating costs – 10-20% (d) Reserve for police pension liability – 15-25%	The City complies with this policy as stated below: (a) 47.65% (b) 11.76% (c) 12.76% (d) 19.6% 8.23% is unallocated for future reserves

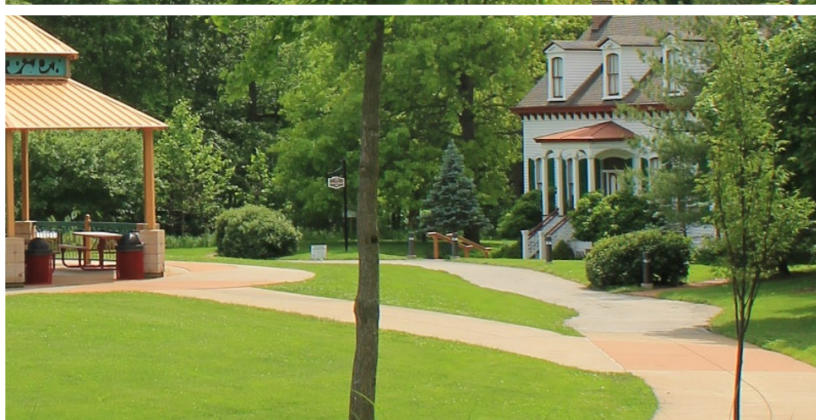
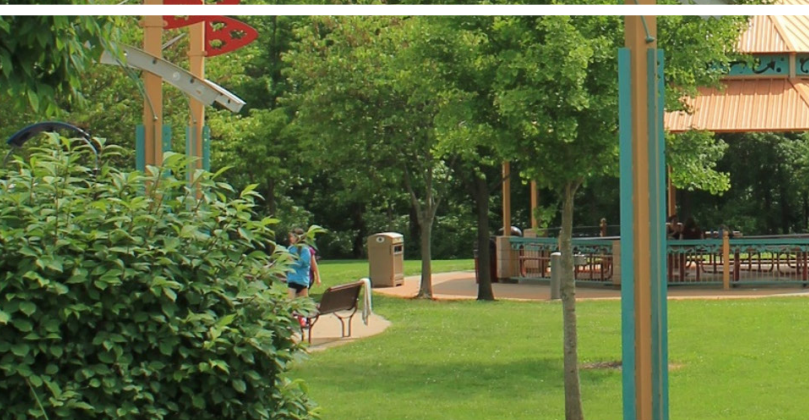


Budget and Financial Policies (Continued)

Parks and Stormwater (P&S) Policy	Performance Against Policy
• In accordance with Missouri law, the Parks and Stormwater (P&S) Sales Tax funds are to be recorded in a separate fund, not to be mixed with other general-purpose revenues. • The City will allocate budgeted P&S Sales Tax revenue based on the following guidelines: (a) Capital Improvements (including design, construction, projection management and administration) will remain in the separate P&S Fund – 80% of budgeted annual sales tax funds. (b) Maintenance/Operations (including parks maintenance, stormwater maintenance, and recreation programming) will be transferred out to the General Fund – 20% of budgeted prior year annual sales tax funds. (c) Dielmann Recreation Complex (DRC) accounts will not be changed by this policy. a. DRC Capital Improvements are allocated under the Capital Fund. b. DRC Operating expenses and revenues are accounted for under the Enterprise Fund.	• The City complies with this policy. • The City complies with this policy as stated below: (a) \$2,376,329 (80% of \$2,970,412) is budgeted to remain in the P&S Fund for capital improvements – 100% compliance. (b) \$582,434 (20% of \$2,912,168) is budgeted to be transferred out for maintenance and operations to the General Fund – 100% compliance. (c) The City complies with this policy.



CREVE COEUR MISSOURI STRATEGIC PLAN 2 0 2 3 - 2 0 2 5



Adopted April 11, 2022
Updated February 7, 2023

INTRODUCTION

In January 2022, elected officials and city staff came together to update the City of Creve Coeur's strategic plan. Goals and actions identified in the 2018 plan were largely complete and the City was ready for a new plan, its first since the onset of the COVID-19 pandemic.

At the initial workshop, the group discussed current trends impacting cities and reviewed pre-workshop survey results that included feedback from council and staff on critical issues facing Creve Coeur and proposed solutions. Results also included components of a traditional SWOT analysis: strengths, weaknesses, opportunities, and threats.

With this context in mind, the group developed a vision for the community, organizational values, and four areas of concentration for the plan:

- Maintaining excellent municipal services
- Public facilities and infrastructure
- Development and the economy
- Parks

A fifth focus area, public engagement, was added to stress the importance of continuing the City's commitment to involving residents and businesses in city affairs.

A second workshop with elected officials and follow up meetings with city staff developed specific strategies and actions to achieve the goals along with indicators to measure progress.

STRATEGIC PLAN DEFINITIONS

VISION

A community vision describes the future in idealistic and aspirational terms.

MISSION

A mission statement explains, in simple and concise terms, an organization's purpose for being.

VALUES

Values are enduring, passionate, and distinctive core beliefs.

GOALS

Goals are long-term results.

STRATEGIES

Provide direction toward achieving the goals and move the community toward its vision.

ACTIONS

Actions are the specific steps taken to achieve a goal – they are the to-do list.



Our Vision

The City of Creve Coeur is a place for every part of life – living, working, learning, and playing. Creve Coeur is a vibrant, inclusive, and resilient community where

- ✓ Residential neighborhoods and diverse businesses thrive.
- ✓ Residents enjoy a strong civic life and come together to achieve common goals.
- ✓ Amenities are abundant and accessible to all.

Creve Coeur is a community of choice for residents and businesses and an example for other communities to follow.





MISSION STATEMENT

The City of Creve Coeur serves its residents and businesses by providing superior municipal services and being a catalyst for community improvement locally and regionally.

OUR VALUES

- 1 Insight:** We plan for the future with imagination and wisdom.
- 2 Creativity:** We seek originality and are not constrained by what has always been done.
- 3 Fairness:** We consider all points of view and make decisions equitably, based on what is in the long-term best interest of the community.
- 4 Inclusion:** We respect and value community members with diverse backgrounds, abilities, and beliefs.
- 5 Fiscal Responsibility:** We are good stewards of community resources.
- 6 Caring:** We listen and respond to community members' needs with compassion and empathy.
- 7 Commitment:** We use our abilities and resources to do what is best for our community.
- 8 Practical and Straightforward:** We pursue the simplest, but most effective solutions, policies and practices for our community.
- 9 Forward Thinking-** While mindful of current needs, we work to anticipate the future needs of Creve Coeur's residents and businesses and plan accordingly.

GOAL 1



Invest in city services to make them effective and efficient.

STRATEGIES

- ✓ Retain and attract qualified employees through competitive pay and benefits.
- ✓ Establish succession plans for key positions in anticipation of retirements.
- ✓ Use technology to improve resident access to city services and increase efficiency of government operations.
- ✓ Review internal processes to manage staff workload.
- ✓ Consider additional revenue sources to diversify City's revenue base.

INDICATORS

- Turnover of Full-Time Employees (Civilian and Commissioned)
- Increase in revenue from new revenue sources
- Percent of building permits completed electronically
- Perceptions of Overall Quality of City Services (2024 Resident Survey)
- Perception of Overall Value Received for Local Tax Dollars/Fees (2024 Resident Survey)



GOAL 1



Invest in city services to make them effective and efficient.

ACTIONS

FY23 Actions:

- Completed a comprehensive review of city's benefit package, to be reviewed with City Council at upcoming work session.
- Cross-training within city departments has been an ongoing process for the last three years and has largely been achieved in many essential areas including various financial, payroll and permitting functions. Job position guides have been developed for critical tasks.
- Acquired and initiated implementation of building permitting software.
- Acquired and implemented new agenda management software.
- Transitioned the city's payroll from semi-monthly to bi-weekly.
- Staff has researched onboarding process and applicant tracking systems but has not yet identified a system which will be appropriate for Creve Coeur.
- Informed residents about the use tax ballot initiative through the city newsletter.
- The City's Popular Annual Financial Report (PAFR) received a total 643 visits on the city's web site during calendar year 2022, and was distributed via social media, as well as the city's resident newsletter and business e-newsletter in order to further increase the visibility of the report and encourage understanding of city finances.

FY24 Actions:

- Consider benefit enhancements as part of FY24 budget.
- Review feasibility of transferring the city's Legacy Pension Plan to LAGERS.
- Develop an individualized compensation report to communicate the value of city benefits to employees annually.
- Complete implementation of building permit software, including public education.
- Continue informing residents about the local use tax and consider a use tax ballot measure to provide an additional revenue source to maintain current service levels.
- Digital archiving of permanent documents to be completed, possibly through a state grant.
- Explore scheduling software to improve efficiency.

GOAL 2



Invest in infrastructure and facilities to support the local economy and quality of life.

STRATEGIES

- ✓ Renovate or replace the Government Center.
- ✓ Reinvest in Dielmann Recreation Complex.
- ✓ Consistently plan for and invest in maintenance of infrastructure to preserve what we have.
- ✓ Support infrastructure costs through grants.

INDICATORS

- Progress toward Government Center improvements and Ice Arena usage
- Pavement Rating
- Satisfaction with Maintenance of City streets (Resident Survey, 2024)



GOAL 2



Invest in infrastructure and facilities to support the local economy and quality of life.

ACTIONS

FY23 Actions:

- Completed the Government Center feasibility study; City will plan to continue to utilize the existing Government Center while considering a new facility in 3 to 5 years.
- A stormwater management plan has been initiated, and Intuition and Logic has been contracted to develop the plan.
- Alternative uses to the Ice Arena were considered prior to Council decision to proceed with conversion of the ice refrigerant system.
- The City's quinquennial street condition analysis was updated by IMS and will guide the pavement management program for the next five years.
- The City has identified multiple projects to submit for grants when federal funding becomes available, including the Fernview sidewalk, New Ballas Infill sidewalk, the Old Olive Great Streets Plan and road resurfacing projects.

FY24 Actions:

- Begin implementation of short-term improvements to the Government Center to ensure the facility remains functional over the next five years.
- Complete development of a stormwater management plan.
- Continue design and develop bid specs for new ice arena refrigerant and related upgrades for construction in spring 2024.
- Apply for priority grant projects including road resurfacing, Fernview sidewalk, New Ballas infill sidewalk and continue to monitor for grant opportunities related to Old Olive Great Streets.
- Complete construction of Old Olive/Lindbergh intersection project

GOAL 3



Promote safety and well-being of the community.

STRATEGIES

- ✓ **Maintain excellence in police services.**
- ✓ **Maintain and improve Creve Coeur parks.**
- ✓ **Increase opportunities to walk and bike in Creve Coeur.**
- ✓ **Share information with the public on use of Prop C funds and on all parks and recreation programs.**
- ✓ **Seek grants and partnerships to support parks and park programming.**
- ✓ **Expand on current recreation programming to meet community needs.**

INDICATORS

- Annual crime data
- Satisfaction with Overall Quality of Police Services (Residents Survey, 2024)
- Progress on Phase 1, Millennium Park Master Plan
- Satisfaction with Maintenance of City Parks (Resident Survey, 2024)
- Implementation of 39N Greenways Plan
- Satisfaction with Overall Quality of Recreation Services (Resident Survey 2024)



GOAL 3



Promote safety and well-being of the community.

ACTIONS

FY23 Actions:

- Police recruiting improved significantly due to a number of benefit enhancements and other policy changes.
- Mental health checks implemented for all police officers, on a triennial basis.
- License plate reader (LPR) cameras have been installed at key intersections and locations to prevent and solve crime. The cameras have already resulted in arrests for serious crimes.
- Planning and design for Phase 1 of renovations to Millennium Park were largely completed.
- Staff researched options for converting year-round restrooms at city parks and has entered into a design contract.
- Online registration has been established for all major park and recreation programs.

FY24 Actions:

- Complete the bid process and begin construction of Millennium Park renovations Labor Day 2023 for completion Memorial Day 2024.
- Complete the design and renovation of the Conway Park and Venable Park restrooms to year-round use.
- Develop a plan and specifications for renovations to Venable Park.
- Collaborate with Great Rivers Greenway and 39N partners on developing a preliminary design for a 39N Greenway.
- Install security cameras in city parks to reduce auto thefts and vandalism.
- Maintain CALEA accreditation by preparation for periodic review in spring 2023.
- The Police Department to increase participation in the regional Critical Incident Stress Management (CISM) program to train and provide resources for officers involved in critical incidents that may lead to post-traumatic stress disorder.

GOAL 4



Actively engage Creve Coeur residents and seek input from diverse perspectives.

STRATEGIES

- ✓ Identify specific ways the city can encourage cultural events in Creve Coeur.
- ✓ Provide opportunities for residents to learn about local government and participate.
- ✓ Seek diversity on City boards and commissions through intentional recruitment.
- ✓ Reach out to the business community on a regular basis to share information and understand their needs.
- ✓ Increase Creve Coeur's participation in regional organizations that promote municipal interests.

INDICATORS

- Increase number of followers on Facebook and Twitter
- Increase number of attendees, Subdivision Annual Meeting
- Increase number of people attending city-sponsored community events
- Increase number and diversity of applicants to Boards/Commissions/Committees considering race, gender, age, and length of time in Creve Coeur



GOAL 4



Actively engage Creve Coeur residents and seek input from diverse perspectives.

ACTIONS

FY23 Actions:

- Resumed Subdivision Trustee annual meeting in January 2023, with approximately 75 participants in attendance.
- Implemented new agenda management software for governing bodies (Council, Boards, Commissions).
- Mayor Hoffman was elected to serve on the Board of Directors for the Municipal League of Metro St. Louis; members of the City Council attended the Missouri Municipal League and National League of Cities conferences.

FY24 Actions:

- Arts Committee and Parks & Historic Preservation Committee to make recommendation to City Council on how to encourage cultural events.
- Proactively recruit more diverse applicants to boards and commissions through outreach to community organizations and businesses.
- Continue planning for the Venable Park Art Memorial Project, through the Venable Park Memorial Art Jury, with installation projected for mid-2024.
- Consider community activities and celebration of the City's 75th anniversary and Creve Coeur Golf Course 100th anniversary in 2024.
- Encourage City Council attendance at Missouri Municipal League and Municipal League of Metro St. Louis events to promote learning and collaboration with other cities.

GOAL 5



Encourage high quality development in order to strengthen and diversify the economy and provide additional services and amenities to residents.

STRATEGIES

- ✓ Continue to encourage development of East Olive.
- ✓ Establish a walkable mixed-use development to serve as a “downtown” Creve Coeur.
- ✓ Support continued development of 39N along with partners - St. Louis Economic Development Partnership, Danforth Plant Science Center, Bayer, and City of Olivette.
- ✓ Attract townhomes, villas, and condos.
- ✓ Identify appropriate zoning incentives that could be used in targeted planning areas including 39N, East Olive, and future Downtown Creve Coeur based on demonstrated need, fulfillment of development objectives, and public benefit.
- ✓ Update regulatory framework to allow development desired by the community.
- ✓ Reduce barriers and streamline development processes.

INDICATORS

- Employment data of AgTech industry
- Increase sales tax revenue
- Increase number of building permit requests for condos, villas, and townhomes
- Overall satisfaction with building permits and overall enforcement of City codes and ordinances (Resident Survey, 2024)
- Building Division surveys following close-out of building permits



GOAL 5



Encourage high quality development in order to strengthen and diversify the economy and provide additional services and amenities to residents.

ACTIONS

FY23 Actions:

- City Council approved a revised drive-thru ordinance.
- Developed and implemented a residential tree ordinance.
- Implemented the building permitting task force recommendations including acquiring new online permitting software; implementation of the new system is underway. Citizen and customer feedback received through our building permit surveys indicate noticeable improvement in user satisfaction.

FY24 Actions:

- Update Comprehensive Plan to include the redevelopment of the Bayer West Campus.
- Review and update the City's planned development ordinance to serve as a flexible zoning alternative.
- Revise the City's zoning ordinance to address and encourage electric vehicle infrastructure in the city.
- Consider ways to encourage redevelopment in East Olive Corridor consistent with Comprehensive Plan.
- Review the zoning regulations pertaining to accessory uses including pool houses, detached garages, storage buildings, and workshops to ensure the city's regulations are meeting the needs of the community.



Fund Description City of Creve Coeur

General Fund	The general operating fund of the city. It is used to account for all financial resources except those required to be accounted for in another fund.
Special Revenue Funds	Funds used to account for proceeds from specific revenue sources (other than expendable trusts of major capital projects) that are legally restricted specific purposes. <u>Public Safety Fund</u> - This fund is used to account for use of funds collected from the .5 cent public safety sales tax to be used for public safety expenditures. <u>Sewer Lateral Fund</u> – This fund is used to account for use of funds collected from property tax to repair use of sewer laterals as outlined in the city policy.
Capital Projects Funds	Funds to account for financial resources to be used for the acquisition or construction of major capital facilities. <u>Capital Improvement Fund</u> – This fund is used to account for the .5 cent capital sales tax used for the acquisition, construction or improvements of major capital facilities and infrastructure (other than those financed by proprietary funds and trust funds) and equipment whose value exceeds \$20,000, which is not financed by proprietary funds. <u>Parks and Stormwater Sales Tax Fund</u> - This fund is used to account for use of funds collected from the .5 cent sales tax dedicated to parks and stormwater control. <u>Police Building Fund</u> – This fund is used to account for the levy of a property tax to provide for the construction of a new police building and to make accessibility and security improvements to the government center.
Debt Service Fund	Funds from the property tax debt levy used to retire the interest and principle of the City's outstanding debt for the Police Building.
Enterprise Fund	Funds used to account for operations that are financed and operated in a manner similar to private business enterprises. This fund accounts for the operations at the city's ice arena and golf course.
Fiduciary (Trust) Fund	Funds used to account for assets held by the city in a trustee capacity.
City Employees Retirement Fund	Funds used to account for assets held in a trustee capacity for the city's eligible employees.

**Use of Funds by Department**

The following table reflects the funds included in each Department/Division:

Fund Categories	Governmental Funds							Proprietary Fund	Fiduciary Funds	
Department	General Fund	Capital Fund	P & S Fund	Police Bldg Fund	Debt Service Fund	Public Safety Fund	Sewer Lateral Fund	Enterprise Fund	City EE Retire. Fund	Escrow & Court Bonds
Legislative	X	X								
Administrative	X	X							X	
Municipal Court	X	X							X	X
Legal	X	X								
Finance	X	X								
Interdepartmental	X				X				X	
Information Systems	X	X								
Police Administrative	X	X		X		X			X	
Police Investigations	X	X				X			X	
Patrol	X	X				X			X	
Community Services	X	X								
Public Works Administrative	X	X	X				X		X	
Public Works Street Maintenance	X	X								
Public Works Health & Environment	X									
Public Works Parks Maintenance	X	X	X							
Public Works Main. of Muni. Prop.	X	X								
Community Dev. Planning	X	X								
Community Dev. Building	X	X							X	X
Ice								X		
Golf								X		
Food								X		



Basis of Accounting and Budgeting

Basis of Accounting

For financial reporting purposes, the Governmental Funds use the modified accrual basis of accounting, under which revenues are recognized as soon as they are both measurable and available. Revenues are considered to be measurable and available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the City considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Expenditures are recorded when a liability is incurred. However, debt service expenditures and expenditures related to compensated absences are recorded only when payment is due.

Proprietary and Fiduciary Funds use the accrual basis of accounting under which revenues are recognized when earned, and expenses are recorded when the liabilities are incurred.

Budgetary Basis of Accounting

The City uses a budget basis for expenditures that differs from the accounting basis used in reporting under Generally Accepted Accounting Principles (GAAP) in the following ways.

In the Governmental Funds, the City uses the modified accrual basis of accounting with the following exception:

- Budget amounts are encumbered when contracts are signed for goods or services. At year-end, amounts which are encumbered but not yet expended are carried over to be paid when the goods or services are received. These amounts are included in budget-basis expenditures for the fiscal year in which they are encumbered, rather than the year in which goods or services are received and a liability incurred. Appropriations that are not spent or encumbered lapse at the end of the fiscal year. Encumbrances are never classified as expenditures under GAAP basis of accounting.
- Compensated absence liabilities are not budgeted, where they are adjusted annually under the basis of accounting.
- Changes in the fair value of investments are not budgeted, where they are treated as an adjustment to revenue under the basis of accounting.

In Proprietary and Fiduciary Funds, the City uses the accrual basis of accounting with the following exceptions:

- Depreciation and amortization, which are considered expenses on the accrual basis of accounting, are ignored under the budget basis because these items do not require an expenditure of funds.



Budget Preparation Process

The budget preparation process begins in January of each year. The Finance and Administration departments begin by preparing the employee-related personnel costs such as salary and fringe benefits for the budget year for each Department. At the same time, the Finance Department develops revenue projections for all funds and submits them to the City Administrator for review. Once the personnel-related costs are completed, these figures are entered in the budget software system. The departments are requested to enter their future budget requests and current projected expenditures for each non-personnel line item into the budget software system. The Finance department then reviews for accuracy and completeness. The Finance department also estimates current year personnel costs and enters all current projected costs into the budget software system.

Each department is then scheduled for a meeting with the City Administrator and the Director of Finance to discuss the next fiscal years budget. These meetings can take up to two (2) weeks. After the departmental meetings, the City Administrator and Director of Finance adjust the budget requests for presentation to the City Council and the Finance Committee. By charter the City Administrator is required to submit the annual operating budget to City Council no later than the last regular council meeting in April.

After submission of the budget, the Finance Committee meets one to two times to review and discuss the proposed budget and to give recommendations to the City Council. The City Council holds at least two (2) work sessions to review and discuss the proposed budget. Both the Finance Committee and the City Council meetings are open to the public. Any changes requested by the City Council are made to the proposed budget and it is submitted to the City Council for the 1st reading of the appropriation ordinance no later than the 1st City Council meeting in June. At that meeting a public hearing is held. The budget is then adopted by the 2nd City Council meeting in June and becomes effective no later than July 1st.

The City Administrator and the Director of Finance schedule quarterly meetings with all city departments during the fiscal year to evaluate progress on annual objectives and to review compliance with the budget. The Director of Finance also provides quarterly financial reports to the City Council.

The development and adoption of the 5-Year Capital Improvement Program (CIP) is a separate process that is approved during the regular budget process. You can find more information about this under the Capital Improvement Fund.



Budget Amendments

City Council is permitted by City Charter to amend the Budget Ordinance at any time during the fiscal year. These amendments must continue to adhere to the balanced budget statutory requirements and cannot change the property tax levy or in any manner alter a taxpayer's liability.

The City of Creve Coeur Budget is a program-based budget, but is adopted by funds. As per Section 9.8 of the City's Charter the budget amendment process is as follows:

(a) *Supplemental appropriations:* If, during the fiscal year, the City Administrator certifies that there are available for appropriation revenues in excess of those estimated in the budget, the City Council by ordinance may make supplemental appropriations for the year in an amount equal to actual revenue in excess of budget revenue, plus uncommitted surplus.

(b) *Reduction of appropriations:* If at any time during the fiscal year it appears probable to the City Administrator that the revenue and uncommitted surplus available will be insufficient to meet the amount appropriated, he or she shall report to the City Council without delay, indicating the estimated amount of the deficit, any remedial action taken by him or her and his or her recommendations as to any other steps to be taken. The City Council shall then take such action, as it deems necessary to prevent or minimize any deficit and for that purpose it may by ordinance reduce one or more appropriations.

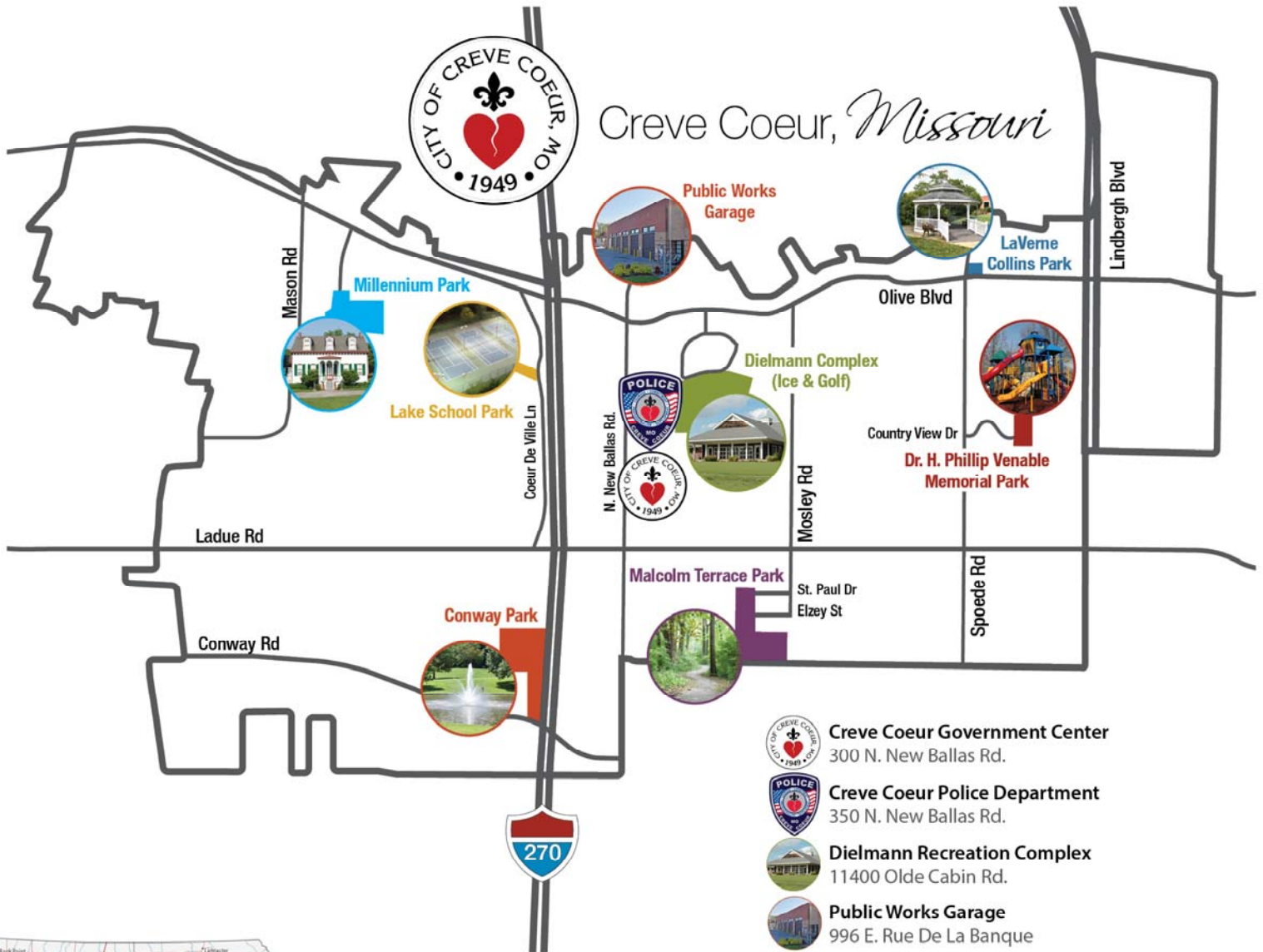
(c) *Transfer of appropriations:* At any time during the fiscal year the City Administrator may transfer part or all of any unencumbered appropriation balance, not including salaries or capital expenditures, among programs within a department, office or agency and, upon written request by the City Administrator, the City Council may by ordinance transfer part or all of any unencumbered appropriation balance from one department, office or agency to another, or within departments with respect to salary and capital expenditures.

(d) *Emergency appropriations; effective date:* The supplemental appropriations and reduction or transfer of appropriations authorized by this section may be made effective immediately upon adoption and may be made by emergency ordinance in accordance with the provisions of Section 3.11(f). (Ord. No. 112, & 1 (Prop. 7), 12-16-85)



**City of Creve Coeur
Preliminary Operating Budget Calendar
Fiscal Year 2024**

February 17, 5:00 p.m.	Operating Budget Requests due to Director of Finance office.
Feb 17 to March 3	Finance Reviews Departmental Budget Submissions.
March 3	Finance Office Submits FY 2023 Preliminary Revenue Projections to City Administrator's Office.
March 13	Work Session with Finance Committee & City Council to Discuss the 5-Year CIP Budget.
March 13 to March 17	Budget Reviews and Discussions between City Administrator's Office, Finance Office and Operating Departments.
March 21	Budget Review with Finance Committee
March 22 to April 14	FY 2024 Preliminary Budget Prepared by Finance and City Administrator's Office.
April 10	Adoption of the 5-Year CIP Budget.
April 21	Submission of FY 2024 Preliminary Operating Budget to Council and Finance Committee.
April 24	Work Session on Preliminary Operating Budget by City Council.
April 25	Review of Budget by Finance Committee.
May 8	Second Work Session on Preliminary Operating Budget by City Council, if Needed.
May 9	Second Review of Budget by Finance Committee.
May 12	Advertise Public Hearing on Proposed FY 2024 Operating Budget.
May 10 to May 19	Staff Adjustments to Preliminary Operating Budget.
June 12	Public Hearing on FY 2024 Operating Budget before City Council. First Reading on Budget Ordinance.
June 26	Final Reading on Budget Ordinance.
July 1, 2023	Effective Date for adopted of the FY 2024 Budget.



Municipal Facilities

Government Center
300 N. New Ballas Road
Creve Coeur, MO 63141
Phone: 314-432-6000



Police Department
350 N. New Ballas Road
Creve Coeur, MO 63141
Phone: 314-432-8000

Dielmann Recreation Complex
11400 Olde Cabin Road
Creve Coeur, MO 63141
Phone: 314-432-3960



Public Works Department
996 Rue De La Banque
Creve Coeur, MO 63141
Phone: 314-872-2533



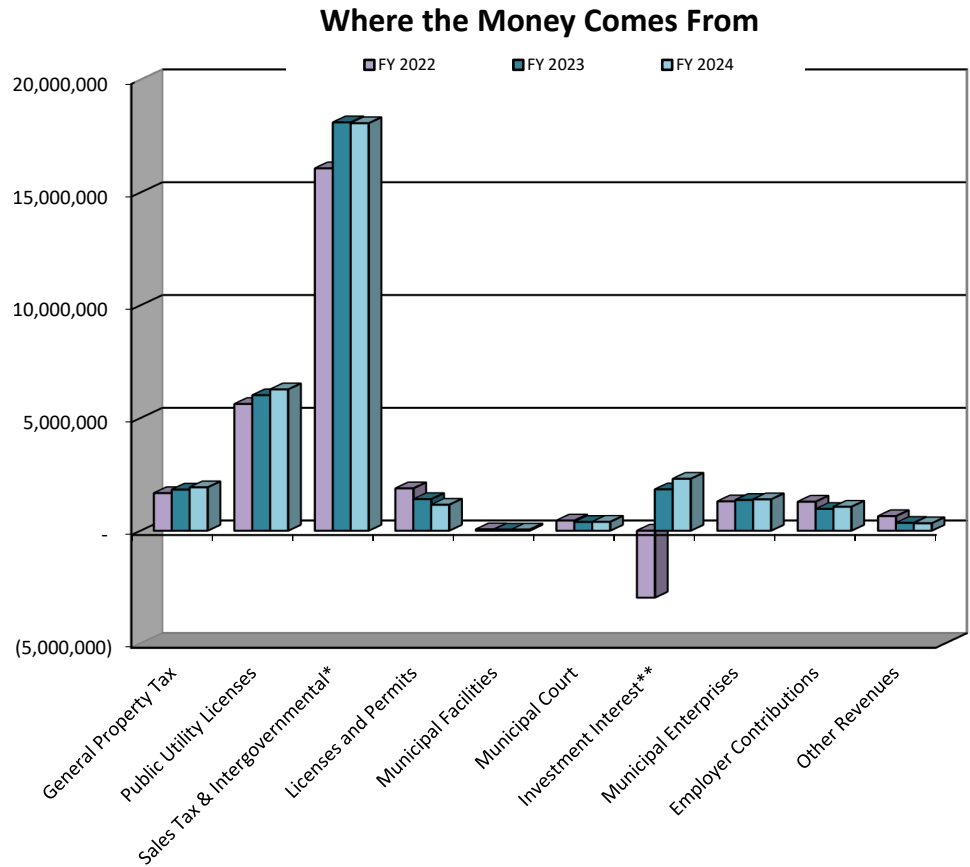
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CITY OF CREVE COEUR
SUMMARY OF ESTIMATED REVENUES AND EXPENDITURES - ALL FUNDS
AND PROJECTED FUND BALANCE
FOR THE FISCAL YEAR ENDING JUNE 30, 2024

	PROJECTED JUNE 30 2023 FUND BALANCE	REVENUES	TRANSFERS FROM OTHER FUNDS	UTILIZATION OF FUND BALANCE		TOTAL REVENUE	ESTIMATED EXPENDITURES	TRANSFERS TO OTHER FUNDS	SURPLUS/ DEFICIT	PROJECTED JUNE 30 2024 FUND BALANCE
General Fund	\$ 22,071,682	\$ 17,628,846	\$ 954,039	\$ (495,373)	\$ 17,007,724	\$ 18,582,886	\$ 17,007,724	\$ 2,070,535	(\$495,373)	\$ 21,576,308 (1)
Capital Improv. Fund	1,764,727	5,575,257	2,070,535	-893,312	8,539,104	7,645,792	8,539,104	0	-893,312	871,415
Parks & Stormwater Fund	4,074,160	3,395,461	0	-1,428,268	4,241,295	3,395,461	4,241,295	582,434	-1,428,268	2,645,892 (2)
Police Bldg. Fund	1,156,879	33,000	0	-47,000	80,000	33,000	80,000	0	-47,000	1,109,879
Public Safety Fund	2,459,461	1,265,028	0	0	761,831	1,265,028	761,831	371,606	131,591	2,591,052
Sewer Lateral Fund	279,317	135,700	0	0	117,654	135,700	117,654	0	18,046	297,363
Debt service Fund	429,692	974,100	0	0	695,908	974,100	695,908	0	278,192	707,884
Municipal Enterprise Fund	300,153	1,395,551	0	0	1,313,641	1,395,551	1,313,641	0	81,910	382,063
City Employees Retirement Fund	29,055,119	2,884,327	0	0	2,301,690	2,884,327	2,301,690	0	582,637	29,637,756
TOTAL-ALL FUNDS	\$ 61,591,189	\$ 32,287,271	\$ 3,024,574	\$ (2,863,953)	\$ 35,058,848	\$ 36,311,845	\$ 35,058,848	\$ 3,024,574	\$ (1,771,577)	\$ 59,819,612

"(1) Total Fund Balance includes \$4,100,000 of the following: City Facilities (\$3M), Streets (\$1M) & ARPA Funds (\$100,000)
"(2) Total Fund Balance includes \$749,533 for Park Improvements



All Fund Revenues
FY 2022 Actual, FY 2023 Projected & FY 2024 Estimated

	FY 2022 Actual	FY 2023 Projected	FY 2024 Estimated
General Property Tax	1,667,113	1,823,476	1,924,755
Public Utility Licenses	5,623,251	6,010,716	6,269,755
Sales Tax & Intergovernmental*	16,070,632	18,107,889	18,408,752
Licenses and Permits	1,879,502	1,401,073	1,151,285
Municipal Facilities	60,241	50,575	52,000
Municipal Court	451,432	389,743	393,640
Investment Interest**	(2,969,260)	1,836,205	2,304,053
Municipal Enterprises	1,302,573	1,363,483	1,391,551
Employer Contributions	1,287,117	965,205	1,062,820
Other Revenues	647,864	348,130	328,659
Total Revenue Sources	\$ 26,020,466	\$ 32,296,495	\$ 33,287,271

*Includes grants seen on the following pages.

**Negative Interest due to recording market value as of 6/30; not actual investment loss



Intergovernmental Revenues

Intergovernmental Revenue includes, but is not limited to, grants from federal, state, and other agencies to offset personnel, equipment, or major capital improvement expenses. Below is a brief summary of open grants as of July 1, 2024. Individual grant-related activity and reimbursements may occur over several budget years.

Missouri Department of Transportation – Highway Safety Division

- *Speed-HMV Enforcement Grant (not to exceed \$5,800):* FY 2023 for overtime costs to increase speed and hazardous moving violations on state designed routes within city limits. Grant year runs October 1 - September 30. Grant status: open.
- *Click-it or Ticket Grant (not to exceed \$3,000):* FY 2023 for reimbursement for police officer overtime costs to conduct the Seat Belt Enforcement Program. Grant year is October 1 - September 30. Grant status: open.
- *Dedicated Impaired Driving Enforcement (not to exceed \$58,558):* FY 2023 for no more than 50% of the annual salary and benefits for a traffic safety officer. This officer will be primarily dedicated to the detection and enforcement of impaired drivers, while also focusing on hazardous moving violations. Grant status: open.

The Bureau of Justice Assistance (BJA) Grant

- The purpose of the BJA Bulletproof Vest Partnership (BVP) Program is to reimburse states, counties, federally recognized tribes, cities, and local jurisdiction up to 50% of the cost of body armor vests purchased for law enforcement officers. This award for \$4,125 will cover 50% of the cost of eight ballistic vests for police officers. Grant status: open.

Parkway School District

- *Three-year agreement (\$242,559 for FYs 2023-2025):* For FY 2023 the Parkway School District will reimburse the Police Department for the services of a School Resource Officer (SRO) in the amount of \$76,942. Agreement status: open.

Missouri Department of Public Safety

- *Peace Officer Grant (POG) Award # SLFRP4542-POG031.* \$5,350 awarded over three years (December 1, 2022 to June 30, 2026) to cover Automatic License Plate Reader (LPR) Project with a total approved cost of \$10,700. This grant covers 50% of the cost of 1 LPR for three years: open.

Housing and Urban Development

Community Development Block Grant (grant not to exceed \$40,000). Previously approved grants will fund construction of ADA compliant bus stops on N. New Ballas Rd. for construction in FY 2024. The schedule for this grant was been delayed due to funding and staffing issues related to the COVID pandemic. Estimated project cost is estimated to be \$30,000; City cost \$0. Remaining funds will be forwarded to our next project. Grant status: open.



Intergovernmental Revenues (continued)

Municipal Park Grant Commission

- *Municipal Park Grant (grant not to exceed \$525,000)*: Grant awarded in FY 2023 for improvements to the ice rink refrigerant system. The proposed project involves the replacement of R-22 refrigerant system with an EPA approved refrigerant system. The new refrigerant would eliminate HFC source with a proven, dependable, sustainable, an environmentally friendly option. The new system will further offer improved efficiency in the range of 20-25%. Construction expected to take place in 2024 with an anticipated completion of August 1, 2024. Grant status: Open

Federal Highway Administration

- *Surface Transportation Program (grant not to exceed \$960,000)*: Grant awarded in FY 2020 for the construction of roadway and sidewalk improvements to North New Ballas Road, from Olive Boulevard to Craig Road, and for the acquisition of right of way and easements needed for these improvements. Design was not included in this grant. Design and ROW phases are complete, and construction is scheduled for FY 2024. Grant reimbursement is expected in FY 2024. Grant status: open.
- *Surface Transportation Program (grant not to exceed \$1,164,200)*: Grant awarded in FY 2021 for the acquisition of easements, construction, and construction inspection for the reconfiguration and signalization of the intersection of Lindbergh Boulevard at Old Olive Street Road. Design was not included in this grant in order to begin design sooner. Design began in FY 2021, and construction is planned for FY 2024. Grant reimbursement will be spread over FY 2024-FY 2025 as applicable costs are incurred. This grant is paired with the State Cost Share Program grant discussed below. Grant status: open.
- *Surface Transportation Program (grant not to exceed \$960,000)*: Grant awarded in FY 2022 for the acquisition of easements, construction of sidewalks, curbing, road pavement, and redesign/construction of the intersection of Craig Rd. at Olde Cabin Rd., and Craig Rd. at Office Parkway. Design was not included in this grant in order to begin design sooner. Design began in FY 2023, and construction is planned for FY 2025. Grant reimbursement is anticipated in FY 2025 as applicable costs are incurred. Grant status: open.

State of Missouri

- *State Cost Share Program (grant not to exceed \$1,005,250)*: Grant awarded in FY 2020 for the design, acquisition of easements, construction, and construction inspection of the partial reconstruction of the intersection of Lindbergh Boulevard at Old Olive Street Road and the addition of a signal at this intersection. Design began in FY 2021, and construction is planned for FY 2024. Grant reimbursement will be spread over FY 2024-FY 2025 as applicable costs are incurred. This grant is paired with the Surface Transportation Program grant discussed above. Grant Status: open.
- *Governor's Transportation Cost-Share Program (grant not to exceed \$575,100)*: Grant awarded in FY 2020 for the construction phase of the partial reconstruction and signalization of the intersection of Lindbergh Boulevard at Old Olive Street Road. Grant status: open.



Intergovernmental Revenues (continued)

St. Louis Area Insurance Trust (SLAIT)

- *SLAIT Wellness Grant (not to exceed \$5,600)*: Biennial grant awarded for employee health and wellness initiatives. The grant reimburses pre-approved programs and equipment purchases in FY 2024. Grant status: open.

St. Louis County Department of Public Health

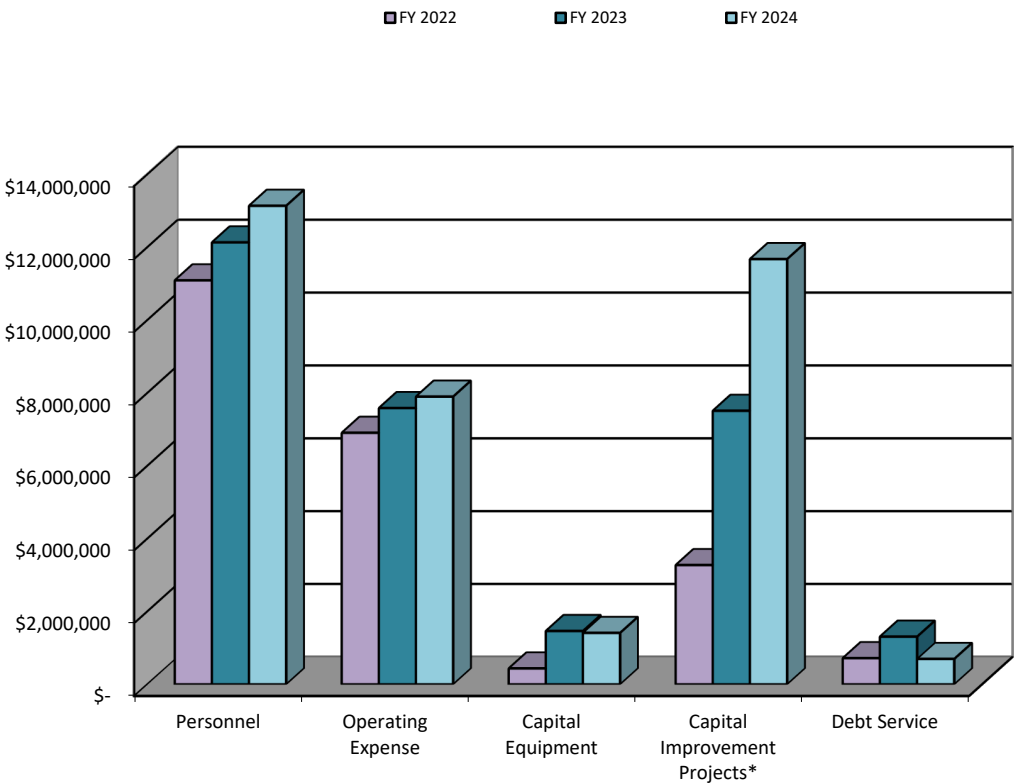
- *Municipal Waste Reduction Grant (grant not to exceed \$11,044)*: Grant awarded in FY 2022 for the third consecutive year and reimburses expenses associated with a community electronics recycling event, including costs of negative value items dropped off for recycling. Grant ends October 14, 2022, with final reimbursement in early FY 2023. However, we do anticipate receiving the grant again in FY 2024 when it opens up June 2023. Grant status: open.

The American Rescue Plan Act of 2021 (ARPA Funds)

- *ARPA Funds (\$3,793,860)*: In March 2021, the President signed the American Rescue Plan into law. The \$1.9 trillion stimulus package included \$350 billion in direct aid to state, local, territorial and Tribal governments. \$19.5 billion of the \$350 billion went to non-entitlement units (NEUs), which are local jurisdictions with a population less than 50,000. The City of Creve Coeur received \$1,896,931 in August 2021 (FY 2022) and received \$1,896,931 in August 2022 (FY 2023). The funds can be used to provide “government services” and must be obligated by December 31, 2024, but don’t have to be expended until December 31, 2026. The City of Creve Coeur has included \$1,898,325 of expenditures in the FY 2024 budget for delayed street and sidewalk projects, as well as several ice arena projects related to the refrigerant switchover. Grant status: open.



Where the Money Goes



All Fund Expenditures
FY 2022 Actual, FY 2023 Projected & FY 2024 Estimated

	FY 2022 Actual	FY 2023 Projected	FY 2024 Estimated
Personnel	\$ 11,090,805	\$ 12,132,155	\$ 13,136,982
Operating Expense	6,907,762	7,586,294	7,949,966
Capital Equipment	434,619	1,463,126	1,410,492
Capital Improvement Projects*	3,273,943	7,545,177	11,865,500
Debt Service	716,624	1,307,673	695,908
Total Expenditures	\$ 22,423,754	\$ 30,034,425	\$ 35,058,847

*Parks & Stormwater Expenditures started FY 2022



Combined Statement of Budgeted Revenues and Expenditures - All Funds
For the Fiscal Year Ending June 30, 2024

	General Fund	Capital Improvement Fund	Parks & Stormwater Fund	Police Building Fund	Public Safety Fund	Sewer Lateral Fund	Debt Service Fund	Municipal Enterprise Fund	City Employees Retirement Fund	Total
Revenues										
General Property Tax	824,655					135,500	964,600			1,924,755
Public Utility Licenses	6,269,755									6,269,755
Intergovernmental Revenue	8,247,052	5,556,260	3,129,268		1,235,028					17,167,609
Licenses and Permits	1,151,285									1,151,285
Municipal Facilities	52,000									52,000
Municipal Court	393,640									393,640
Investment Interest	450,000	8,997	25,049	33,000	30,000	200	9,500	4,000	1,743,307	2,304,053
Golf Course & Ice Arena								1,391,551		1,391,551
Bond Proceeds										-
Employer Contributions									1,062,820	1,062,820
Employee Contributions									78,200	78,200
Other Revenues	240,459	10,000	241,143		-				-	491,602
Total Revenues	17,628,846	5,575,257	3,395,461	33,000	1,265,028	135,700	974,100	1,395,551	2,884,327	33,287,271
Expenditures										
Personnel	11,818,856	153,104	137,795		242,162	17,154		767,910		13,136,982
Operating Expense	4,685,888		-		374,409	100,500		487,479	2,301,690	7,949,966
Capital Equipment	502,980	674,000	30,000		145,260			58,252		1,410,492
Capital Improvement Projects		7,712,000	4,073,500	80,000			695,908			11,865,500
Debt Service										695,908
Total Expenditures	17,007,724	8,539,104	4,241,295	80,000	761,831	117,654	695,908	1,313,641	2,301,690	35,058,848
Transfers In	954,039	2,070,535						-	-	3,024,574
Transfers (Out)	(2,070,535)		(582,434)		(371,606)					(3,024,574)
Change in Fund Balance	(495,373)	(893,312)	(1,428,268)	(47,000)	131,591	18,046	278,192	81,910	582,637	(1,771,577)
Fund Balance, July 1, 2022	22,071,682	1,764,727	4,074,160	1,156,879	2,459,461	279,317	429,692	300,153	29,055,119	61,591,189
Fund Balance, June 30, 2023	21,576,308	871,415	2,645,892	1,109,879	2,591,052	297,363	707,884	382,063	29,637,756	59,819,612



GENERAL FUND FINANCIAL PROJECTIONS

The General Fund is used to account for and fund all activities associated with the general government of the City, except those services attributed to the Capital Improvement Fund, Employees Retirement Fund, Municipal Enterprise Fund, Sewer Lateral Fund, Public Safety Fund and Parks & Stormwater Fund.

FY 2023 projected revenues and transfers in to the General Fund are estimated to be more than budgeted expenditures and transfers out by \$573K. This is primarily due to several revenue sources being up, but especially sales tax, which is 12% more than budgeted. Expenditures were also down substantially as a result of a delay in filling vacancies. The surplus would have been even more, but we are also transferring almost \$1.9M out to the Capital Fund for American Rescue Plan Act (ARPA) Projects.

FY 2024 General Fund budget anticipates a \$495K deficit including transfers as a result of \$1.97M being transferred to the Capital Funds for ARPA projects. Revenues are actually anticipated to increase \$191,670 (1%) in FY 2024 (excluding the \$1.9M received in FY 2023). Building permits had another good year in FY 2023 (\$880K), but is projected to return to normal (\$675K) starting in FY 2024 and every year thereafter. Telephone receipts also continue to decline and will throughout future years. Expenditures for FY 2024 are expected to increase by 7.4%. Our projected expenditures for FY 2023 were lower than anticipated because of numerous unfilled vacancies. An overall 3% COLA increase and a 4% merit increase for all employees, except police officers and sergeants, is included in the FY 2024 budget. A 3.5% COLA for officers and sergeants in addition to their 3.5% step, averages a 7% increase for FY 2024.

The following table shows the position of the General Fund balance over the next five years, based on estimated numbers as of June 30, 2023 and incorporates the following assumptions:

Revenue Assumptions:

- Telephone receipts continue to decrease 6% for FY 2024 and every year thereafter due to more residents eliminating their landlines, less reliance on voice and more use of texting and data.
- Sales tax revenue is budgeted to increase 2% for FY 2024 and FY 2025, and 1% every year thereafter.
- All Utilities, except telephone, are increasing as a result of an increase in all utility rates.
- Other Agency Funding is budgeted to decrease \$1.9M since the last of the ARPA Funds were received in FY 2023.
- Building Permits are budgeted to decrease 23.3% as a result of FY 2023 being another good year with several large projects.
- The transfer in from the Parks & Stormwater Sales Tax Fund will increase 18.3% as a result of an increase in sales tax revenues. These funds offset a portion of the parks and stormwater operations and maintenance expenditures.
- The Transfer In from the Public Safety Sales Tax funds will decrease 13.7% as a result of FY 2023's 2% one-time COLA (\$83,521) being only a one-time expenditure; therefore not included in FY 2024. Ongoing years include transitioning the Police officers to 12-hourshifts in FY 2019, making pay adjustments in FY 2022, and doing a market equity/step program in FY 2023.



**GENERAL FUND
FINANCIAL PROJECTIONS
(CONTINUED)**

Expenditure & Fund Balance Assumptions:

- Overall expenditures will increase 7.72% in FY 2024 and then on an average of to 3% from FY 2025 through FY 2028.
- An overall 3% COLA increase and a 4% merit increase for all employees, except police officers and sergeants, is included in the FY 2024 budget. A 3.5% COLA for officers and sergeants in addition to their 3.5% step increase, averages a 7% increase for FY 2024. A 4% salary increase is projected every year thereafter.
- Total salary & benefit expenditures will increase an average of 4.45% through FY 2028. While there is an increase in salaries and health insurance for FY 2024, future years includes an average 3.9% increase.
- Health and other insurance benefits are budgeted to increase 9% in FY 2024 and then 3% every year thereafter. Health Insurance will see a 5% increase in FY 2024, but an overall increase of 7.6% due anticipated full employment. Many positions were still vacated and in the process of being filled in FY 2023, thereby reducing the City's health insurance costs.
- Pension for the LAGERS Plan for FY 2024 is budgeted to increase as a result of several vacancies being filled in FY 2023. However, the LAGERS rate is decreasing for General employees and Police.
- The Legacy Pension Plan's contribution is budgeted with a 10% increase for FY 2024 and remain flat for FY 2025 through FY 2028.
- 20% of the Public Safety Sales Tax Revenue (\$242,162) is used offset the Police Pension expenditures; therefore, reducing the amount needed from the General Fund.
- Operating expenditures will increase 1.5% for contractual services, 4% for Trash/Recycling use and 2% for commodities annually.
- \$1M of the General Fund Balance is Reserved for Street Reconstruction Emergencies.
- \$3M is set aside for the Govt. Center in FY 2024, and another \$1M every year thereafter.
- Transfer out \$400K each year to the Capital Fund from the County Road & Bridge Tax revenue to be used for the improvement and repair of public roads, streets and bridges. The balance of these funds remain in the General Fund to support the Street Division operation.
- \$1,896,931 was put in Reserves from the ARPA Funds in FY 2022 and FY 2023 (\$3.8M total). The Funds must be obligated by December 31, 2024 and spent by December 31, 2026. The budget includes using all but \$100K in FY 2023 and FY 2024. This \$100K is for the 39N Agreement in FY 2025 & FY 2026.
- No Transfer Out to the Enterprise Fund will be needed in the next 5 years.



**GENERAL FUND
FINANCIAL PROJECTIONS
(CONTINUED)**

	FY 2023	FY 2024	FY 2025
Revenues	19,274,105	17,628,846	17,796,616
Expenditures	(15,789,439)	(17,007,724)	(17,566,505)
Revenue over (under) Expenditures	3,484,666	621,122	230,111
Transfers - In (From Public Safety)	430,816	371,606	296,727
Transfers - In (From Parks & Stormwater)	492,198	582,434	594,082
Transfers - Out (To Enterprise)	0	0	0
Transfers - Out (To Capital/P&S)	(2,298,325)	(2,070,535)	(400,000)
Net Change in Fund Balance	2,109,355	(495,373)	720,921
Fund Balance - Beginning of year	19,962,327	22,071,682	21,576,308
FUND BALANCE - End of the Year	22,071,682	21,576,308	22,297,229
*Less RESERVE GF BAL. FOR CAPITAL CONST.	4,895,535	4,100,000 *	5,050,000
Unassigned Fund Balance	17,176,147	17,476,308	17,247,229

	FY 2026	FY 2027	FY 2028
Revenues	17,946,486	18,086,746	18,234,880
Expenditures	(18,085,881)	(18,577,100)	(19,139,203)
Revenue over (under) Expenditures	(139,395)	(490,354)	(904,323)
Transfers - In (From Public Safety)	305,629	314,798	324,242
Transfers - In (From Parks & Stormwater)	605,964	612,024	618,144
Transfers - Out (To Enterprise)	0	0	0
Transfers - Out (To Capital/P&S)	(400,000)	(400,000)	(400,000)
Net Change in Fund Balance	372,198	36,467	(361,937)
Fund Balance - Beginning of year	22,297,229	22,063,463	21,487,907
FUND BALANCE - End of the Year	22,063,463	21,487,907	20,507,826
*Less RESERVE GF BAL. FOR CAPITAL CONST.	6,000,000	7,000,000	8,000,000
Unassigned Fund Balance	16,063,463	14,487,907	12,507,826

* Capital Construction Reserve includes \$3M for Govt Center in FY 2024 (and an additional \$1M each year thereafter), \$1M for Street Reconstruction, and \$100,000 for ARPA Funds



CAPITAL IMPROVEMENTS FUND FINANCIAL PROJECTIONS

The Capital Improvements Fund is used to account for all activities related to capital improvements in the City. The major source of revenue for the fund is the one-half cent sales tax for capital items passed by the voter in 1997. The City adopts a five-year capital plan in the spring of each year prior to the budget process.

The following table shows the position of the Capital Improvement Fund balance over the next several years, based on available information at June 30, 2023 and incorporates the following assumptions:

- Assume transfer of funds from the General Fund as outlined in the Current Five Year Plan.
- Additional revenues will increase in accordance with Five-Year Financial Plan assumptions.
- Sales tax increases 2% for FY 2024 and FY 2025, and then 1% every year thereafter.
- Capital Improvements will be performed in accordance with the Five-Year Capital Improvement Plan.
- Assumes the City continues to aggressively pursue grants for infrastructure improvements. There are projections for grant revenues in FY 2024, 2025, & 2026, but not in FY 2027 or FY 2028 since they are not secured grants that far in the future.
- A Project Manager/Engineer was added to FY 2023 and half of the expenditures come from this Fund and the rest from the Parks & Stormwater Fund.

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>
Revenues	3,872,069	5,235,257	3,101,656
Expenditures	(7,025,764)	(8,539,104)	(3,757,300)
Revenue over (under) Expenditures	<u>(3,153,695)</u>	<u>(2,963,847)</u>	<u>(655,644)</u>
Operating transfers – In (From General Fund)	2,298,325	2,070,535	400,000
Operating transfers - Out	0	0	0
Net Change in Fund Balance	<u>(855,370)</u>	<u>(893,312)</u>	<u>(255,644)</u>
Fund Balance - Beginning of year	2,620,097	1,764,727	871,415
FUND BALANCE-End of the Year	<u><u>1,764,727</u></u>	<u><u>871,415</u></u>	<u><u>615,772</u></u>

	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>
Revenues	3,479,653	2,628,874	2,655,451
Expenditures	(4,100,200)	(2,652,300)	(2,968,700)
Revenue over (under) Expenditures	<u>(620,547)</u>	<u>(23,426)</u>	<u>(313,249)</u>
Operating transfers – In (From General Fund)	400,000	400,000	400,000
Operating transfers - Out	0	0	0
Net Change in Fund Balance	<u>(220,547)</u>	<u>376,574</u>	<u>86,751</u>
Fund Balance - Beginning of year	615,772	395,225	771,799
FUND BALANCE-End of the Year	<u><u>395,225</u></u>	<u><u>771,799</u></u>	<u><u>858,550</u></u>



PARKS AND STORMWATER FUND FINANCIAL PROJECTIONS

The Parks and Stormwater Fund is used to account for all activities related to park and stormwater improvements in the City. The major source of revenue for the fund is the one-half cent sales tax for park and stormwater items passed by the voters in November 2020. The City adopts a five-year capital plan in the spring of each year prior to the budget process.

The following table shows the position of the Parks & Stormwater Fund balance over the next several years, based on available information at June 30, 2023 and incorporates the following assumptions:

- FY 2023 had a 13.5% increase over Projected FY 2022. FY 2024 and FY 2025 includes a 2% increase, and every year thereafter, is estimated to increase 1%.
- FY2024 includes a transfer out to the General Fund (\$582,434,) to offset a portion of the Parks & Stormwater operations and maintenance. This represents 20% of the projected revenue pursuant to the established policy.
- 80% of the revenues will be allocated for capital improvements, which includes administration for project management, park projects and stormwater projects.
- Capital Improvements will be performed in accordance with the Five-Year Capital Improv. Plan.
- FY 2023 included the hiring of an additional Project Manager/Engineer with half of the expenditures allocated in this Fund and the other half allocated to the Capital Fund.
- \$749,533 of the Fund Balance is Reserved for the purchase of land or construction of improvements in city parks or other public recreational spaces or facilities per Ordinance 5380.

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>
Revenues	3,182,130	3,395,461	3,269,728
Expenditures	(1,604,464)	(4,241,295)	(3,516,000)
Revenue over (under) Expenditures	<u>1,577,666</u>	<u>(845,834)</u>	<u>(246,272)</u>
Transfers – In (From General Fund)	0	0	0
Transfers - Out (To General Fund)	(492,198)	(582,434)	(594,082)
Net Change in Fund Balance	<u>1,085,468</u>	<u>(1,428,268)</u>	<u>(840,354)</u>
Fund Balance - Beginning of year	2,988,692	4,074,160	2,645,892
FUND BALANCE-End of the Year	<u>4,074,160</u>	<u>2,645,892</u>	<u>1,805,538</u>
Less RESERVE GF BALANCE FOR PARKS	749,533	749,533	749,533
Unassigned Fund Balance	<u>3,324,627</u>	<u>1,896,359</u>	<u>1,056,005</u>

	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>
Revenues	3,308,547	3,346,082	3,153,332
Expenditures	(1,775,300)	(1,964,700)	(2,424,300)
Revenue over (under) Expenditures	<u>1,533,247</u>	<u>1,381,382</u>	<u>729,032</u>
Transfers – In (To General Fund)	0	0	0
Transfers - Out (From General Fund)	(605,964)	(612,024)	(618,144)
Net Change in Fund Balance	<u>927,283</u>	<u>769,359</u>	<u>110,888</u>
Fund Balance - Beginning of year	1,805,538	2,732,821	3,502,180
FUND BALANCE-End of the Year	<u>2,732,821</u>	<u>3,502,180</u>	<u>3,613,067</u>
Less RESERVE GF BALANCE FOR PARKS	749,533	749,533	749,533
Unassigned Fund Balance	<u>1,983,288</u>	<u>2,752,647</u>	<u>2,863,534</u>



PUBLIC SAFETY FUND FINANCIAL PROJECTIONS

The Public Safety Fund is used to account for all activities associated with Public Safety of the City. The major source of revenue for the fund is the one-half cent sales tax passed by voters in St. Louis County in 2017.

Fiscal year 2023 budget revenues are estimated to be \$573,791 more than expenditures and \$142,974 more than expenditures and transfers out.

Pursuant to the Public Safety Policy, below are how the funds will be allocated over the next five years:

- FY 2024 includes a transfer out to the General Fund (\$371,606) to cover the cost of transitioning the police department to 12-hour shifts in FY 2019, for the Pay Adjustments in FY 2022 and for the Market Equity/Step Program/Probation Completion Bonus in FY 2023. The \$83,521 given for a one-time lump-sum 2% COLA in FY 2023 was not an on-going expense since it was a one-time cost.
- For specialized training.
- For the police building's maintenance and operating costs, including utilities.
- 20% of the actual prior year sales tax revenue (\$242,162) will be used to offset the Police pension costs and will also be adjusted and included in the budget every year.
- Public safety capital expenditures.

FY 2024 - 2028 includes a 2.5% increase in expenditures, even though these numbers can vary greatly year to year.

	FY 2023	FY 2024	FY 2025
Revenues	1,248,608	1,265,028	1,289,729
Expenditures	(674,817)	(761,831)	(780,877)
Revenue over (under) Expenditures	573,790	503,197	508,852
Transfers - In	0	0	0
Transfers - out (To General Fund)	(430,816)	(371,606)	(296,727)
Net Change in Fund Balance	142,974	131,591	212,124
Fund Balance - Beginning of year	2,316,487	2,459,461	2,591,052
FUND BALANCE - End of the Year	<u>2,459,461</u>	<u>2,591,052</u>	<u>2,803,177</u>

	FY 2026	FY 2027	FY 2028
Revenues	1,302,326	1,315,049	1,327,900
Expenditures	(800,399)	(820,409)	(840,919)
Revenue over (under) Expenditures	501,927	494,640	486,980
Transfers - In	0	0	0
Transfers - out (To General Fund)	(305,629)	(314,798)	(324,242)
Net Change in Fund Balance	196,298	179,842	162,739
Fund Balance - Beginning of year	2,803,177	2,999,475	3,179,317
FUND BALANCE - End of the Year	<u>2,999,475</u>	<u>3,179,317</u>	<u>3,342,056</u>



MUNICIPAL ENTERPRISE FUND FINANCIAL PROJECTIONS

The Municipal Enterprise Fund is used to account for all activities associated with the City's golf course and ice arena.

FY 2023 projected revenues for the Municipal Enterprise Fund are estimated to be more than expenses by \$90,801. There are no transfers in or out of the Municipal Enterprise Fund. FY 2024 is budgeted with a surplus of \$81,910.

The following table shows the position of the Municipal Enterprise Fund Balance over the next five years and incorporates the following assumptions:

- Revenues for FY 2024 are expected to increase 2%, but then incr. an average of 1.9% for FY 2025-2028.
- FY 2023 Revenues include rate increases in Room Rentals, Ice Rink and Green Fees. FY 2024 Revenues include a full year of FY 2023 rate increase, but also a \$42,620 decrease while the ice arena is shut down for one month while the refrigerant is being replaced.
- FY 2026 and FY 2028 Revenues include rate increases in Ice Rink, Golf Course and Meeting Room Fees.
- Salaries are expected to increase 5.83% for FY 2024 and then 4% from FY 2025 through FY 2028.
- Health and other insurance benefits are budgeted with an overall increase of 6.43% for FY 2024 and then with a 3.99% increase over the next 4 years.
- Pension for the LAGERS Plan is budgeted to increase 22.9% in FY 2024, mainly as a result of an increase in salaries and filling vacated positions, and a 5% increase is included each year thereafter.
- Operating expenditures will increase 1.5% for contractual services and 2% for commodities annually.
- Overall expenditures will incr. 2.9% due to normal increases to personnel, maint. and operational costs.
- Transfers from the General Fund are not needed in the next 5 years.

	FY 2023	FY 2024	FY 2025
Revenues	1,367,383	1,395,551	1,416,485
Expenditures	(1,276,582)	(1,313,641)	(1,355,996)
Revenue over (under) Expenditures	90,801	81,910	60,488
Transfers - In (From General Fund)	0	0	0
Transfers - Out	0	0	0
Net Change in Fund Balance	90,801	81,910	60,488
Fund Balance - Beginning of year	209,352	300,153	382,063
FUND BALANCE - End of the Year	300,153	382,063	442,551

	FY 2026	FY 2027	FY 2028
Revenues	1,449,732	1,471,478	1,505,550
Expenditures	(1,395,787)	(1,436,944)	(1,479,519)
Revenue over (under) Expenditures	53,945	34,534	26,031
Transfers - In (From General Fund)	0	0	0
Transfers - Out	0	0	0
Net Change in Fund Balance	53,945	34,534	26,031
Fund Balance - Beginning of year	442,551	496,496	531,029
FUND BALANCE - End of the Year	496,496	531,029	557,060



CITY EMPLOYEES RETIREMENT FUND FINANCIAL PROJECTIONS

The City Employees Retirement Fund is used to account for all activities associated with the Creve Coeur Defined Benefit Pension Plan.

The City's annual contribution decreased \$321,912 in FY 2023 from \$1,287,117 to \$965,205, primarily due to the City contributing \$300K more than the actuarially determined contribution in FY 2022. FY 2024 is projected to increase \$97,615 (10%) to \$1,062,820 with \$242,162 of the contribution coming from Public Safety funds (20% of the sales tax revenue) and \$820,658 coming from General Fund. The Employer Contribution is budgeted to remain flat per year from FY 2025 - FY 2028. Then the pre-2015 Unfunded Accrued Liability will be fully amortized and the Employer Contribution will decrease significantly. Estimated amounts are based on receiving the 6% assumed rate of return on the investment portfolio.

In FY 2021, the Pension Board reduced the interest rate assumption from 6.75% to 6%, and changed the mortality table to the most current one, which was recommended by the Actuary. The City Council added the Spousal Pop-Up option to the Plan in March 2021.

The following table shows the position of the Employees Retirement Fund over the next five years, based on estimated numbers as of June 30, 2023 and incorporates the following assumptions:

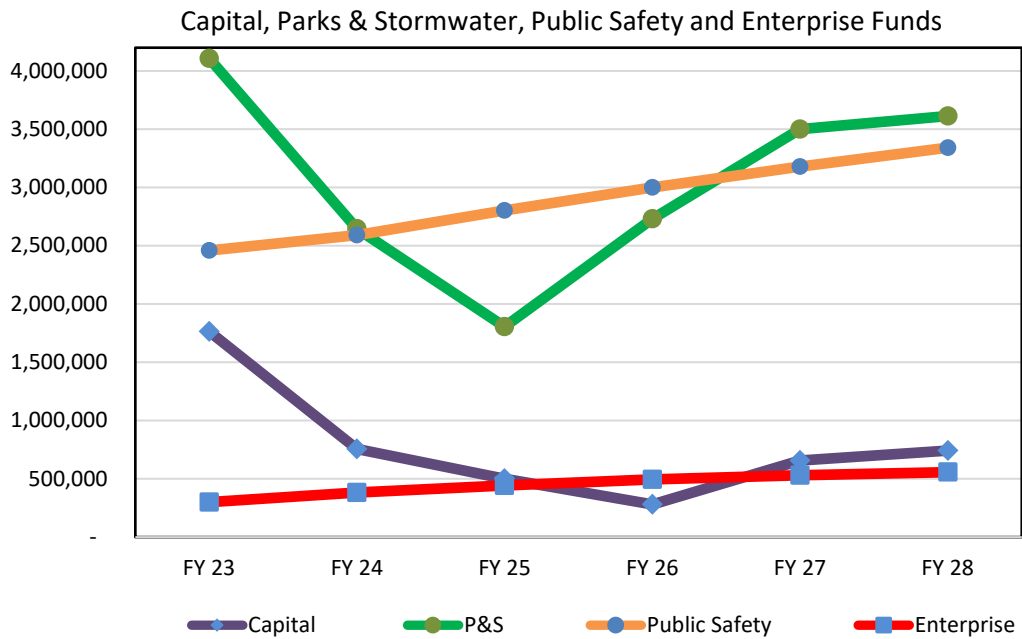
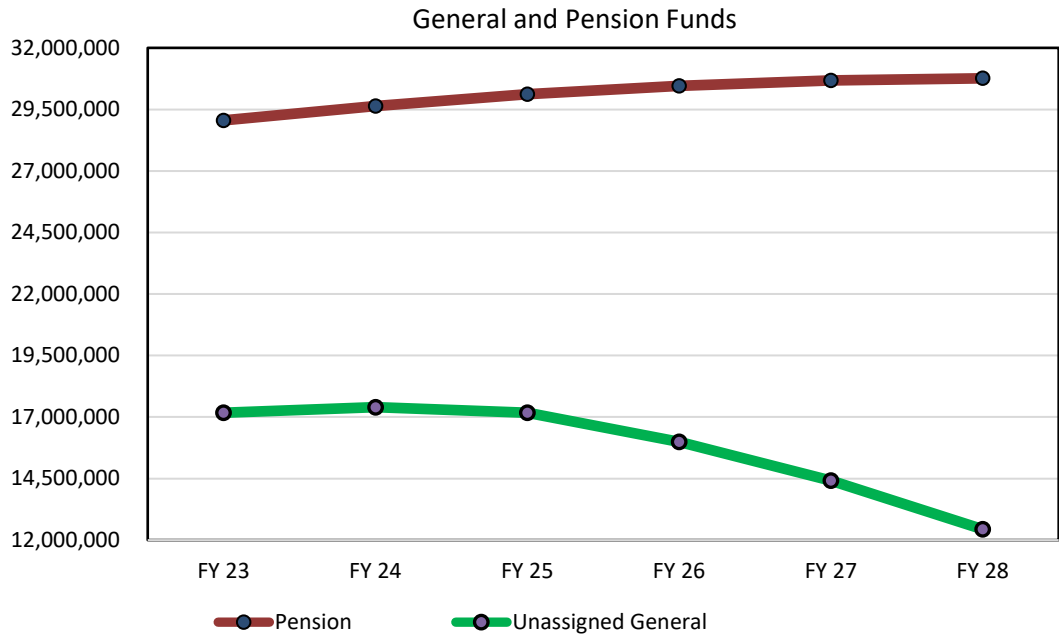
- Operating expenses are projected to increase 4.93% annually. The main reason for this increase is due an increase in employees eligible to retire.
- Assumes retirements based upon cash flow projections from Actuary.
- Assumes Employee Contribution of 4% starting in FY 2020, up from 3%. The projections are based upon the estimated rate of return of 6%, down from 6.75% prior to July 2021, and an amortization period for liability of 14 years fixed, which was increased from 10 years in FY 2021.

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>
Revenues	2,264,205	2,884,327	2,895,683
Expenditures	(2,248,458)	(2,301,690)	(2,415,141)
Revenue over (under) Expenditures	<u>15,747</u>	<u>582,637</u>	<u>480,542</u>
Transfers-In (From General Fund)	0	0	0
Net Change in Fund Balance	<u>15,747</u>	<u>582,637</u>	<u>480,542</u>
Fund Balance - Beginning of year	29,039,372	29,055,119	29,637,756
FUND BALANCE-End of the Year	<u><u>29,055,119</u></u>	<u><u>29,637,756</u></u>	<u><u>30,118,298</u></u>

	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>
Revenues	\$ 2,872,576	\$ 2,878,786	\$ 2,876,940
Expenditures	(2,534,215)	(2,659,192)	(2,790,367)
Revenue over (under) Expenditures	<u>338,361</u>	<u>219,594</u>	<u>86,574</u>
Transfers-In (From General Fund)	0	0	0
Net Change in Fund Balance	<u>338,361</u>	<u>219,594</u>	<u>86,574</u>
Fund Balance - Beginning of year	30,118,298	30,456,659	30,676,253
FUND BALANCE-End of the Year	<u><u>\$ 30,456,659</u></u>	<u><u>\$ 30,676,253</u></u>	<u><u>\$ 30,762,826</u></u>



Fund Balance Projections FY 2023 - 2028



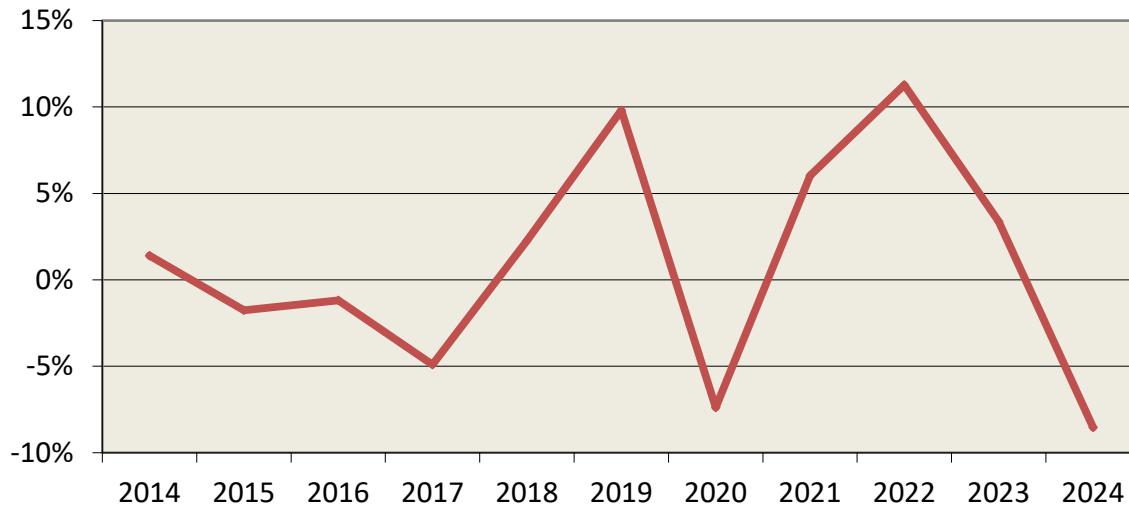


**STATEMENT OF ESTIMATED REVENUE AND EXPENDITURES
FOR FISCAL YEAR ENDING JUNE 30, 2024
IN COMPARISON WITH BUDGETED AND PROJECTED TOTALS FOR FY 2023
AND ACTUAL TOTALS FOR FY 2021 & FY 2022**

	Actual FY 2021	Actual FY 2022	Budget FY 2023	Projected FY 2023	Estimated FY 2024	% Change to Est. FY 2023
Revenues:						
General Property Taxes	710,619	751,204	738,083	777,976	824,655	6.00%
Public Utility Licenses	5,396,414	5,623,251	5,720,302	6,010,716	6,269,755	4.31%
Intergovernmental Revenue	7,804,405	9,239,234	9,056,178	9,947,553	8,247,052	-17.09%
Licenses & Permits	1,610,410	1,879,502	1,198,694	1,401,073	1,151,285	-17.83%
Charges for Municipal Facilities	39,385	60,241	44,500	50,575	52,000	2.82%
Municipal Court Fines	551,411	451,432	553,271	389,743	393,640	1.00%
Interest on Investments	339,907	295,808	330,000	450,684	450,000	-0.15%
Other Revenues	301,554	342,511	232,739	245,785	240,459	-2.17%
Total Operating Revenue	16,754,105	18,643,183	17,873,766	19,274,105	17,628,846	-8.54%
Other Financing Sources:						
Transfers in from Public Safety	196,366	209,995	430,816	430,816	371,606	-13.74%
Transfers in from Parks & Stormwtr.	-	380,000	492,198	492,198	582,434	18.33%
Total Other Financing Sources	196,366	589,995	923,014	923,014	954,039	
Total Operating Revenues and Other Financing Sources	16,950,471	19,233,178	18,796,780	20,197,119	18,582,886	
Expenditures:						
Legislative Services	235,206	185,292	228,201	227,296	236,489	4.04%
Legal Services	148,785	165,893	203,201	177,524	192,761	0.00%
Administrative Services	618,999	614,799	619,685	603,425	698,844	15.81%
Information Systems	264,451	251,537	283,869	264,965	264,014	-0.36%
Finance Department	413,843	434,206	513,958	514,627	568,130	10.40%
Municipal Court	237,200	237,029	267,024	262,738	278,327	5.93%
Interdepartmental	507,903	1,336,622	1,110,975	1,041,737	1,143,927	9.81%
Community Services	82,355	138,610	162,219	145,682	143,405	-1.56%
Maint. of Municipal Property	276,933	237,021	278,706	283,819	300,208	5.77%
Police Department	6,800,201	6,259,217	7,752,646	7,543,591	8,090,733	7.25%
Public Works	3,106,009	3,008,208	3,635,935	3,500,484	3,808,424	8.80%
Community Development	1,476,740	1,183,715	1,343,613	1,223,550	1,282,462	4.81%
Total Operating Expenditures	14,168,624	14,052,148	16,400,032	15,789,439	17,007,724	7.72%
Total Rev. and Other Financing Sources Over Expenditures	2,781,847	5,181,030	2,396,748	4,407,680	1,575,162	
Other Financing Uses:						
Transfer Out to Enterprise Fund	-	-	-	-	-	
Transfer Out to Capital Improv.	400,000	1,149,533	800,000	2,298,325	2,070,535	
Total Other Financing Uses	400,000	1,149,533	800,000	2,298,325	2,070,535	
Total Rev. and Other Financing Sources Over Expenditures and Other Financing Uses	2,381,847	4,031,497	1,596,748	2,109,355	(495,373)	



Percentage Change in General Fund Revenues FY 2014 - 2024



Fiscal Year	Total Revenue	Amount of Change	Percent Change
2014	16,454,596	226,180	1.4%
2015	16,164,882	(289,714)	-1.8%
2016	15,974,518	(190,363)	-1.2%
2017	15,192,139	(782,379)	-4.9%
2018	15,537,425	345,286	2.3%
2019	17,060,207	1,522,782	9.8%
2020	15,800,348	(1,259,858)	-7.4%
2021	16,754,105	953,757	6.0%
2022	18,643,183	1,889,078	11.3%
2023	Projected 19,274,105	630,922	3.4%
2024	Budgeted 17,628,846	(1,645,259)	-8.5%

FY 2014 Revenues increased 1.4% in FY 2014. Significant increases occurred in Sales Tax, Building Permits, Electric Gross Receipts and Gas Gross Receipts. This offset significant decreases in Telephone Gross Receipts, and decrease in automated traffic safety tools due to suspension of the program in December.

FY 2015 Revenues decreased 1.8% in FY 2015. Increases occurred in Sales Tax, Building Permits, and charges from Municipal Services. Substantial decrease in Court Fines occurred due to cancellation of automated traffic safety tools program. Revenues also decreased in Electric Gross Receipts, Telephone Gross Receipts, and Water Gross Receipts due to a one time tax rebate to customers.

**GENERAL FUND REVENUES (Cont.)**

FY 2016	Revenues decreased 1.2% in FY 2016. Revenues increased in Sales Tax, Road and Bridge Tax, Telephone and Water Utility Tax and Interest Revenue. These increases were largely offset by decreases in Building Permits, Court Revenues and charges for Municipal Services.
FY 2017	Revenues decreased 4.9% in FY 2017, primarily due to a decrease in Court Revenues. This appears largely due to the new Court regulations from the State. Telecom utility taxes also declined.
FY 2018	Revenues increased 2.3% in FY 2018. Electric, Water and Gas were up due to harsher weather conditions and due to a one-time lawsuit settlement for \$190,000 from the Electric Co. Business licenses and building permits were up quite a bit as well. Telephone gross receipt taxes, court revenues and charges for municipal facilities, however, were down.
FY 2019	Revenues increased 9.8% in FY 2019. The primary reason for this \$1,522,792 increase is due to the sale of property for around \$750K. In addition, there was an increase in assessed valuations, an increase in commercial utility tax rates from 7% - 8% in November 2018, and increase in the residential electric from 5.5% to 7% in March 2019. Plus, transferred \$131,167 from Public Safety Sales Tax Fund to cover the additional costs needed to transition to 12-hour shifts in the Police Department.
FY 2020	Revenues decreased 7.4% in FY 2020 due to COVID-19. This virus effected Sales Tax, Gasoline Tax, Utility Taxes, Interest, Permits, Court, Recreational Activities, etc.
FY 2021	FY 2021 increased 6%, but only because of \$1.2M that the City received for the CARES Act program. Without these funds, the City would have seen a decrease of \$271K as a result of the pandemic still in effect. Sales Tax, Electric, Gas, County Road & Bridge Tax and Cable were all negatively impacted by the pandemic, while building permits reported a record year with several large projects resulting in permits being up \$359K or 54%.
FY 2022	The American Rescue Plan Act (ARPA) was signed into law to establish recovery funding from the Coronavirus for State, territorial, local and Tribal governments. The City received \$1,896,930 in FY 2022, which largely contributed to the 11.3% increase in revenues. Without this one-time revenue source, revenues would have been flat when compared to FY 2021.
FY 2023	The City will receive another \$1.9M from the ARPA Funds. Building permits will start to return to normal. All utilities, except Telephone, are expected to increase. Sales Tax is projected to increase over 10% and interest over 55% causing an overall increase of \$631K or 3.4%.
FY 2024	As a result of no additional ARPA Funds anticipated and building permits returning to normal, revenues will decrease \$1.6M or 8.5%. All utilities except Telephone and Cable TV are expected to increase. Sales tax is budgeted to increase 2%.



GENERAL FUND REVENUES

	Actual Revenue FY 2021	Actual Revenue FY 2022	Budgeted Revenue FY 2023	Projected Revenue FY 2023	Estimated Revenue FY 2024	% Change to Estimated FY 2023
GENERAL PROPERTY TAXES:						
4101 Real Property-Current	710,619	751,204	738,083	777,976	\$ 824,655	6.00%
Total General Property Tax	710,619	751,204	738,083	777,976	824,655	6.00%
PUBLIC UTILITY LICENSES:						
4201 Electric	3,062,713	3,365,735	3,529,887	3,628,262	\$ 3,827,817	5.50%
4202 Gas (Natural)	573,622	650,352	585,400	764,721	\$ 791,487	3.50%
4203 Telephone	921,314	774,903	738,797	701,014	\$ 658,953	-6.00%
4204 Water	517,080	510,881	553,439	591,847	\$ 665,828	12.50%
4207 Cable TV Franchise Fee	286,301	283,999	274,651	284,929	\$ 284,929	0.00%
4208 Fiber Optics Franchise Fees	35,384	37,380	38,128	39,942	\$ 40,741	2.00%
Total Public Utility Licenses	5,396,414	5,623,251	5,720,302	6,010,716	6,269,755	4.31%
INTERGOVERNMENTAL REVENUE:						
4301 City Sales Tax	4,718,846	5,371,201	5,280,151	5,934,458	\$ 6,053,147	2.00%
4302 City Sales Tax-Auto	289,922	260,827	280,155	276,519	\$ 279,284	1.00%
4303 Cigarette Tax	35,277	32,902	33,383	28,116	\$ 28,116	0.00%
4304 Gasoline Tax	467,995	523,058	510,490	616,208	\$ 677,829	10.00%
4305 County Road & Bridge Tax	987,618	1,033,893	1,011,564	1,083,280	\$ 1,148,277	6.00%
4737 Other Agency Funding	1,304,747	2,017,352	1,940,435	2,008,972	\$ 60,400	-96.99%
Total Intergovernmental Revenue	7,804,405	9,239,234	9,056,178	9,947,553	8,247,052	-17.09%
LICENSES & PERMITS:						
4402 Business License	199,573	211,993	199,658	208,323	\$ 210,406	1.00%
4404 Liquor License	33,638	35,850	32,610	33,600	\$ 33,935	1.00%
4405 Vending Machine License	2,550	715	2,550	775	\$ 775	0.00%
4406 Emergency Alarm License	125	(25)	125	125	\$ 125	0.00%
4415 Dog Park License Fees	13,740	11,424	13,444	6,618	\$ 9,926	50.00%
4420 Building Permits	1,027,716	1,256,614	675,000	880,873	\$ 675,000	-23.37%
4422 Apartment Re-Occupancy Fee	171,820	97,095	105,600	102,820	\$ 96,000	-6.63%
4424 Escrow Deductions	100,238	199,026	125,000	105,000	\$ 65,000	-38.10%
4426 Occupancy Permits	10,380	13,130	10,439	11,487	\$ 11,487	0.00%
4427 Sign Permits	5,830	6,350	1,000	6,450	\$ 6,000	-6.98%
4431 Street Excavation Fees	21,709	24,405	18,975	20,185	\$ 20,185	0.00%
4444 Misc.	410	490	360	320	\$ 320	0.00%
4450 Planning & Zoning Application Fee	11,557	11,198	7,933	12,125	\$ 12,125	0.00%
4457 Site Improvement Permits	6,994	10,393	6,000	12,373	\$ 10,000	0.00%
4536 Farmers Market	4,130	845	-	-	\$ -	0.00%
Total Licenses and Permits	1,610,410	1,879,502	1,198,694	1,401,073	1,151,285	-17.83%

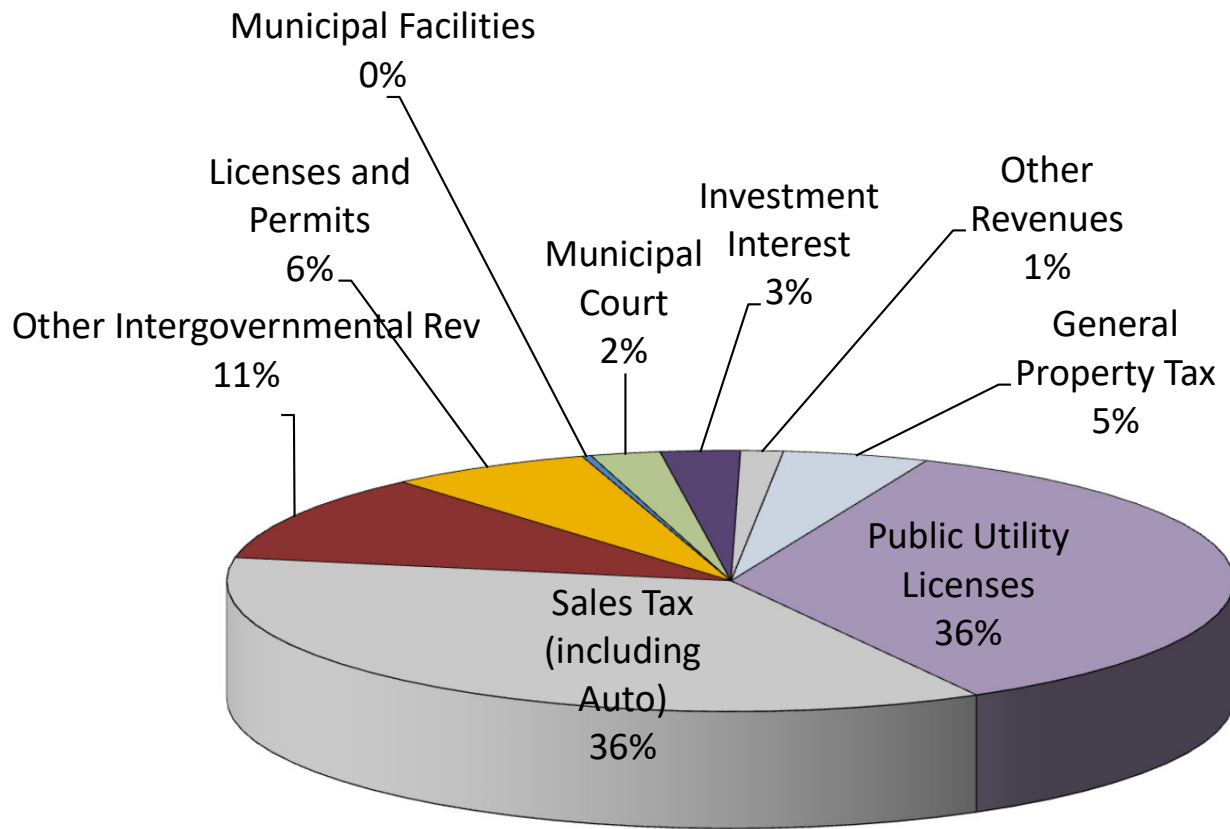


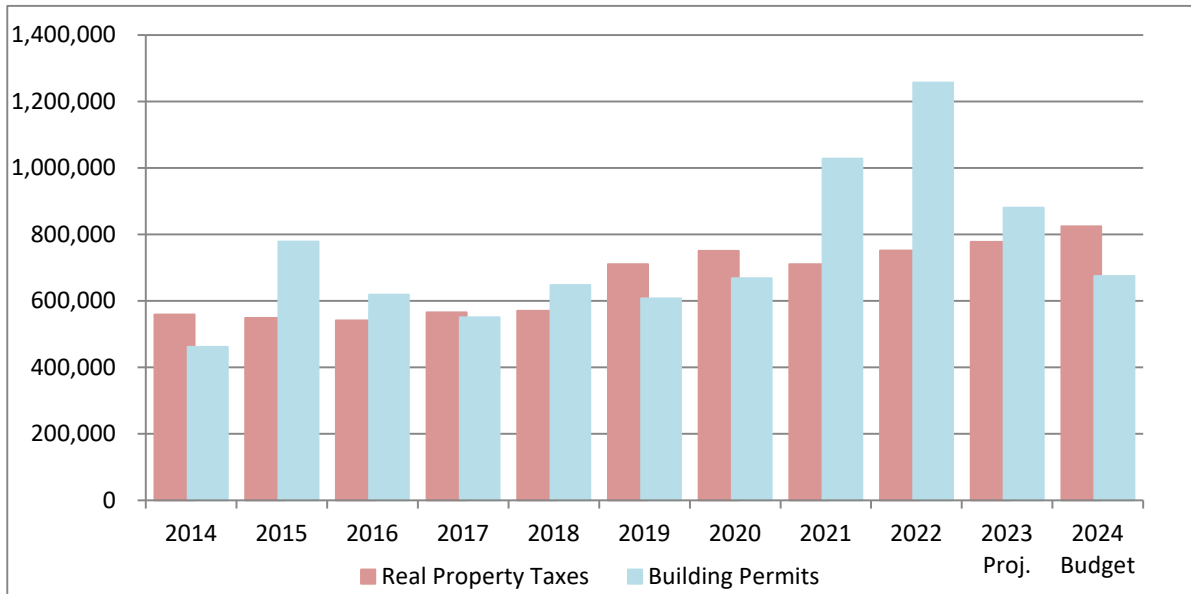
GENERAL FUND REVENUES

	Actual Revenue FY 2021	Actual Revenue FY 2022	Budgeted Revenue FY 2023	Projected Revenue FY 2023	Estimated Revenue FY 2024	% Change to Estimated FY 2023
CHARGES FOR MUNICIPAL FACILITIES (Community Services):						
4540 Multi-Purpose Rental	480	-	-	(600)	\$ -	0.00%
4541 Meeting Room Rental	138	-	-	175	\$ -	0.00%
4542 Gymnasium Rental	6,380	12,030	15,000	16,000	\$ 16,000	0.00%
4544 Recreational Programs	2,537	26,332	16,000	16,000	\$ 19,000	18.75%
4545 Miscellaneous Revenue	-	-	-	-	-	0.00%
4546/4547 Donations/Sponsorships	23,411	6,260	-	-	\$ -	0.00%
4554 Park Rentals	6,439	15,619	13,500	19,000	\$ 17,000	-10.53%
Total Charges For Municipal Facilities (Community Services)	39,385	60,241	44,500	50,575	52,000	2.82%
MUNICIPAL COURT:						
4601 Municipal Court Fines	33,930	28,359	34,749	26,057	\$ 26,318	1.00%
4602 Traffic Violations Bureau	517,482	423,072	518,522	363,686	\$ 367,323	1.00%
Total Municipal Court	551,411	451,432	553,271	389,743	393,640	1.00%
4704 Investment Income	339,907	295,808	330,000	450,684	\$ 450,000	-0.15%
OTHER REVENUES:						
4425 WDCD Acct. Service Fee	3,900	3,300	3,600	3,600	\$ 3,600	0.00%
4459 BJC Agreement	(27,880)	-	-	-	\$ -	0.00%
4604 Police Misc. Revenue	5,700	8,921	5,900	3,900	\$ 7,900	102.59%
4606 Police Service Contract	92,910	78,796	76,942	76,942	\$ 80,789	5.00%
4608 False Alarm Charges	7,450	7,675	6,225	5,825	\$ 5,825	0.00%
4610 Copies of Police Reports	6,393	9,533	7,822	7,095	\$ 7,095	0.00%
4710 Misc. Non Operating Rev.	-	-	-	-	-	0.00%
4723 Surplus Property	200	360	200	270	\$ 200	0.00%
4725 Arvest Rewards	10,035	16,620	13,000	18,459	\$ 16,000	0.00%
4729 Miscellaneous Revenue	78,585	79,104	17,000	17,496	\$ 17,000	-2.83%
4730 Reimbursements	49,394	126,615	34,000	94,762	\$ 34,000	-96.60%
4747 Police Reimbursements	50	394	50	-	\$ 50	-53.48%
4749 Inmate Security	5,498	4,599	5,500	4,036	\$ 5,500	-53.48%
4750 Law Enforce. Training (LET)	5,500	4,602	5,500	4,044	\$ 5,500	-53.48%
4751 Police Officer Standard Train.	2,309	1,991	2,000	1,937	\$ 2,000	-53.48%
4771 Sale of Fixed Assets	61,510	-	55,000	7,420	\$ 55,000	0.00%
Total Other Revenues	301,554	342,511	232,739	245,785	240,459	-2.17%
Total Current Year's Revenue	16,754,105	18,643,183	17,873,766	19,274,105	17,628,846	-8.54%
8000 Other Financing Sources	196,366	589,995	923,014	923,014	954,039	
TOTAL GENERAL FUND	16,950,471	19,233,178	18,796,780	20,197,119	18,582,886	-7.99%



FY 2024 GENERAL FUND REVENUES BY CLASS



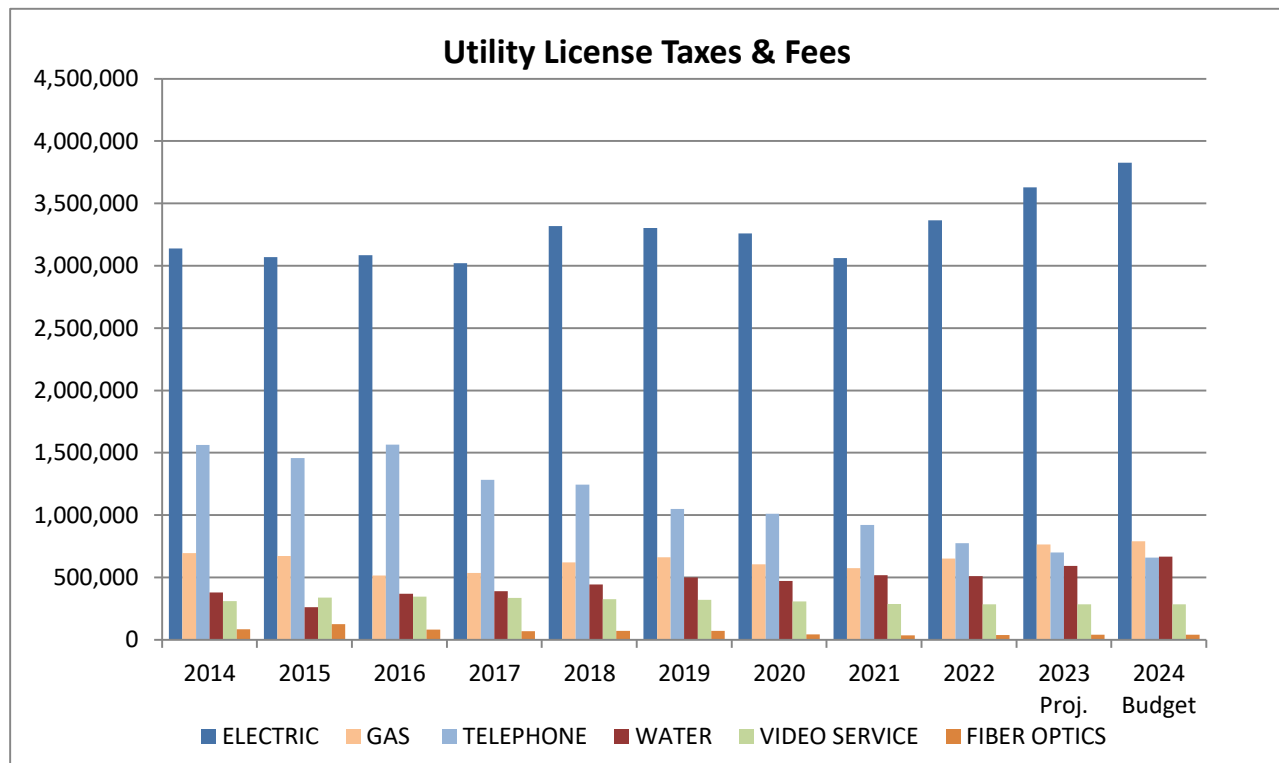
**Real Property Taxes and Building Permits****Real Property Taxes**

In accordance with Missouri Statute - Chapter 148, Section 94.030 an ad valorem tax is levied on all real property within the boundaries of the City of Creve Coeur. The tax is based on the assessed valuation of property as established by the St. Louis County Assessor. The County assesses the property as follows: Residential 19%, Agriculture 12%, Commercial/Industrial 32%. The City's current operating budget levy per \$100 of assessed value is .073 cents per residential and .083 cents for commercial property. Real estate property taxes are billed and collected by the county collector's office and subsequently remitted to the City. Reassessment of property values occurs in odd numbered years. The total FY 2024 revenue is estimated at \$824,655. This estimate is based upon an estimated increase in assessed valuation, therefore, decreasing the tax rates for 2023. However, due to an expected increase in inflation and an increase from new construction, we are estimating a 6% increase in revenue.

Building Permits

In accordance with Title V of City Code of Ordinances a permit fee is required for all construction or alterations to all structures within the City. Per City Ordinance a fee of \$7.00 per \$1,000 of construction value for residential and commercial was established effective March 1, 2020 (up from \$6.00 per \$1,000). The cost of the permit includes all inspection fees. FY 2024 revenues are estimated at \$675,000 based upon a decrease in development projects.

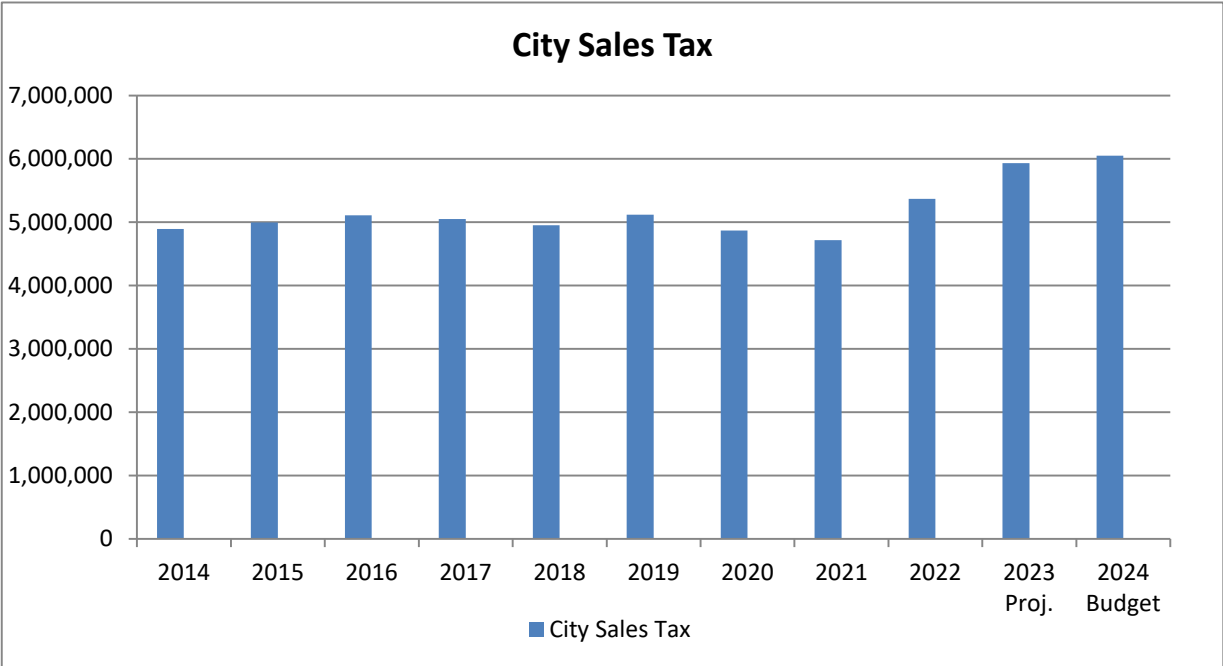
Fiscal Year	Real Property Taxes	Building Permits
2014	558,972	461,715
2015	549,217	778,984
2016	540,881	618,616
2017	565,888	550,801
2018	569,870	648,249
2019	710,164	608,059
2020	750,734	668,798
2021	710,619	1,027,716
2022	751,204	1,256,614
2023 Proj.	777,976	880,873
2024 Budget	824,655	675,000



Utility License Fees

In accordance with Chapter 635 of the City Code of Ordinances a tax is levied on the utility gross receipts from business within the City of Creve Coeur. The gross receipt tax rate was increased from 7.0% of monthly gross receipts for commercial to 8% in November 2018. Residential Electric was increased March 2019 from 5.5% to 7%. Significant changes in the revenue are detailed below. Ameren has proposed an 11.6% increase effective July 2023; Spire had a 7% increase in January 2023; Missouri American Water has proposed a 25.7% increase effective July 2023; Telephone continues to decrease; Beginning August 28, 2023, Video/Cable Fee will be reduced from 5% to 4.5% and will be reduced by .5% (\$28,500) per year until 2028 when the fees are frozen at 2.5%. FY 2024 revenues are estimated to be \$6,269,755, which includes an overall increase of 4.3%.

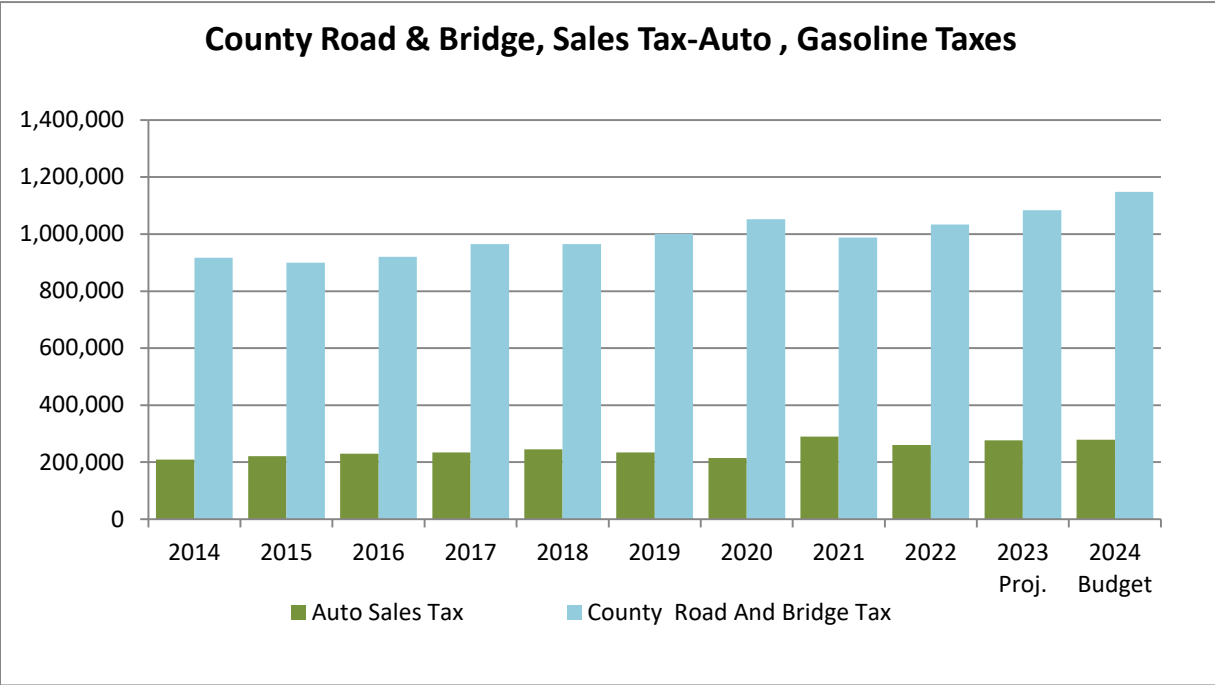
TAXES & LICENSE FEES						
Fiscal Year	ELECTRIC	GAS	TELEPHONE	WATER	VIDEO SERVICE	FIBER OPTICS
2014	3,137,959	694,032	1,562,401	380,642	311,338	85,033
2015	3,069,232	673,046	1,457,574	261,093	338,596	125,583
2016	3,085,154	516,861	1,565,192	368,658	346,508	82,061
2017	3,019,789	535,069	1,282,109	390,060	335,699	67,986
2018	3,317,383	620,800	1,245,526	442,886	325,539	71,496
2019	3,302,341	661,422	1,049,606	500,365	321,040	70,482
2020	3,259,567	605,271	1,011,121	472,337	306,869	44,500
2021	3,062,713	573,622	921,314	517,080	286,301	35,384
2022	3,365,735	650,352	774,903	510,881	283,999	37,380
2023 Proj.	3,628,262	764,721	701,014	591,847	284,929	39,942
2024 Budget	3,827,817	791,487	658,953	665,828	284,929	40,741



City Sales Tax

In accordance with Chapter 145 of the City Code of Ordinances the city levies a \$.0125 sales tax on all goods and commodities within the City limits. In accordance with Missouri State Statutes "A" cities are point of sale cities and "B" cities are pooled cities, meaning that sales tax collected are shared with other cities in the "B" pool on a per capita basis. The City of Creve Coeur is a point of sale city, except for areas annexed after June 1, 1990. The FY 2024 \$.0125 point of sale revenue is estimated at \$5,956,101 less \$1,006,923 for sharing with "B" pooled cities. The "B" pooled areas of the City are expected to produce revenue of \$1,103,969 for FY 2024. Therefore, total FY 2024 revenue is estimated at \$6,053,147. The projections are based on a 10.49% increase in FY 2023 and a 2% increase in FY 2024.

Fiscal Year	City Sales Tax
2014	4,892,009
2015	4,998,086
2016	5,110,088
2017	5,050,621
2018	4,950,256
2019	5,119,738
2020	4,868,807
2021	4,718,846
2022	5,371,201
2023 Proj.	5,934,458
2024 Budget	6,053,147

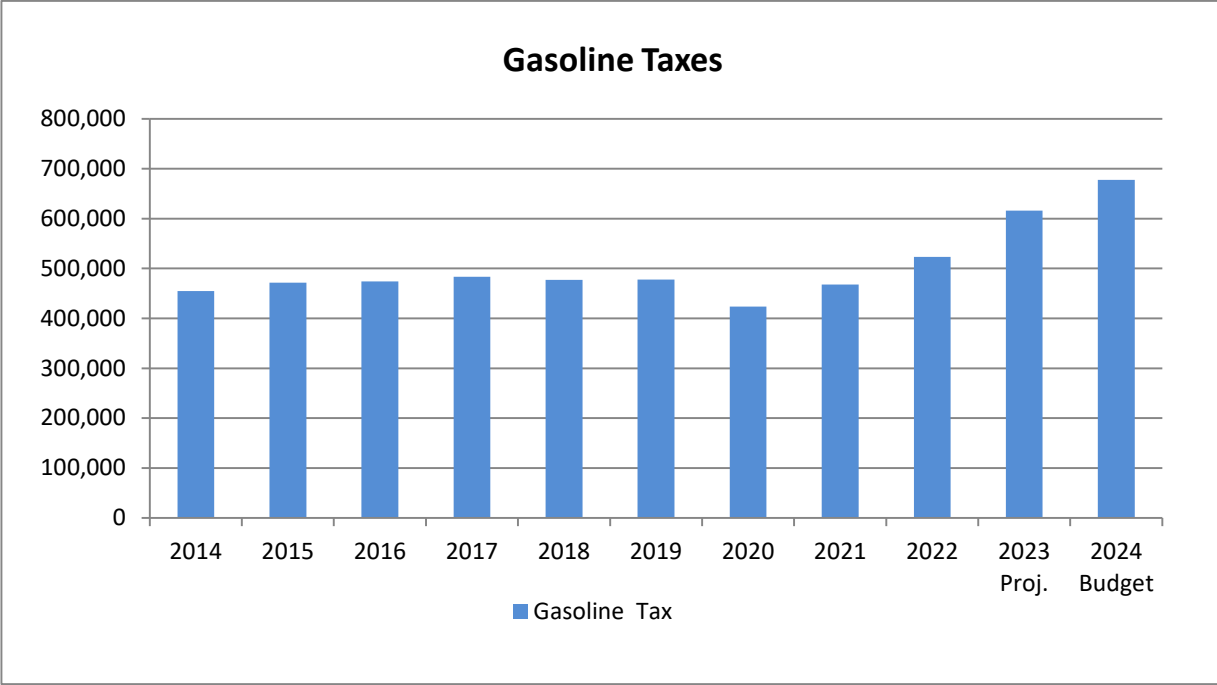


County Road & Bridge Tax

In accordance with section 137.558 RSMo and City Ordinance No. 1089, a tax is levied by the County and distributed directly to the City for each calendar tax year. The tax is based on the assessed valuation of real property, personal property and railroad property as established by the County Collectors office and subsequently remitted to the City. The tax is \$.105/hundred assessed valuation. Reassessment of property values occurs in odd numbered years. Total FY 2023 revenue estimated at \$1,083,280. The revenue estimates for 2024 are budgeted to increase 6% to \$1,148,277. These revenues must be used for the improvement and repair of public roads, streets and bridges within the city, which are listed under the Street Maintenance Division. A transfer of \$400,000 out of the General Fund to the Capital Fund is dedicated to street projects.

City Sales Tax - Auto

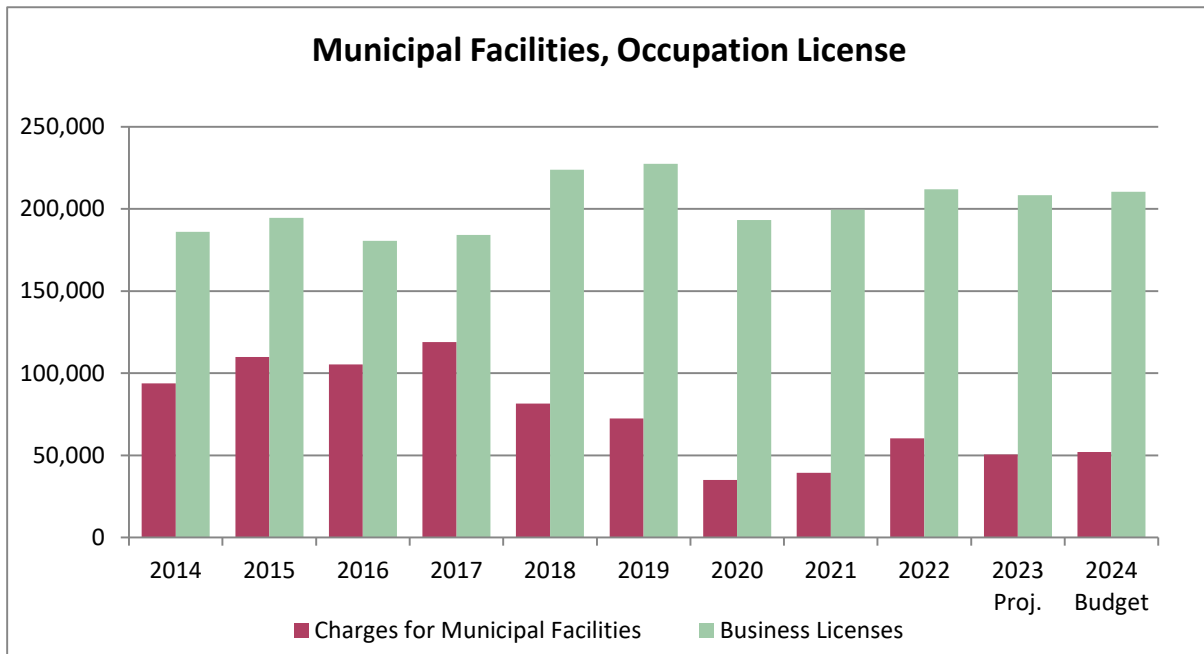
In accordance with Missouri Statute - 66.630 Revised, sales tax is collected by the State on motor vehicles. Taxes are distributed based on a formula set forth In sections 66.620 and 66.630. The FY 2023 revenue is estimated at \$276,519. The projected FY 2024 revenues are estimated at \$279,284. The FY 2024 revenues reflect a slight increase of 1% in sales tax collections.



Gasoline Tax

In accordance with Art 4 section 30(a) of the Missouri Constitution and City Ordinance No. 1048, a tax is imposed by the State on each gallon of motor fuel sold to provide funds for the construction, maintenance, repair, policing, signing, lighting and cleaning roads and streets and for the payment of indebtedness on account of road and street purposes. Fifteen percent of the tax is distributed to cities on a per capita basis. The tax rates will be increasing from \$.17 per gallon of fuel per the following schedule: 10/1/21 - increases to \$.195; 7/1/22 - increases to \$.22; 7/1/23 - increases to \$.245; 7/1/24 - increases to \$.27; 7/1/25 increases to \$.295. Collections are made by the State and remitted each month to the City. The FY 2023 revenue is estimated at \$616,208. The FY 2024 estimated revenues of \$677,829 is a 10% increase.

Fiscal Year	Auto Sales Tax	County Road And Bridge Tax	Gasoline Tax
2014	208,569	916,689	454,765
2015	221,193	899,309	471,805
2016	229,531	920,432	473,937
2017	234,378	964,827	483,384
2018	245,103	965,524	477,353
2019	234,406	1,000,539	478,147
2020	214,134	1,052,470	423,749
2021	289,922	987,618	467,995
2022	260,827	1,033,893	523,058
2023 Proj.	276,519	1,083,280	616,208
2024 Budget	279,284	1,148,277	677,829



Charges for Municipal Facilities

In accordance with City Policy, the City charges fees for the usage of various City Facilities. These Facilities include the Multipurpose room, (2) meeting rooms, and the Gymnasium. Charges for Municipal facilities also includes fees for recreation programs such as sports camps, tennis lessons, art and craft camps and other Recreation programs plus Miscellaneous Revenues. The FY 2023 revenues were down slightly as a result of not renting the Multipurpose or meeting rooms. FY 2024 is projected to increase 3% as a result of increasing recreational programs.

Business Licenses

In accordance with Chapter 605 of City Code of Ordinances a fee is charged all for-profit businesses operating in the City. The business license fee is based on the following:

Manufacturers/Warehouses: \$20 per 1,000 sq ft, or any portion thereof, rounded to the next highest 1,000 sq ft.

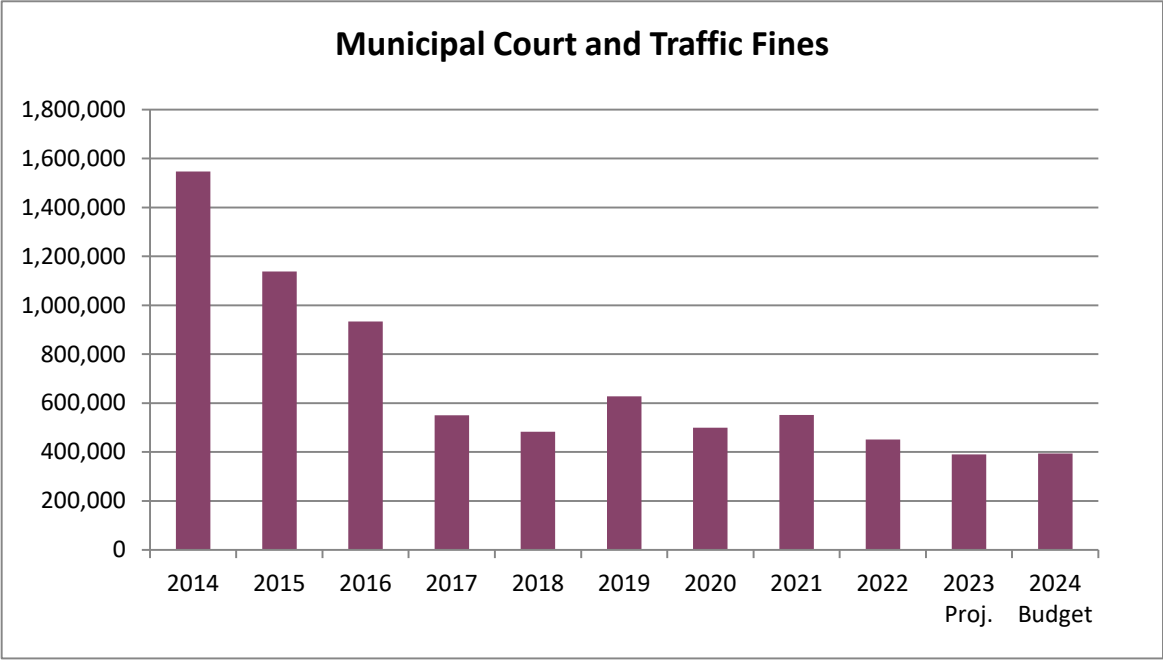
Not for Profit Businesses: Fee is waived.

All Other Businesses: \$30 per 1,000 sq ft, or any portion thereof, rounded to the next highest 1,000 sq ft.

These fees also pertain to massage licenses and permits.

The FY 2024 revenue is estimated to increase 1% to \$210,406.

Fiscal Year	Charges for Municipal Facilities	Business Licenses
2014	93,749	186,032
2015	109,861	194,632
2016	105,417	180,631
2017	118,999	184,113
2018	81,432	223,858
2019	72,462	227,555
2020	34,997	193,195
2021	39,385	199,573
2022	60,241	211,993
2023 Proj.	50,575	208,323
2024 Budget	52,000	210,406

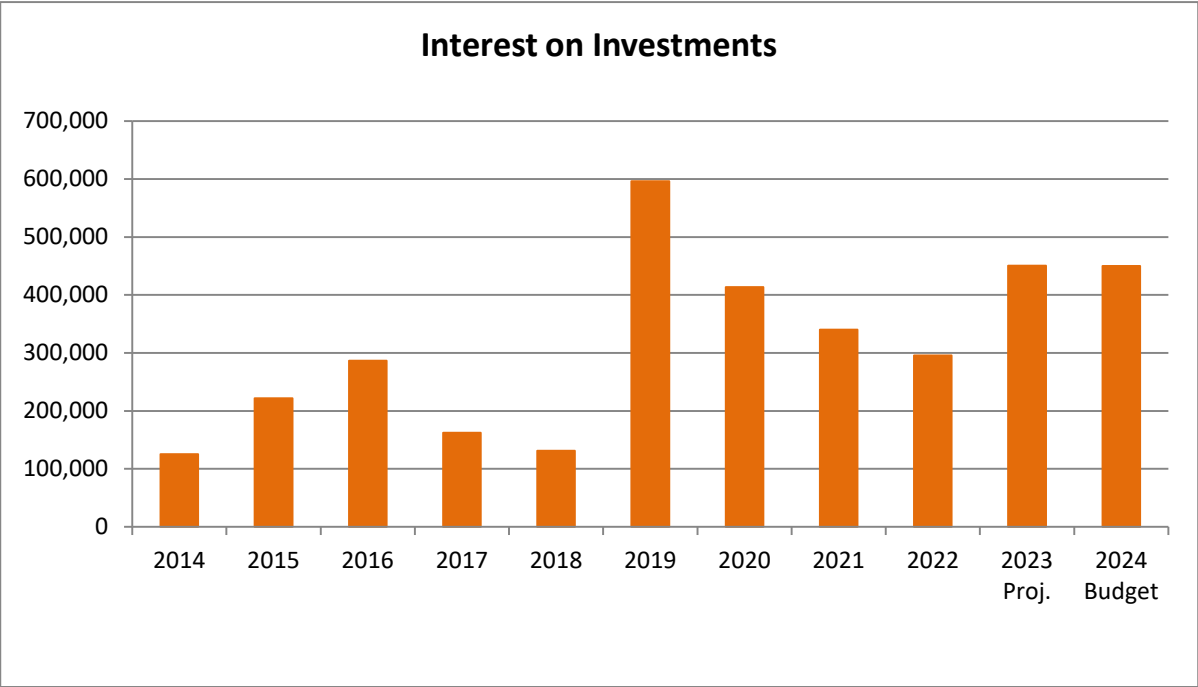


Municipal Court and Traffic Fines

Fines consists of two components.

In accordance with Chapter 135 of the City Code of Ordinances the City's Municipal Court Judge may assess fines and court costs for cases heard before the Court. In accordance with Chapter 135 of City Code of Ordinances, fines and costs are assessed for traffic violations in the City. Traffic violations and Municipal Court Fines for FY 2023 are estimated to be \$389,743. Total FY 2024 revenue has an estimated 1% increase to \$393,640.

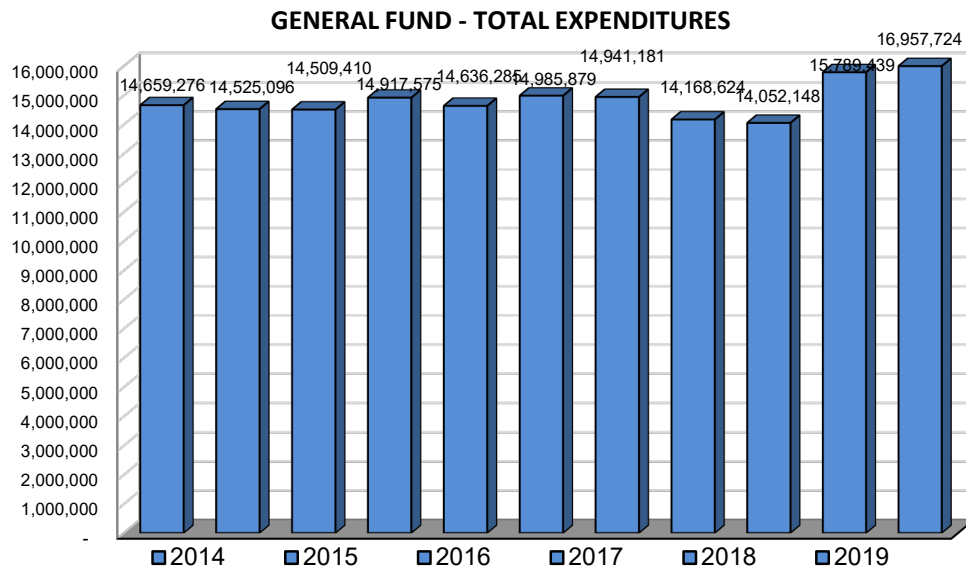
Fiscal Year	Municipal Court and Traffic Fines
2014	1,546,945
2015	1,137,912
2016	933,402
2017	550,811
2018	482,945
2019	628,209
2020	499,153
2021	551,411
2022	451,432
2023 Proj.	389,743
2024 Budget	393,640



Interest on Investments

In accordance with Administrative policy, interest is earned on excess monies invested in Treasuries and/or agencies. Total FY 2024 revenue is estimated at \$450,000, which is flat from FY 2023. Interest rates are anticipated to start leveling off in FY 2024. March 2020 rates decreased as a result of the COVID-19 pandemic.

Fiscal Year	Interest on Investments
2014	125,273
2015	221,639
2016	286,652
2017	162,158
2018	131,186
2019	596,122
2020	413,311
2021	339,907
2022	295,808
2023 Proj.	450,684
2024 Budget	450,000



Fiscal Year		Total Expenditures	Amount of Change	Percent Change
2014		14,659,276	116,974	0.8%
2015		14,525,096	(134,180)	-0.9%
2016		14,509,410	(15,686)	-0.1%
2017		14,917,575	408,166	2.8%
2018		14,636,285	(281,290)	-1.9%
2019		14,985,879	349,594	2.4%
2020		14,941,181	(44,698)	-0.3%
2021		14,168,624	(817,255)	-5.5%
2022		14,052,148	(889,033)	-6.0%
2023	Projected	15,789,439	1,737,291	12.4%
2024	Budgeted	16,700,724	1,218,285	7.72%

Major causes of change:

- FY 2014** Overall expenses increased by 0.8% in FY 2014. Personnel costs increased due to annual salary increase and salary adjustments for market equity, and benefit costs except for Pension increased. Personnel vacancies, especially in Police, and reduced pension costs offset increases. Also red light safety program costs were reduced due to suspension of the program. Costs for temporary workers increased but were offset by elimination of PT employees.
- FY 2015** Overall expenses decreased by 0.9% in FY 2015. Personnel costs increased due to annual salary increases, salary adjustments and increased benefit costs. Snow removal costs increased dramatically due to the harsh winter. Comp Plan costs were included in 2015. Suspension of the red light safety program for the entire year in 2015 offset these increases. Also, vacancies and retirements reduced some costs.

**GENERAL FUND EXPENDITURES (CONT'D)**

FY 2016	Overall expenses decreased by 0.1% in FY 2016. Personnel costs increased due to annual salary increases, salary adjustments and increased benefit costs. In addition, 2 new positions were added, one in PW-Administration and one in Building Inspection. Costs were reduced primarily due to the new refuse/recycling contract which reduced costs about one-third.
FY 2017	Overall expenses increased by 2.8% in FY 2017. Personnel costs increased due to annual salary increases, salary adjustments and increased benefit costs.
FY 2018	Overall expenses decreased 1.9% in FY 2019. Personnel costs increased due to annual salary increases, salary adjustments and increased benefit costs. However, a few positions were not filled when they became vacant. Building maintenance also decreased substantially due to a major repair in FY 2017.
FY 2019	Overall expenses increased by 2.4% in FY 2019. Salary increases included a 3% increase and approximately 6.0% increase in benefit costs. A commercial building inspector was hired for the BJC project (contractual agreement) for two months. Refuse collections increased 4%. Several expensive emergency repairs were made to the Government Center. Capital expenditures increased 65% in the police department due to an increase in police vehicle expenditures. One (1) of those vehicles was purchased due to a totalled vehicle. Most of the financial software purchase occurred in FY 2019 and is one of the primary reasons for the increase.
FY 2020	As a result of the pandemic starting in the last quarter of FY 2020, departments were told to minimize expenditures as much as possible, which lead to the overall decrease of .3% in expenses.
FY 2021	Expenditures decreased 5.5%. Due to the COVID-19 pandemic, no salary increases were budgeted for the year and expenditures were cut to reduce the deficit as much as possible. However, the City received \$1.2M from the CARES Act Program, so the City gave employees a 1.5% one-time merit bonus mid-year.
FY 2022	While operational and capital expenditures increased as the City returned to normal operation after the pandemic subsided, expenditures decreased 6%. Personnel costs included a 2% salary increase and an increase in benefits, but due to a delay in filling vacant positions, personnel expenditures were down.
FY 2023	Expenditures are expected to increase 12.4% as a result of vacancies being filled. Personnel costs include a 4% salary increase for all employees, except police who will received an average of 8-8.5%. Also included is a 2% one-time bonus to all employees as a result of a high inflation rate in 2022. Benefits also increased as a result of health insurance alone increasing 7%. 1 new FT Park Maintenance position added. While operational expenditures were budgeted to increase 19.7% mainly as a result of contracting for leaf and limb services, increase in fuel expenditures and an overall increase of operational costs, overall expenditures actually decreased 1%.
FY 2024	Expenditures are budgeted to increase 7.4% as a result of being fully staffed and a 3% COLA and a 4% merit increase for all employees, except police officers and sergeants. A 3.5% COLA for officers and sergeants in addition to their 3.5% step increase is also budgeted for FY 2024. Health insurance is budgeted to increase 5%. Contractual Services are budgeted to increase 7% as a result of many contractual agreements increasing, such as Trash Service, Auditing Services, etc. Also included is \$50,000 for the 1st year of the 39N 3-Year Economic Development Agreement using ARPA Funds.



**GENERAL FUND
SUMMARY OF DEPARTMENTAL APPROPRIATIONS
BY MAJOR EXPENDITURE CATEGORY
FOR FISCAL YEAR ENDING JUNE 30, 2024**

DEPARTMENT/DIVISION	Personnel Expense	Operating Expense	Capital Outlay	Total
Legislative Services	156,265	80,224		236,489
Legal Services	-	192,761		192,761
Administrative Services	570,002	78,842		698,844
Information Systems	119,879	144,135	-	264,014
Finance Department	450,401	117,729	-	568,130
Municipal Court	228,008	49,819	500	278,327
Insurance, Benefits, Non-Depart.	741,909	402,018	-	1,143,927
Community Services	105,022	37,783	600	143,405
Municipal Property	88,532	193,676	18,000	300,208
Police Department - Administration	1,188,956	836,036	6,750	2,031,742
Police Department - Investigations	914,299	35,834	10,644	960,777
Police Department - Patrol	4,393,764	256,014	448,436	5,098,214
Public Works Administration	523,280	92,622	-	615,902
Street Maintenance	785,631	899,045	12,000	1,696,676
Health & Welfare	-	874,955	-	874,955
Parks Maintenance	387,796	228,095	5,000	620,891
Planning Department	294,946	68,810	700	364,456
Building Department	870,166	47,490	350	918,006
Totals	<u>11,818,856</u>	<u>4,635,888</u>	<u>502,980</u>	<u>17,007,724</u>
Transfers To Other Funds	-	-	-	-
TOTAL GENERAL FUND	<u>11,818,856</u>	<u>4,635,888</u>	<u>502,980</u>	<u>17,007,724</u>

**CITY OF CREVE COEUR****ALL DEPARTMENTS FOR GENERAL FUND-FY24**

ACCOUNT NUMBER AND DESCRIPTION	2022 Actual	2023 Budget	2023 Projected	2024 Request	% Change from Projected
5101 Salaries, Permanent Empl.	6,344,840	6,943,590	6,992,585	7,205,557	3.05%
5102 Salaries, Temporary Empl.	123,592	187,808	178,177	227,377	27.61%
5103 Overtime	117,717	126,650	122,750	133,650	8.88%
5104 Vacation Pay	18,463	22,340	39,987	44,190	10.51%
5105 Longevity Pay	29,545	29,357	27,685	26,381	-4.71%
5106 Holiday Pay	116,699	133,484	122,325	137,640	12.52%
5107 Uniform Allowance	9,888	13,560	13,560	13,632	0.53%
5109 Provision for Salary Adj.	0	550,882	133,742	444,220	0.00%
5110 Auto Allowance	16,320	16,320	16,320	16,320	0.00%
5111 Cell Phone Allowance	550	300	300	300	0.00%
5120 Employee Referral Bonus	0	1,200	2,400	3,000	0.00%
5230 Hospital & Medical Insurance	879,560	989,010	961,611	1,034,629	7.59%
5231 Self Insured Medical Benefits	12,230	13,680	12,130	12,130	0.00%
5233 Dental Insurance	175,168	186,886	192,363	203,050	5.56%
5234 Group Life Insurance	21,326	23,897	25,245	29,333	16.19%
5235 Accidental Death & Dismem.	2,237	2,591	2,447	2,583	5.56%
5236 Disability Insurance	15,294	19,737	16,600	20,401	22.90%
5240 Social Security Contribution	498,581	594,746	572,308	611,203	6.80%
5241 Pension Contribution	1,429,994	1,315,900	1,128,446	1,253,223	11.06%
5242 Deferred Retirement Comp.	18,857	19,469	19,390	20,315	4.77%
5243 Worker's Compensation Ins.	239,098	275,054	285,581	331,722	16.16%
5244 Unemployment Comp.	3,200	13,000	13,000	13,000	0.00%
5246 Insurance Deductible	22,493	35,000	35,000	35,000	0.00%
5297 Misc. Payroll Expense	0	0	0	0	0.00%
6201 Legal Services	187,846	225,990	199,650	217,150	8.77%
6202 Technical & Personal Services	689,387	752,144	858,067	905,762	5.56%
6203 Professional Services	193,228	160,547	136,503	196,483	43.94%
6204 Planning & Design Services	0	30,000	10,000	30,000	0.00%
6207 Temporary Personnel Services	127,400	130,950	105,000	109,000	3.81%
6209 Accounting Services	31,800	28,100	32,650	53,500	63.86%
6210 Vehicle Maintenance	83,353	112,500	85,100	93,750	10.16%
6211 Equipment Maintenance	105,068	117,210	117,220	121,700	3.82%
6212 Building & Ground Maint.	266,018	334,944	334,854	350,870	4.78%
6213 Office Equipment Maint.	98,105	158,513	151,368	163,708	8.15%
6214 Refuse Collections	800,800	833,169	838,130	871,555	3.99%
6215 Weed Cutting/Tree Removal	6,013	6,000	7,600	6,000	-21.05%
6216 Larviciding	2,584	3,400	3,400	3,400	0.00%
6217 Recycling	0	0	0	0	0.00%
6220 Liability Insurance	94,969	98,869	108,168	117,385	8.52%
6221 Venable Park Expenses	14,860	15,000	15,000	0	0.00%
6222 Pub. Officials Liab.Ins.	37,709	43,350	40,355	44,380	9.97%
6224 Tappemeyer House.	20,245	18,000	15,000	15,000	0.00%
6225 Surety Bonds	1,671	1,755	1,755	1,845	5.13%
6226 Property & Auto Insurance	64,403	74,063	59,472	74,340	25.00%

**CITY OF CREVE COEUR****ALL DEPARTMENTS FOR GENERAL FUND-FY24**

	2022	2023	2023	2024	% Change
ACCOUNT NUMBER AND DESCRIPTION	Actual	Budget	Projected	Request	from Projected
6247 Dog Park Expenses	1,225	1,225	1,225	3,225	163.27%
6250 Electricity	85,281	93,960	89,350	93,950	5.15%
6251 Street Lighting	119,158	120,000	120,000	120,000	0.00%
6252 Natural Gas	14,372	15,140	17,140	17,870	4.26%
6253 Telephone	0	0	0	300	0.00%
6253 Telephone	58,271	59,143	58,059	71,022	22.33%
6254 Water & Sewer	76,172	94,875	87,660	98,000	11.80%
6255 Cable TV	5,097	4,830	3,606	3,600	-0.17%
6260 Advertising	5,413	5,900	7,517	7,250	-3.55%
6261 Education & Training	27,362	38,895	36,010	49,915	38.61%
6262 Dues, Memberships & Subsc.	25,589	34,190	34,613	30,256	-12.59%
6263 Election Expense	7,213	10,000	11,998	10,000	-16.65%
6264 In Town Meetings	12,483	13,592	16,424	16,397	-0.16%
6265 Travel & Conferences	26,116	62,954	43,152	66,185	53.38%
6266 Equipment Rental	8,733	9,751	13,550	12,516	-7.63%
6269 Postage	30,906	33,300	33,300	33,300	0.00%
6271 Medical	17,589	19,376	18,257	17,700	-3.05%
6272 Employee Relations	10,983	13,303	13,500	15,640	0.00%
6281 5K Run Expenses	7,573	6,850	6,850	6,850	0.00%
7301 Chemicals & Cleaning	1,735	4,400	3,550	4,450	25.35%
7302 Small Tools	8,505	13,970	13,580	14,180	4.42%
7303 Horticultural Supplies	28,400	29,150	26,000	28,000	7.69%
7304 General Supplies	22,466	37,690	33,986	35,800	5.34%
7305 Street and Sidewalk Maint.	22,043	30,000	30,000	32,500	8.33%
7306 Memorials & Plaques	1,481	1,850	2,350	3,300	40.43%
7307 Gasoline & Mileage	168,110	156,675	164,525	173,375	0.00%
7308 Wearing Apparel & Linen	65,321	89,006	94,581	83,342	-11.88%
7310 Snow Removal Supplies	0	300	300	1,000	233.33%
7310 Snow Removal Supplies	63,158	115,000	115,000	122,500	6.52%
7311 Street Signs	14,297	17,000	17,000	20,000	17.65%
7312 Office Supplies	26,906	35,087	35,087	35,087	0.00%
7313 Range Supplies	13,734	13,840	12,940	15,340	0.00%
7314 Crime Prevention	3,074	5,500	5,000	5,000	0.00%
7315 Special Events	2,508	15,700	12,800	14,300	11.72%
7317 SLAIT Wellness	3,867	0	0	5,600	0.00%
7318 Small Storm Water Projects	1,395	5,000	5,000	0	0.00%
7331 Computer Hardware	23,080	48,600	48,600	29,430	-39.44%
7332 Computer Software	8,270	8,630	8,630	12,880	49.25%
9501 Buildings & Improvements	0	250	250	10,250	4000.00%
9502 Vehicles	0	375,560	417,743	393,954	-5.69%
9503 Equipment	107,090	96,225	92,788	91,236	-1.67%
9504 Office Equipment	5,382	4,350	4,275	7,540	76.37%
	14,052,215	16,400,032	15,789,439	17,007,724	7.72%



LEGISLATIVE DEPARTMENT

Mission Statement

Establish citywide policies protecting and promoting the health, safety, and general welfare of the community.

DESCRIPTION

Mayor and Council

The Mayor and City Council are elected by the citizens. The Mayor is elected at large for a three-year term. Eight (8) City Council members are elected to two-year terms. The members of the City Council elect one (1) member to serve as President of the City Council each year.

City Clerk

The City Clerk is charged with the responsibility of keeping the journal of Council proceedings, as well as authenticating and recording all ordinances and resolutions passed by the Council. The City Clerk retains custody of the City seal and is the official custodian of all legal papers, records and documents. The City Clerk administers oaths or affirmations, is responsible for the codification of city ordinances, and coordinates all city elections. The City Clerk maintains records and ordinances, archives with a proper indexing system, researches city records for attorneys, businesses, and residents and provides information to city staff members on various subjects.

Objectives

- Maintain city records in compliance with state law and the Missouri municipal records manual.
- Provide for public access to meetings and official records in accordance with the city's adopted policy in compliance with the open meetings and records law of the state of Missouri.
- Ensure notification to citizens of scheduled public hearings and meetings in accordance with adopted city policy.
- Provide secretarial support to the Mayor and City Council in an efficient manner to ensure Council effectiveness.
- Work with the City Administrator and staff to ensure Council meeting agendas are prepared and delivered on time and ensure all items of business requiring Council action are included on the agenda with appropriate supportive information provided to the Council.

Budget Highlights – Mayor and Council

- Acct. 6264 – Increase in food costs due to inflation rates (\$2,600).

Budget Highlights – City Clerk

- Acct. 6202 – Increase due to disposition of records meeting the Local Records Retention Schedules per the Missouri Secretary of State's office (\$1,500).
- Acct. 6202 – Increase due to the implementation of a new Agenda Management Software; subject to a 5% increase each year (\$2,656).

**LEGISLATIVE SERVICES**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	127,885	106,268	113,365	115,925	115,925
5102 Salaries, Temporary Empl.	14,775	1,254	-	-	-
5103 Overtime	-	-	-	-	-
5104 Vacation Pay	-	-	-	-	-
5105 Longevity Pay	-	-	-	-	-
5109 Provision for Salary Adj.	-	-	4,097	1,405	5,000
5110 Auto Allowance	1,250	1,200	1,200	1,200	1,200
5111 Cell Phone Allowance	625	550	300	300	300
5230 Hospital & Medical Insurance	5,976	11,827	16,235	16,235	17,165
5231 Self Insured Medical Benefits	600	-	-	-	-
5233 Dental Insurance	709	620	694	677	694
5234 Group Life Insurance	727	626	721	739	844
5235 Accidental Death & Dismem.	29	18	26	24	25
5236 Disability Insurance	227	144	200	197	210
5240 Social Security Contribution	10,833	7,582	8,993	9,003	9,103
5241 Pension Contribution	6,298	4,371	5,067	5,292	5,514
5243 Worker's Compensation Ins.	4,217	4,780	235	245	285
Total Personnel Services	174,150	139,240	151,133	151,242	156,265
OPERATING EXPENSES:					
6201 Legal Services	-	-	-	-	-
6202 Technical & Personal Services	2,135	840	1,500	3,000	3,000
6203 Professional Services	7,232	5,138	6,500	6,500	6,500
6213 Office Equipment Maint.	10,403	11,348	11,355	13,343	14,011
6253 Telephone	480	360	-	-	-
6260 Advertising	804	554	500	500	500
6261 Education & Training	847	110	100	540	600
6262 Dues, Memberships & Subsc.	8,702	8,480	9,825	9,775	9,775
6263 Election Expense	22,954	7,213	10,000	11,998	10,000
6264 In Town Meetings	3,682	7,609	8,288	11,048	10,538
6265 Travel & Conferences	1,260	548	11,250	4,500	8,950
7304 General Supplies	121	473	850	850	850
7306 Memorials & Plaques	1,380	780	600	1,100	1,100
7307 Gasoline & Mileage	50	91	600	100	100
7315 Special Events	1,006	2,508	15,700	12,800	14,300
Total Operating Expenses	61,056	46,052	77,068	76,054	80,224
CAPITAL OUTLAY:					
9504 Office Equipment	-	-	-	-	-
Total Capital Outlay	-	-	-	-	-
TOTAL LEGISLATIVE SERVICES	235,206	185,292	228,201	227,296	236,489



LEGISLATIVE SERVICES
CAPITAL OUTLAY DETAIL

Capital Outlay Detail

Annual

9504 Office Equipment
(Nothing Budgeted)

Total Account 9504

TOTAL CAPITAL IMPROVEMENTS

-
-
-



LEGAL DEPARTMENT

DESCRIPTION

City Attorney

The City Attorney reports to the City Administrator and advises the Mayor, City Council, City Administrator and staff concerning questions of law relating to their official duties or matters affecting the city. The City Attorney also examines all contracts, deeds and bonds and drafts ordinances at the request of the City Administrator. The City Attorney represents the city in legal matters and performs other legal duties as the City may request or require. The City Attorney works as an independent contractor.

Objectives

- Keep City Administrator, Mayor, City Council, and appropriate staff informed about pending matters and pertinent changes in law.
- Timely attend to legal needs of the City of Creve Coeur.
- Attend meetings as directed.
- Represent the City of Creve Coeur in a disciplined and ethical manner.

City Prosecutor

As part of the Law Department, the City Prosecutor and Alternate City Prosecutor report to the City Attorney and the City Administrator and prosecute city ordinance violations. The Administrative Assistant to Prosecutor provides support to the City Prosecutor and Special Prosecutor. The prosecutors and the Administrative Assistant serve as independent contractors.

Objectives

- Review, prosecute and try Municipal Court cases in compliance with applicable City ordinances and state laws.
- Prosecute cases forwarded to St. Louis County Circuit Court for jury trial or Trial De Novo.
- Communicate effectively and clearly with a diverse population.
- Represent the City of Creve Coeur in a disciplined and ethical manner.
- Maintain records in appropriate manner and handle public requests for documents.

Budget Highlights

- Acct. 6201 – All independent contractor fees for legal services associated with City Attorney, City Prosecutor, Special Prosecutor and Administrative Assistant to Prosecutor (\$196,340).
- Acct. 6262 – Software dues and document imaging storage fees for City Prosecutor access to electronic court files (\$6,862).

**LEGAL SERVICES**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	-	-	-	-	-
5102 Salaries, Temporary Empl.	-	-	-	-	-
5103 Overtime	-	-	-	-	-
5104 Vacation Pay	-	-	-	-	-
5105 Longevity Pay	-	-	-	-	-
5109 Provision for Salary Adj.	-	-	-	-	-
5230 Hospital & Medical Insurance	-	-	-	-	-
5233 Dental Insurance	-	-	-	-	-
5234 Group Life Insurance	-	-	-	-	-
5235 Accidental Death & Dismem.	-	-	-	-	-
5236 Disability Insurance	-	-	-	-	-
5240 Social Security Contribution	-	-	-	-	-
5241 Pension Contribution	-	-	-	-	-
5243 Worker's Compensation Ins.	-	-	-	-	-
Total Personnel Services	-	-	-	-	-
OPERATING EXPENSES:					
6201 Legal Services	143,580	162,528	196,340	170,000	185,000
6202 Technical and Personal	-	-	-	-	6,861
6262 Dues, Memberships & Subsc.	4,150	3,365	5,961	6,624	900
6265 Travel & Conferences	1,055	-	900	900	-
Total Operating Expenses	148,785	165,893	203,201	177,524	192,761
CAPITAL OUTLAY:					
9504 Office Equipment	-	-	-	-	-
Total Capital Outlay	-	-	-	-	-
TOTAL LEGISLATIVE SERVICES	148,785	165,893	203,201	177,524	192,761



LEGAL SERVICES
CAPITAL OUTLAY DETAIL

Capital Outlay Detail

Annual

9504 Office Equipment
(Nothing Budgeted)

Total Account 9504

TOTAL CAPITAL IMPROVEMENTS

-
-
-



ADMINISTRATIVE SERVICES DEPARTMENT

Mission Statement

Ensure the policies, programs and services of the city, as established by the City Council, are implemented in an effective and efficient manner.

Description

The Mayor and City Council appoint the City Administrator to oversee the day-to-day operations of the city, provide recommendations to the City Council on policy matters, and provide direction and leadership to city departments. In addition, Administrative Services provides human resources to all departments, benefits administration, policy analysis and internal and external communications.

The department consists of the City Administrator, Assistant City Administrator, Public Information Officer & Management Analyst, and Human Resources Generalist. The Administrative Services Department has one additional division: Municipal Court.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
PERSONNEL				
Average Years of Service, All Full-Time Employees	11	11.3	9	9.3
Percentage of Full-Time Turnover, All ¹	5.7%	15%	3.7%	7.3%
Percentage of Full-Time Turnover, Sworn Only ¹	6.1%	10.2%	4.1%	6.9%
Number of New Employee Orientations, All	30	39	34	25
Number of Employee Candidate Interviews Conducted by Administrative Services Staff, Non-Sworn Only	30	25	6	10
Number of Employee Training & Wellness Events Provided ²	10	7	14	12
COMMUNICATIONS				
External Survey, Percentage of Residents Satisfied with the Quality of the City's Newsletter (rating 4 or 5 on a 5-point scale) ³	N/A	89%	N/A	N/A
Website, Unique Page Views	248,057	259,844	265,000	265,000
Press Releases, All	17	12	12	12
Facebook Posts ⁴	227	149	175	175
Twitter Posts ⁴	215	153	175	175
Videos Posted to Website/YouTube	12	1	2	3
Business Newsletter Open Rate	30.7%	37.7%	42%	40%
Business Newsletter Click-Through Rate	10%	3.6%	4%	5%

¹Turnover does not include retirement, death or employees not completing probation per International City-County Management Association (ICMA) Open Access Benchmarking Key Performance Indicators.



²Reduction in employee trainings and wellness events due to ongoing COVID-19 in FY 2021 & FY 2022.

³Triennial Resident Survey conducted FY 2022; next survey to be conducted in FY 2025.

⁴City Facebook and Twitter accounts only (does not include Police or Recreation accounts).

Service Standards

- Provide relevant and timely information and recommendations to the Mayor and City Council to assist in decision making. Weekly City Administrator Reports are emailed and City Council meeting agenda packets are provided Thursday prior to Council meetings.
- Provide administrative function for all employee benefits, including selection and service for healthcare, dental, life, disability, vision, LAGERS pension plan, and other ancillary benefits.
- Maintain up-to-date employee records on all full-time and part-time employees.
- Responsive to the human resource needs of the operating departments and provide the necessary resources to meet service provision goals. In particular, provide responses on policy questions and personnel requests within 24 to 48 hours.
- Publish monthly citizen newsletter for delivery to residents by the fifth day of the month.
- Produce monthly electronic newsletter for city businesses by the first day of the month.
- Maintain effective media relations with reporters covering the city, issue press releases, and monitor press coverage received by the city on a daily basis.
- Maintain up-to-date information on city website at all times.

Objectives

- Review and improve performance measurement benchmark indicators for key city services to enable the city to track its operations and effectiveness over time and improve service quality.
- Provide recognition of exceptional employee performance. Continue employee of the quarter and employee of the year programs to recognize employees and improve morale.
- Continue development of website to provide more interactive elements.
- Provide high employee benefits while balancing employee/city costs.
- Improve the overall quality of informational publications offered by the city.

Budget Highlights

- Acct. 6203 – Increase due to 3-year 39N Economic Development Agreement (\$50,000).
- Acct. 6213 – Increase due to software purchasing and one-time set up fee for new applicant tracking software originally budgeted in FY 2023 and postponed to FY 2024 (\$6,000).
- Acct. 6260 – Increase in costs associated with online and professional association job postings (\$2,000).
- Acct. 6265 – Increase due to cancellation of conference attendance in FY 2023 and recommencement in FY 2024 for the City Administrator and Assistant City Administrator in FY 2024 at the International City/County Management Association Conference in Austin, TX (\$4,800).

**ADMINISTRATIVE SERVICES**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	381,537	392,538	398,351	414,425	414,425
5102 Salaries, Temporary Empl.	-	-	-	-	-
5104 Vacation Pay	1,785	1,485	3,936	7,875	8,425
5105 Longevity Pay	1,056	1,056	1,056	1,056	1,056
5109 Provision for Salary Adj.	5,706	-	21,665	4,303	26,580
5110 Auto Allowance	6,600	6,600	6,600	6,600	6,600
5230 Hospital & Medical Insurance	5,976	9,925	13,365	13,365	14,033
5231 Self Insured Medical Benefits	1,800	1,800	1,800	1,250	1,200
5233 Dental Insurance	498	519	480	465	480
5234 Group Life Insurance	1,086	1,107	1,169	1,224	1,398
5235 Accidental Death & Dismem.	116	119	125	118	122
5236 Disability Insurance	892	909	960	938	1,004
5240 Social Security Contribution	27,306	27,533	29,000	29,000	30,000
5241 Pension Contribution	84,047	35,976	42,143	38,153	43,359
5242 Deferred Retirement Comp.	18,397	18,857	19,469	19,390	20,315
5243 Worker's Compensation Ins.	10,857	12,306	833	865	1,005
Total Personnel Services	547,660	510,730	540,952	539,027	570,002
OPERATING EXPENSES:					
6202 Technical & Personal Services	692	1,053	1,052	1,224	1,023
6203 Professional Services	57,388	86,480	46,927	45,672	97,959
6213 Office Equipment Maint.	-	-	7,400	-	6,000
6253 Telephone	915	593	600	600	600
6260 Advertising	1,641	1,928	1,500	2,867	2,350
6261 Education & Training	691	1,113	1,300	900	1,300
6262 Dues, Memberships & Subsc.	6,274	5,497	6,014	6,110	6,470
6264 In Town Meetings	313	1,586	1,355	1,355	1,355
6265 Travel & Conferences	294	1,574	8,210	2,270	8,610
6271 Medical	3,031	4,245	3,575	2,600	2,575
7304 General Supplies	100	-	300	300	300
7307 Gasoline & Mileage	-	-	100	100	100
7308 Wearing Apparel & Linen	-	-	-	-	200
Total Operating Expenses	71,338	104,069	78,333	63,998	128,842
CAPITAL OUTLAYS:					
9504 Office Equipment	-	-	400	400	-
Total Capital Outlay	-	-	400	400	-
TOTAL ADMINISTRATIVE SERVICES	618,999	614,799	619,685	603,425	698,844



ADMINISTRATIVE SERVICES
CAPITAL OUTLAY

Capital Outlay Detail	Annual
9504 Office Equipment	
Chair	-
Total Account 9504	-
TOTAL CAPITAL OUTLAY	-



ADMINISTRATIVE DEPARTMENT – MUNICIPAL COURT DIVISION

Mission Statement

Municipal Division staff will uphold policy and judicial rulings within the Municipal Division of the City of Creve Coeur with the utmost integrity and dignity abiding by all rules of judicial procedure and ethical standards as established by court rule and law.

Description

The Creve Coeur Municipal Court is considered a division of the St. Louis County Circuit Court within the 21st Judicial Circuit of the State of Missouri. Operations of the Municipal Division are governed by Missouri Supreme Court Operating Rules, local Circuit Court Rules and procedures and Orders as established by the Presiding Judge of the 21st Judicial Circuit and the Presiding Judge of the Municipal Division. Municipal and state law further govern the authority and operations of the Municipal Division within the City of Creve Coeur and the State of Missouri.

The Municipal Judge and a permanent Provisional Judge serve as independent contractors for the City and are governed by rules of judicial procedures as authorized by the Missouri Supreme Court. The Municipal Court Department personnel consists of a full-time Court Administrator and Court Clerk, and a part-time Court Assistant who are considered city employees for purposes of employment practices, and clerks of the State Judicial System, for purposes of governance over court rules and procedures. Municipal Court personnel are considered City of Creve Coeur employees reporting to the City Administrator/Assistant City Administrator in the Administration Department.

The Municipal Division holds four court sessions monthly and maintains the Creve Coeur Violations Bureau during normal operating hours. The Municipal Judges and Court Administrator are available to conduct court hearings outside of regular office hours as required by Court Rule. The Court Administrator is responsible for daily and yearly operations of the Municipal Division and supervision of court staff. Court staff duties include, but are not limited to, processing all city ordinance and traffic code violations, recording dispositions and case history information, collecting fines and court costs as well as the operation of the Integrated Metropolitan Docketing System (IMDSPlus) and the ShowMeCourt software systems. Payment processing and legal filings are conducted daily. In addition, the Court reports case dispositions to the Missouri State Highway Patrol, Missouri Department of Revenue, Presiding Judge of St. Louis County, and Office of State Court Administrator as required by law. The Court conducts all other judicial and customer service operations during regular business hours.

Service Standards

- Serve the public with consistency and integrity.
- Maintain complete and accurate court records.
- Maintain court records in a manner best befitting access for the public in search of open information.
- Complete payment transactions quickly for walk-in traffic at the Violations Bureau and process payments on a daily basis.
- Prepare dockets on a timely basis and ensure information is transferred to the electronic format accurately.



- Routinely conduct evaluations of court staff actions and procedures to ensure accuracy and accessibility of records in order to efficiently facilitate compliance with court orders for those sentenced within the municipal court system.
- Provide court-appointed attorney for indigent defendants.
- Represent the Municipal Court at training and administrative functions throughout the State of Missouri in an official manner.
- Abide by all ethical standards as established by the State of Missouri Judiciary.

Objectives

- Ensure the court office and procedures are in compliance with local and state law and such compliance is properly demonstrated under Senate Bill 572 and Missouri Supreme Court Operating Rule requirements.
- Operate all court policy and procedures in a manner which is compliant with Missouri Supreme Court Minimum Operating Standards.
- Periodically re-evaluate court procedures and practices to ensure compliance with case-flow management and better court-community communication.
- Continue to manage the inventory of court records, undertaking efforts to routinely discard and destroy records eligible for destruction according to state law and the Public Records Management Manual.
- Explore methods of information technology management in efforts to increase productivity.
- Continue professional development of Court personnel by active participation in professional associations and training activities to promote a better understanding of official duties, responsibilities, and obligations to the public and governmental staff.
- Perform self-audits to verify compliance with internal standards set by court management and the Core Competencies of the National Association for Court Management.
- Explore additional training opportunities for Court staff to ensure consistent performance levels.
- Investigate opportunities provided by electronic means for filing court cases and integration of multiple software programs as currently operating for court case processing.
- Continue to pursue alternative methods of Court operation for all aspects of daily case flow management.
- Be a proactive voice in the Community in which the Municipal Division serves to educate and assist the public with knowledge of, understanding and confidence in the judicial process and system.
- Continue to pursue alternatives to court operations which may be fiscally beneficial to the Municipality in which the court serves.

Budget Highlights

- Acct 6253 – New budget item for cell phone for Court Administrator (\$300).
- Acct 6262 – Decrease of in membership fees with cancellation of National Association membership.
- Acct 6264 – Increase in fees associated with local court association meetings (\$265).
- Acct 6265 – Increase in costs associated with conferences and lodging for court and judicial staff training (\$4,600).
- Acct. 9503 – Equipment for public terminal access at the Government Center (\$500).

**MUNICIPAL COURT**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	131,321	135,247	135,385	139,135	139,135
5102 Salaries, Temporary Empl.	11,496	13,308	16,798	16,798	16,798
5103 Overtime	4,187	449	3,000	500	500
5104 Vacation Pay	1,129	1,140	1,208	2,325	2,490
5105 Longevity Pay	2,304	2,304	2,304	2,304	2,304
5109 Provision for Salary Adj.	1,968	-	7,569	2,779	9,890
5230 Hospital & Medical Insurance	5,976	16,007	25,315	25,315	26,582
5231 Self Insured Medical Benefits	600	600	600	-	-
5233 Dental Insurance	249	626	932	910	932
5234 Group Life Insurance	448	460	488	508	580
5235 Accidental Death & Dismem.	48	49	52	49	51
5236 Disability Insurance	374	383	406	395	423
5240 Social Security Contribution	11,643	11,444	12,063	12,063	13,000
5241 Pension Contribution	27,863	12,349	14,579	13,456	14,983
5243 Worker's Compensation Ins.	4,162	4,717	282	293	340
Total Personnel Services	203,768	199,084	220,981	216,830	228,008
OPERATING EXPENSES:					
6201 Legal Services	23,300	25,318	29,650	29,650	32,150
6202 Technical & Personal Services	4,673	4,876	4,874	4,874	4,874
6213 Office Equipment Maint.	3,396	3,675	3,780	3,780	3,900
6253 Telephone	-	-	-	-	300
6261 Education & Training	-	100	200	200	200
6262 Dues, Memberships & Subsc.	300	300	665	530	530
6264 In Town Meetings	-	74	145	145	265
6265 Travel & Conferences	775	1,653	3,839	3,839	4,600
7304 General Supplies	1,335	1,254	2,390	2,390	3,000
7307 Gasoline & Mileage	-	-	-	-	-
Total Operating Expenses	33,780	37,249	45,543	45,408	49,819
CAPITAL OUTLAY:					
9503 Equipment	(348)	696	500	500	500
Total Capital Outlay	(348)	696	500	500	500
TOTAL MUNICIPAL COURT	237,200	237,029	267,024	262,738	278,327



MUNICIPAL COURT CAPITAL OUTLAY		
Capital Outlay Detail		Annual
9503 Equipment		
Equipment for Public Terminal Access at the Government Center		500
Total Account 9503		500
TOTAL CAPITAL OUTLAY		500



FINANCE DEPARTMENT

Mission Statement

To accurately record, report, and safeguard the financial assets and activities of the city.

Description

The Finance Department consists of a Director of Finance, a Senior Accounting Associate, an Accounting Associate, a Payroll Associate, and two (2) part-time Accounting Clerks. The department is responsible for processing revenues and expenditures for all city activities and reporting timely results to all key decision makers. In addition, the department is the primary contact for citizen customer service, handles all risk management functions, and processes merchant licenses. The Finance Department consists of two additional divisions: Information Systems and Interdepartmental.

Performance and Workload Measures (City-Wide)

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Workers Compensation (WC) Claims	29	7	10	7
WC Claims per 100 FTEs	27.36 ¹	6.54	9.17	6.54
WC Days Lost to Injury per 100 FTEs	270.51 ¹	415.89	857.34	420
Vehicle Liability Claims	1	0	4	1

¹Reflects increase in WC claims due to COVID-19 pandemic.

Service Standards

- Reconcile accounts by the 14th of the following month and reports will be distributed to departments by the 15th of that month.
- Complete financial audit and annual budget in accordance with a predetermined schedule.
- Complete accounts payable and payroll information in accordance with the procedures and timelines established by the Internal Revenue Service.
- Perform quarterly budget reviews with each department head and City Administrator.

Objectives

- Prepare cash-handling procedures manual for all city departments.
- Perform periodic internal audits of cash and controls to ensure proper compliance with city policies.
- Perform fixed asset inventories in city departments.

Budget Highlights

- Acct. 6209 – Increase in contracted auditing services estimated in preparation of new bid proposals in FY 2024 (\$53,500).
- Acct. 6261 – Increase due to two (2) employees participating in the college tuition reimbursement benefit program (\$10,200).



FINANCE DEPARTMENT

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	274,865	267,840	271,760	293,275	293,275
5102 Salaries, Temporary Empl.	20,014	27,478	45,908	41,030	51,628
5103 Overtime	675	3,974	2,000	100	500
5104 Vacation Pay	1,160	1,243	1,255	1,307	2,800
5109 Provision for Salary Adj.	3,197	-	22,885	5,857	18,990
5230 Hospital & Medical Insurance	29,664	25,054	26,730	26,730	28,067
5231 Self Insured Medical Benefits	600	600	600	600	600
5233 Dental Insurance	1,247	989	955	938	955
5234 Group Life Insurance	924	888	951	1,049	1,197
5235 Accidental Death & Dismem.	99	95	106	101	105
5236 Disability Insurance	613	615	705	651	858
5240 Social Security Contribution	22,412	22,583	25,867	25,867	28,000
5241 Pension Contribution	20,229	19,102	22,034	20,471	22,730
5243 Worker's Compensation Ins.	9,610	10,892	577	599	696
Total Personnel Services	385,309	381,352	422,333	418,575	450,401
OPERATING EXPENSES:					
6202 Technical & Personal Services	1,531	1,163	1,555	960	1,188
6203 Professional Services	-	7,600	-	-	-
6209 Accounting Services	27,060	31,800	28,100	32,650	53,500
6213 Office Equipment Maint.	(6,418)	(3,133)	40,481	42,424	40,850
6253 Telephone	458	296	300	300	300
6261 Education & Training	418	5,393	10,100	8,550	10,200
6262 Dues, Memberships & Subsc.	1,148	994	1,089	938	1,126
6264 In Town Meetings	60	164	650	590	715
6265 Travel & Conferences	-	5,783	6,025	6,485	6,525
7304 General Supplies	2,999	2,634	3,100	2,945	3,100
7307 Gasoline & Mileage	8	7	25	25	25
7308 Wearing Apparel & Linen	152	153	200	185	200
7332 Computer Software	-	-	-	-	-
Total Operating Expenses	27,416	52,854	91,625	96,052	117,729
CAPITAL OUTLAYS:					
9504 Office Equipment	1,119	-	-	-	-
Total Capital Outlay	1,119	-	-	-	-
TOTAL FINANCE DEPARTMENT	413,843	434,206	513,958	514,627	568,130



**FINANCE DEPARTMENT
CAPITAL OUTLAY DETAIL**

Capital Outlay Detail

9504 Office Equipment	Annual
Standup Desk	<u>700</u>
Total Account 9504	<u>700</u>
TOTAL CAPITAL OUTLAY	<u><u>700</u></u>



FINANCE DEPARTMENT – INTERDEPARTMENTAL

Mission Statement

To accurately record and report activities which are shared throughout city departments and divisions.

Description

The Interdepartmental account is utilized to account for general administrative costs that serve all departments. The departmental budget contains appropriations for all of the City's auto, property and liability insurance, public official's liability, unemployment costs, retiree medical insurance, self-insured deductible expenses for employee health insurance and excess expenditures associated with the Legacy Pension Plan. In addition, the department maintains a centralized office supply account that is utilized to obtain bulk purchasing of office supplies for all city departments.

Significant line items in the interdepartmental fund include general police and auto liability insurance, public official liability insurance, property insurance, retiree health insurance, telephone and postage, and the Legacy Pension Plan.

Budget Highlights

- Acct. 5120 – Recruitment Incentive Program applies to all employees; therefore, expenses were transferred from Police-Administration (2111) to Finance-Interdepartmental (\$3,000).
- Acct. 5230 – Increase in health insurance premiums for retirees (\$162,530).
- Acct. 5241 – Increase in Legacy Pension Plan contributions due to fewer active employees as a result of retirement/separation of employment; decreases various department budget allocations accordingly (\$528,379).
- Acct. 6220 – Increase in general, police and auto liability insurance premium rates following higher-than-normal claims in FY 2023 and an overall increase company-wide (\$117,385).
- Acct. 6222 – Increase in public official liability insurance premium rates (\$44,380).
- Acct. 6226 – Increase in property and auto insurance premium rates (\$74,340).
- Acct. 6266 – Increase in postage machine maintenance (\$1,896).
- Acct. 7317 – Increase in wellness expenses associated with anticipated funding from biennial St. Louis Area Insurance Trust Biennial Wellness Grant in FY 2024 (\$5,600).



INTERDEPARTMENTAL

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5120 Employee Referral Bonus	-	-	-	-	3,000
5230 Hospital & Medical Insurance	123,460	136,413	145,000	155,000	162,530
5233 Dental Insurance	95	(67)	-	-	-
5241 Pension Contribution	-	837,109	548,999	472,760	528,379
5244 Unemployment Comp.	3,497	3,200	13,000	13,000	13,000
5246 Insurance Deductible	38,167	22,493	35,000	35,000	35,000
5297 Misc. Payroll Expense	-	-	-	-	-
Total Personnel Services	165,219	999,147	741,999	675,760	741,909
OPERATING EXPENSES:					
6202 Technical & Personal Services	1,889	1,546	2,040	5,004	5,100
6203 Professional Services	20,853	22,309	23,775	27,155	26,475
6211 Equipment Maintenance	-	-	300	-	300
6213 Office Equipment Maint.	3,619	3,430	3,576	3,736	3,980
6220 Liability Insurance	95,042	94,969	98,869	108,168	117,385
6222 Pub. Officials Liab.Ins.	34,390	37,709	43,350	40,355	44,380
6225 Surety Bonds	1,620	1,671	1,755	1,755	1,845
6226 Property & Auto Insurance	63,696	64,403	74,063	59,472	74,340
6253 Telephone	40,864	31,005	29,347	30,115	30,200
6255 Cable TV	8,801	5,097	4,830	3,606	3,600
6262 Dues, Memberships & Subsc.	140	166	190	190	190
6265 Travel & Conferences	123	131	800	300	800
6266 Equipment Rental	810	810	891	810	1,896
6269 Postage	33,266	30,906	33,300	33,300	33,300
6272 Employee Relations	8,693	10,983	13,303	13,500	15,640
7304 General Supplies	1,266	1,567	1,900	1,900	1,900
7312 Office Supplies	27,614	26,906	35,087	35,087	35,087
7317 SLAIT Wellness	-	3,867	-	-	5,600
Total Operating Expense	342,684	337,475	367,376	364,452	402,018
CAPITAL OUTLAY:					
9504 Office Equipment	-	-	1,600	1,525	-
Total Capital Outlay	-	-	1,600	1,525	-
TOTAL INTERDEPARTMENTAL	507,903	1,336,622	1,110,975	1,041,737	1,143,927



FINANCE DEPARTMENT - INFORMATION SYSTEMS DIVISION

Mission Statement

The Information Systems Division (IS) seeks to develop, implement, support, and manage computing, networking, and telecommunication services as effectively and efficiently as possible and provides reliable technological resources enhancing the efficiency of the provision of city services.

Description

FY 2024 will see the continued partnership with an IT management contracting company in conjunction with a city IS employee to manage and facilitate IS services for the city. There will be a full-time Information Systems Coordinator and an Information Technology Contractor. Primary functions include the following: managing the effective use of the city's computer, telecommunications, and electronic office automation resources; improving organizational productivity, customer service, and access to information; maintaining the local and wide area networks; maintaining computer related items including servers, computers, printers, peripherals, telecommunications equipment, and other related technology; maintaining knowledge of current technology and security as well as an in-depth awareness of emerging technology and products in order to determine appropriate specifications for equipment; securing and administering leases, licenses, and maintenance agreements for the city's hardware, software, and peripherals.

Service Standards

- Provide responsive service to departments in the maintenance of computer hardware and software by responding to help desk calls within eight hours; 95% of requests are resolved within 24 hours. Calls for assistance from Police receive immediate priority.
- Backups of servers and databases every 24 hours, five – seven days a week.
- Complete telephone and voice mail issues within 24 hours, precluded service repairs performed by an outside agency which is arranged within 24 hours but may require additional time to be completed.
- Begin computer repair the same business day. Normal response and corrections within 12 to 24 hours.
- Act upon security attempts and virus attacks against the city as soon as the issue is known. Resolve issues of this nature without delay.

Objectives

- Maintain the network and computing systems for the city.
- Maintain telecommunications system, both voice mail and telephones, to ensure systems provide appropriate tools for the provision of quality customer services.
- Assist department personnel in evaluating technology needs and developing plans for implementing technology purchases. Coordinate all technology purchases to ensure the most efficient and effective use of city resources.

Budget Highlights

- Acct. 6202 – Increase in annual information technology contract services (\$40,320).
- Acct. 6213 – Increase in City website hosting service fee (\$16,692).
- Acct. 6213 – Increase in social media archiving service (\$4,188).



- Acct. 6213 – Increase anticipated in Google Workspace fees due to discounted rate expiring in January 2024 (\$23,317).
- Acct. 6253 – Increase for cell phone replacement (\$430).
- Acct. 7331 – Decrease in desktop computer purchasing (\$12,000).
- Acct. 7331 – Decrease in due to one-time replacement of City Council/Planning and Zoning Commission laptops in FY 2023 (-\$8,600).
- Acct. 7332 – Increase due to biennial renewal security antivirus software (\$4,050).



INFORMATION SYSTEMS

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	73,157	74,621	74,919	77,725	77,725
5104 Vacation Pay	1,405	1,433	1,519	3,000	3,200
5109 Provision for Salary Adj.	1,096	-	4,530	1,553	5,525
5230 Hospital & Medical Insurance	16,664	18,190	18,635	18,635	19,565
5233 Dental Insurance	709	747	700	677	700
5234 Group Life Insurance	245	250	265	279	319
5235 Accidental Death & Dismem.	26	27	28	27	28
5236 Disability Insurance	204	209	225	217	233
5240 Social Security Contribution	5,458	5,480	6,075	6,075	6,300
5241 Pension Contribution	5,633	5,743	6,018	5,848	6,093
5243 Worker's Compensation Ins.	1,960	2,222	158	164	191
Total Personnel Services	106,558	108,921	113,072	114,200	119,879
OPERATING EXPENSES:					
6202 Technical & Personal Services	51,185	52,560	55,456	38,400	40,320
6213 Office Equipment Maint.	62,608	58,409	57,161	54,185	60,120
6253 Telephone	538	296	300	300	735
6261 Education & Training	-	-	600	600	600
7308 Wearing Apparel & Linen	-	-	50	50	50
7331 Computer Hardware	35,198	23,080	48,600	48,600	29,430
7332 Computer Software	8,363	8,270	8,630	8,630	12,880
Total Operating Expenses	157,893	142,616	170,797	150,765	144,135
CAPITAL OUTLAYS:					
9504 Office Equipment	-	-	-	-	-
Total Capital Outlay	-	-	-	-	-
TOTAL INFORMATION SYSTEMS	264,451	251,537	283,869	264,965	264,014

INFORMATION SYSTEMS
CAPITAL OUTLAY

Capital Outlay Detail	Annual
9504 Office Equipment	
(Nothing Budgeted)	-
Total Account 9504	-
TOTAL CAPITAL OUTLAY	-

**RECREATION DEPARTMENT - COMMUNITY SERVICES****Mission Statement**

Provide residents with quality recreational programs, special events, and access to city park and recreation facilities to improve the leisure aspect of their lives.

Description

The department coordinates all recreational programs and many special events for the city and partners with other organizations and cities to offer additional recreational services. The Community Service staff consists of a shared full-time Director of Recreation (Community Service 20%/Ice Arena 80%), a shared full-time Administrative Support Associate and a Recreation Supervisor (Community Services 50%/Ice Arena 50%), and shared part-time Receptionists (Community Services 50%/Ice Arena 50%).

The department oversees the Community Center and offers a variety of programs, facilities and events that will allow residents to get away from the stress of daily life and enjoy outdoor and/or indoor leisure activities adding to the quality of life. This department also coordinates the management of the two meeting rooms at the Dielmann Complex and the Tappmeyer House at Millennium Park.

Performance and Workload Measures

	FY 2021²	FY 2022	Projected FY 2023	Estimated FY 2024
Programs Offered ¹	1	10	17	20
Participants in Program/Classes	50	250	380	420
Participants in Heart-to-Heart Run ¹	0	300	250	300
Participants in Farmers Market	3,000	825 ³	N/A	N/A
Participants in Summer Concert Series ¹	0	150	1,000	1,200

¹Programs and special events include, but not limited to, tennis lessons, specialty camps, Daddy Daughter Dance, Arbor Day, programming for seniors, as well as the Heart to Heart run/walk event and the concert series.

²Due to the COVID-19 pandemic, programs and events offered by the city and subsequent participation were reduced in FY 2021 and continued in FY 2022.

³In FY 2022, the City Council voted to discontinue the Creve Coeur Farmers Market due to low attendance and vendor participation, and in support of larger well-established markets in the St. Louis Region.



Service Standards

- Reservations for the Community Center rooms are accepted on a first-come, first-served basis. The goal is to send a confirmation email within 24 hours of applications being received, Monday through Friday. Revenues collected at time of registration or room rental booking.
- Recreational programs are taken on a first-come, first-served basis.
- Provide residents with a discounted rate on rental and program fees and charges.
- Give residents early access to reserve pavilions and fields rentals beginning in January prior to opening reservation to non-residents on March 1.
- Provide high quality customer service to encourage customers to return and use facility or enroll in another recreation program.
- Conduct ongoing cost/benefit analysis for all recreation programs to ensure operating costs are being covered by the user fees.
- Survey users of rooms and programs to gain feedback on customer satisfaction.
- Provide a diverse offering of recreational programs such as camps, tennis lessons, hockey/skate lessons, fitness and art classes for citizens of all ages and abilities.

Objectives

- Increase resident knowledge of parks by including a city map with locations of the parks and summary of the amenities in the annual recreation guide.
- Implement post-program surveys to compile feedback that will help improve and grow programs.
- Increase participation numbers for the annual Heart to Heart run/walk.
- Increase attendance numbers for the annual concert series.

Budget Highlights

- Acct. 6202 – Increase due to an additional summer concert (\$2,000) and an increase in program instructor fees that will be offset by increased revenue (\$500).
- Acct. 6221 – Decrease in one-time consultant fees associated with park memorial design which commenced in FY 2023 and final payments will be in FY 2024 (\$4,000).
- Acct. 6266 – Increase due to bandwagon rental for an additional summer concert (\$880).

**COMMUNITY SERVICES/RECREATION**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	38,540	60,715	65,138	65,565	66,585
5102 Salaries, Temporary Empl.	14,686	8,018	9,600	8,125	8,505
5103 Overtime	-	50	150	150	150
5104 Vacation Pay	346	-	385	-	-
5109 Provision for Salary Adj.	424	-	3,770	1,317	4,645
5110 Auto Allowance	720	720	720	720	720
5230 Hospital & Medical Insurance	9,005	9,378	19,410	9,130	9,609
5231 Self Insured Medical Benefits	-	150	600	300	300
5233 Dental Insurance	520	719	715	735	997
5234 Group Life Insurance	129	213	227	238	270
5235 Accidental Death & Dismem.	14	23	25	23	24
5236 Disability Insurance	108	60	185	124	193
5240 Social Security Contribution	3,897	5,094	6,000	5,800	6,100
5241 Pension Contribution	2,852	3,245	5,268	3,524	4,359
5243 Worker's Compensation Ins.	1,996	2,263	2,127	2,209	2,565
Total Personnel Services	73,238	90,648	114,320	97,960	105,022
OPERATING EXPENSES:					
6202 Technical & Personal Services	1,214	17,692	11,640	13,019	15,000
6203 Professional Services	-	1,730	1,200	3,804	3,804
6213 Office Equipment Maint.	3,969	767	2,910	3,270	3,270
6221 Venable Park Expenses	-	14,860	15,000	15,000	-
6230 Farmers Market	2,259	750	-	-	-
6260 Advertising	-	1,103	1,300	750	1,000
6261 Education & Training	-	-	700	-	700
6262 Dues, Memberships & Subsc.	550	555	745	745	745
6264 In Town Meetings	-	-	44	44	44
6265 Travel & Conferences	-	474	1,750	-	1,750
6266 Equipment Rental	-	2,200	1,760	2,640	3,520
6281 5K Run Expenses	-	7,573	6,850	6,850	6,850
7304 General Supplies	105	258	1,700	1,100	1,100
7307 Gasoline & Mileage	-	-	-	-	-
Total Operating Expense	8,097	47,962	45,599	47,222	37,783
CAPITAL OUTLAY:					
9503 Equipment	1,021	-	2,300	500	600
Total Capital Outlay	1,021	-	2,300	500	600
TOTAL COMMUNITY SERVICES	82,355	138,610	162,219	145,682	143,405



**COMMUNITY SERVICES/RECREATION
CAPITAL OUTLAY DETAIL**

Capital Outlay Detail	Annual
9503 Equipment	
Basketball Nets, Soccer Nets, Balls, Etc.	100
Replacement Tables for the Multi-Purpose Room	500
Total Account 9503	600
TOTAL CAPITAL IMPROVEMENTS	600



MAINTENANCE OF MUNICIPAL PROPERTY

Mission Statement

To work cooperatively with all city departments in maintaining a clean, safe, and efficiently operating Government Center and Police Building.

Description

The Maintenance Division is comprised of a full-time Building Maintenance Worker II. Division is responsible for equipment maintenance, minor electrical and plumbing repairs, painting, meeting room set-up, and minor custodial duties in the Police Building, Meeting Rooms, and Gymnasium. Ground maintenance of trees, lawn, and planting beds at the Government Center and Police Building complex are included in the Division responsibilities. The Director of Public Works is responsible for the overall administration of the department. The city outsources most of the custodial services throughout the Government Center and Police Building. The division generally operates approximately 8 hours per day, Monday through Friday.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Estimated Number of Hours Meeting Rooms, Gym, and Multipurpose Room Requiring Room Set-up by Staff	250 ¹	530	600	600
HVAC Failures/Repairs	19	14	16	17
Roof Repairs/Patches	5	11	15	18

¹Reduced rentals due to COVID-19 restrictions.

Service Standards

- Daily cleaning of offices, meeting rooms, restrooms, and jail facilities.
- Daily inspection of areas cleaned by outsourced custodial service.
- Set-up for group meetings.
- Daily mail delivery and pick-up.
- Daily laundering of prisoner blankets and custodial linens (mops, towels and rags).
- Weekly inspection and operation of emergency generator.
- Weekly inspections of the boilers, pumps, and hot water system.
- Weekly set-up for Municipal Court.
- Semi-monthly set-up for City Council and Planning & Zoning Commission meetings.
- Monthly inspection and maintenance of HVAC system, water cooling tower, sewer lines and drains.
- Quarterly defrosting of refrigerators and freezers.
- Quarterly inventory of custodial supplies.
- Semi-annual St. Louis County inspections for elevator, emergency generator, and exhaust fans.
- Semi-annual roof inspections.
- Annual back-flow test of water system and inspection of fire suppression system.
- Seasonal snow removal, window cleaning, and painting.
- Day-to-day repairs on plumbing, electrical, HVAC, and building fixtures.



- Remodeling of interior spaces (wall repair, paint, carpet, tile, electrical and plumber relocations, etc.).

Objectives

- Track HVAC services following proper service standards.
- Track day-to-day activities and tabulate time spent on each task in an effort to improve efficiency.
- Repair plumbing, drywall, paint, electrical repairs, troubleshoot HVAC, and perform preventative maintenance on all mechanical equipment in the building.

Budget Highlights

- Acct. 6211 – Emergency repairs to glycol loop piping in Government Center (\$8,000).
- Acct. 6211 – Replace Government Center parking lot lights with LED fixtures (\$5,000).
- Acct. 6212 – Government Center share of contract cleaning services (\$36,000).
- Acct. 9501 – Small building improvement projects at the Government Center (\$10,000).
- Acct. 9503 – Replacement of one (1) small heat pump at the Government Center (\$8,000).

**MAINTENANCE OF MUNICIPAL PROPERTY**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	69,292	57,444	57,673	65,855	51,995
5103 Overtime	739	331	500	500	500
5104 Vacation Pay	1,081	1,103	1,169	-	-
5105 Longevity Pay	1,344	1,344	1,344	672	-
5109 Provision for Salary Adj.	1,171	-	3,486	-	2,525
5230 Hospital & Medical Insurance	16,308	10,878	11,205	13,298	19,565
5231 Self Insured Medical Benefits	175	-	-	-	-
5233 Dental Insurance	746	490	460	632	694
5234 Group Life Insurance	249	197	209	208	226
5235 Accidental Death & Dismem.	27	21	22	20	20
5236 Disability Insurance	208	164	175	85	82
5240 Social Security Contribution	5,232	4,234	5,000	5,000	4,200
5241 Pension Contribution	22,131	6,129	7,797	6,714	3,731
5243 Worker's Compensation Ins.	2,541	2,880	4,141	4,300	4,994
Total Personnel Services	121,243	85,215	93,181	97,284	88,532
OPERATING EXPENSES:					
6202 Technical & Personal Services	-	-	-	3,850	-
6211 Equipment Maintenance	18,920	24,162	24,000	20,000	25,700
6212 Building & Ground Maint.	50,114	43,362	60,424	65,334	69,150
6250 Electricity	53,757	57,292	64,800	59,000	62,000
6252 Natural Gas	5,823	6,797	7,200	9,200	9,570
6253 Telephone	706	296	300	300	730
6254 Water & Sewer	12,572	12,454	13,650	16,600	19,000
6261 Education & Training	-	-	150	150	400
6271 Medical	-	-	100	100	100
7301 Chemicals & Cleaning	-	-	1,000	-	-
7302 Small Tools	-	-	300	400	400
7304 General Supplies	3,853	2,120	4,000	6,000	6,000
7307 Gasoline & Mileage	-	-	-	-	-
7308 Wearing Apparel & Linen	632	649	601	601	626
Total Operating Expense	146,377	147,132	176,525	181,535	193,676
CAPITAL OUTLAY:					
9501 Buildings & Improvements	2,661	-	-	-	10,000
9503 Equipment	6,653	4,674	9,000	5,000	8,000
Total Capital Outlay	9,313	4,674	9,000	5,000	18,000
TOTAL MAINTENANCE OF MUNICIPAL PROPERTY	276,933	237,021	278,706	283,819	300,208



MAINTENANCE OF MUNICIPAL PROPERTY
CAPITAL OUTLAY DETAIL

Capital Outlay Detail	Annual
9501 Building Improvements	
Misc.	10,000
Total Account 9501	<u>10,000</u>
9503 Equipment	
Small Heat Pump HVAC Units	8,000
Total Account 9503	<u>8,000</u>
TOTAL CAPITAL OUTLAY	<u>18,000</u>



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**POLICE - ALL DIVISIONS**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	3,706,014	3,606,368	3,946,483	4,000,170	4,184,970
5102 Salaries, Temporary Empl.	9,100	38,339	72,908	65,008	75,820
5103 Overtime	51,926	81,669	84,000	94,500	95,000
5104 Vacation Pay	5,937	9,651	7,155	20,460	21,900
5105 Longevity Pay	20,828	17,396	17,472	17,472	17,472
5106 Holiday Pay	116,470	116,699	133,484	122,325	137,640
5107 Uniform Allowance	12,720	9,888	13,560	13,560	13,632
5109 Provision for Salary Adj.	54,420	-	341,851	81,197	250,195
5111 Cell Phone Allowance	1,800	-	-	-	-
5120 Employee Referral Bonus	-	-	1,200	2,400	-
5230 Hospital & Medical Insurance	528,306	539,036	586,855	579,001	607,421
5231 Self Insured Medical Benefits	5,350	6,000	6,000	5,600	5,600
5233 Dental Insurance	23,520	22,763	24,950	21,758	23,940
5234 Group Life Insurance	12,532	12,217	13,250	14,328	16,862
5235 Accidental Death & Dismem.	1,343	1,309	1,519	1,452	1,535
5236 Disability Insurance	9,864	9,389	11,835	10,056	12,202
5240 Social Security Contribution	294,182	286,869	343,500	331,500	355,000
5241 Pension Contribution	838,452	356,609	466,086	404,047	453,808
5243 Worker's Compensation Ins.	120,223	136,267	185,754	192,862	224,022
Total Personnel Services	5,812,988	5,250,469	6,257,862	5,977,696	6,497,019
OPERATING EXPENSES:					
6202 Technical & Personal Services	590,841	596,959	654,027	705,986	741,796
6203 Professional Services	8,985	13,816	17,045	22,272	18,145
6210 Vehicle Maintenance	50,366	49,139	73,000	45,600	46,350
6211 Equipment Maintenance	4,670	4,373	4,910	4,620	5,100
6213 Office Equipment Maint.	18,631	19,678	26,050	24,830	25,777
6253 Telephone	17,025	14,650	15,988	15,692	22,020
6260 Advertising	1,108	399	1,200	1,200	1,200
6261 Education & Training	9,457	16,347	18,045	17,370	20,445
6262 Dues, Memberships & Subsc.	3,247	4,463	5,778	5,778	6,705
6264 In Town Meetings	2,166	2,739	2,170	2,302	2,460
6265 Travel & Conferences	3,106	6,252	15,685	15,363	18,085
6266 Equipment Rental	-	-	-	-	-
6271 Medical	6,988	13,131	14,901	14,757	14,225
7301 Chemicals & Cleaning	645	764	1,200	1,200	1,250
7302 Small Tools	3,014	2,268	6,570	6,080	6,680
7304 General Supplies	5,009	4,387	8,800	8,301	8,350
7306 Memorials & Plaques	579	701	1,250	1,250	2,200
7307 Gasoline & Mileage	48,310	103,455	93,950	94,300	102,650
7308 Wearing Apparel & Linen	32,949	46,128	70,340	75,580	63,106
7309 Food For Prisoners	-	-	-	-	-
7310 Snow Removal Supplies	-	-	300	300	1,000
7313 Range Supplies	7,480	13,734	13,840	12,940	15,340
7314 Crime Prevention	3,725	3,074	5,500	5,000	5,000
Total Operating Expense	818,301	916,456	1,050,549	1,080,720	1,127,884



POLICE - ALL DIVISIONS

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
CAPITAL OUTLAY:					
9501 Buildings & Improvements	-	-	250	250	250
9502 Vehicles	79,432	-	375,560	417,743	393,954
9503 Equipment	88,474	87,243	66,925	65,681	65,136
9504 Office Equipment	1,005	5,048	1,500	1,500	6,490
9505 Office Machines	-	-	-	-	-
Total Capital Outlay	168,911	92,292	444,235	485,174	465,830
TOTAL POLICE DEPARTMENT	6,800,201	6,259,217	7,752,646	7,543,591	8,090,734



POLICE DEPARTMENT – ADMINISTRATIVE DIVISION

Mission Statement:

It is the mission of the Creve Coeur Police Department to partner with our community to safeguard life and property, enforce the law, preserve the peace, and reduce the fear of crime within the framework of the Constitution.

Administrative and Support Division:

The Administrative and Support Services Division includes a full-time sworn staff consisting of a Chief of Police, a Police Captain, a Professional Standards Lieutenant, two (2) Community Relations and Crime Prevention Officers, and a police officer assigned to instruct to the St. Louis County and Municipal Police Academy. The division has a non-sworn staff consisting of two (2) Records Associates, a Support Services/Fleet Maintenance Assistant, an Executive Assistant to the Chief of Police, a Building Maintenance Worker, a part-time Evidence Custodian, a part-time CALEA Accreditation Assistant, and a Maintenance Worker II/Mechanic cost shared (25%) with Public Works-Streets (75%).

The Investigations Bureau also falls under the command of the Administrative and Support Services Captain but for budgetary purposes, has a separate budget. For further on the Investigations Bureau, refer to the Investigations Budget (Acct. 2121).

It is the responsibility of the Chief of Police to review all essential job functions of department personnel to ensure that efficient and professional services are provided to the public. Staff reports and assessments of services are regularly provided to the City Administrator for review to ensure that this is achieved.

Department Description

The Administrative Captain oversees and supervises the Records Bureau, the Support Services Bureau, the Professional Standards Bureau, and the Investigations Bureau. The Support Services Bureau is responsible for:

- Fleet purchasing, maintenance, and surplus vehicle disposal
- Records management & purging
- Driving While Intoxicated Tracking System (DWITS)
- Department Training Coordinator
- Oversee the hiring process for commissioned and reserve police officers
- In-car & body-worn camera video system maintenance
- Sale/collection/maintenance of all police records, reports, data, and statistics
- Deer mitigation program
- Emergency management/preparedness; including policies, practices, and procedures
- Management of officer and department equipment
- Building maintenance and security, including surveillance cameras and in-house phone recording
- Sunshine law and discovery requests

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The Professional Standards Lieutenant reports directly to the Chief of Police. The Professional Standards Lieutenant is responsible for:

- Supervising the accreditation assistant responsible for maintaining policies, proofs, and best practices
- Coordinating the annual accreditation remote evaluation
- Manage and coordinate the quadrennial CALEA onsite accreditation comprehensive evaluation
- Submitting policy and procedure updates in compliance with accreditation requirements
- Submitting annual reports as required for accreditation
- Working cooperatively with all divisions to maintain accreditation standards
- Ensuring milestones are met for the CALEA accreditation process (ongoing)
- Coordinating and implementing special projects as assigned by the chief of police
- Supervising the evidence custodian and the evidence function. This includes proper management of evidence submission, proper storage, packaging, laboratory examinations & transfers, and disposal through court-ordered destruction, and collection, and disposal of prescription drug take-back supply.
- Investigating all department complaints, internal and external
- Implementing corrective training and discipline from complaints
- Ensuring the department's public information officer provides professional-level and effective police communication
- Overseeing the Crime Prevention and Community Relations functions (See Crime Prevention Service Standards)

Administrative Service Standards

- Maintain a professional and polite demeanor in all phone contacts with the public and radio contacts with officers and other police agencies. Operate within FCC regulations, with no violations.
- Enter timely and accurate law enforcement computer data with no "sunshine" or "right of privacy" violations.
- Manage active criminal wanted entries and wanted cancellations. Immediate notification to personnel regarding Adult Abuse Court Orders. Immediate entry of arrest records (booking sheets). Update and/or dispose of arrest files and reports according to Missouri retention laws.
- Process police reports, arrest files, and traffic tickets daily.
- Respond to public requests for reports within 72 business hours.
- Maintain membership in the West Central Dispatch Center (WCDC) which provides police dispatching services and remote prisoner monitoring.
- Respond to citizen complaints within 24 hours and resolve internal investigations within 90 days.
- Complete required monthly crime statistics reports within 10 days. Submit all DWI reports within 15 days and all accident reports within 20 days to the proper authority. Submit

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quarterly financial status reports relative to federal Community Oriented Policing and Problem Solving (COPPS) grants within 15 days.

- Enter “false alarm” incidents in the alarm database within 48 hours. Submit false alarm reports and distribute false alarm notifications semi-monthly.
- Manage and schedule equipment and fleet maintenance. Schedule repairs within one business day, when possible.
- Conduct annual inventory of fixed assets and non-expendable items by April 30.
- Administer and complete the hiring process within 90 days from application processing and testing.
- Provide support to the Patrol Division for purchases of equipment, overseeing repair, replacement, and updates of equipment necessary for daily job performance.
- Update Standard Operating Procedures, as well as complete the CALEA re-accreditation process.

Crime Prevention Office Service Standards

- Educate the general public on crime prevention methods to limit exposure to becoming a victim.
- Provide timely alerts about criminal activity occurring in the local area.
- Present the DARE program in accordance with established national standards.
- Conduct Citizen Police Academy classes to educate residents on the complexities of police work.
- Conduct Rape Aggression Defense training to educate females on self-defense techniques and strategies to escape an attack.
- Conduct safety assessments for homeowners and educate subdivision associations about crime prevention in their neighborhoods.
- Conduct 4E Active Shooter Preparation classes for businesses, schools, and other citizen groups as requested.
- Conduct Safety assessments for businesses, notifying them of criminal activity and trends.
- Partner with local banking facilities to review and improve hold-up and notification procedures.
- Review reported criminal activity and related data to determine possible crime patterns and ensure all patrol officers and citizens are informed of criminal information and activity within the city.
- Crime prevention through environmental design (CPTED)
- Crime statistics and analysis
- Review false alarm calls with follow-up with repeat offenders to mitigate future false alarms.
- Serve as liaison for Neighborhood Watch and the Creve Coeur Crime Prevention Partnership
- Conduct building tours with community groups and coordinate DEA Prescription Drug Take-Back events (bi-annual).

WCDC Consortium Standards

- Answer and dispatch 911 calls immediately. Answer all non-emergency calls as soon as practical, not to exceed three (3) rings, if at all possible. Dispatch non-emergency calls as soon as practical, based on priority. Immediately call back and dispatch a patrol unit on

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“911” hang-ups. Re-contact and inform the complainant if priorities prevent dispatching non-emergency calls within five (5) minutes.

- Maintain immediate response or acknowledgment to radio calls from police officers. Immediately dispatch assists units in accordance with department policy.
- Provide regular reports and assessments to the Chief of Police and City Administrator of calls for service, records updates, and budgetary expenditures.

Benchmarking/Budgetary Savings

- The consolidation of services through the West Central Dispatch Center (WCDC) continues to realize significant annual cost savings in personnel and equipment when compared to self-providing dispatch services since its inception in 2011. Additionally, the Police Department benefits from a highly professional level of service from the dispatch center.

Objectives

- Continue to reduce storage costs and paper usage by managing records through the use of Computer Assisted Report Entry (CARE).
- Continue to manage dispatch operating costs through the partnership with the WCDC.
- Offer online purchases of accident reports, as well as walk-in records services five days a week.
- Maintain Police Department vehicles and equipment in excellent condition, providing the best equipment and technology available. Provide monthly reports of expenditures for vehicle maintenance and upkeep.
- Continue to maximize the use of mobile ticketing by officers and sergeants. The use of mobile ticketing by officers and sergeants is at the 99th percentile. Mobile ticketing is a computer application available through REJIS, which allows officers to electronically issue traffic tickets. The tickets download directly into the court system, eliminating the need to enter the tickets into the municipal court docket system.
- Recruit high-quality applicants for police officer positions.
- Review building requirements and department procedures for CALEA compliance.
- Continue to upgrade and monitor the security of the Police Department, Government Center, and Community Center.
- Reduce crime and the fear of crime through community engagement and crime prevention programs.

Budget Highlights

- Acct. 5101 – Increase due to cost sharing of Maintenance Worker II/Mechanic position (Police-Administration 25%/Public Works-Streets 75%) to assist with Police Department general fleet maintenance.
- Acct. 5101 – Increase due to the addition of one (1) full-time position (police officer) assigned to instruct at the St. Louis County and Municipal Police Academy; cost of salary and fringe benefits reimbursed by St. Louis County.
- Acct. 6202 – Increase in fees associated with WCDC Consortium membership (\$655,977).
- Acct. 6202 – Annual maintenance for PowerDMS software for all department personnel to efficiently document training and testing proofs required for CALEA (\$6,476).

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- Acct. 6203 – Pre-employment background checks and mileage (\$940).
- Acct. 6253 – Replacement of three (3) mobile phones for Command Staff (\$2,190).
- Acct. 7310 – Emergency preparedness/housing for PD staffing during inclement weather (\$1,000).
- Acct. 9503 – Replacement refrigerator for breakroom (\$1,500).
- Acct. 9503 – Replacement ice maker in the breakroom (\$2,500).
- Acct. 9503 – Vehicle upfitting for Administrative Vehicle #2414 (\$2,000).
- Acct. 6213 – Increase due to transfer of FileOnQ Annual Maintenance from Investigations (2121) to the Administrative budget (\$7,550).

Fund: 01
Dept: 21-11

**POLICE - ADMINISTRATION**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	565,088	493,376	728,700	659,800	741,955
5102 Salaries, Temporary Empl.	9,100	38,339	72,908	65,008	75,820
5103 Overtime	736	71	3,000	4,500	5,000
5104 Vacation Pay	902	2,373	3,491	4,950	5,300
5105 Longevity Pay	7,071	5,564	5,568	5,568	5,568
5106 Holiday Pay	-	-	-	2,875	6,140
5107 Uniform Allowance	3,066	2,400	3,600	3,600	3,600
5109 Provision for Salary Adj.	9,176	-	46,621	13,494	50,410
5120 Employee Referral Bonus	-	-	1,200	2,400	-
5230 Hospital & Medical Insurance	79,231	79,952	94,870	103,603	107,030
5231 Self Insured Medical Benefits	600	600	1,200	600	600
5233 Dental Insurance	3,657	3,575	4,250	3,893	4,250
5234 Group Life Insurance	1,831	1,675	1,700	2,368	3,028
5235 Accidental Death & Dismem.	196	179	280	251	268
5236 Disability Insurance	1,518	1,384	2,175	1,743	1,987
5240 Social Security Contribution	43,421	39,944	65,000	57,000	65,000
5241 Pension Contribution	196,185	55,409	92,906	79,388	84,549
5243 Worker's Compensation	16,339	18,519	23,591	24,494	28,451
Total Personnel Services	938,118	743,359	1,151,060	1,035,535	1,188,956
OPERATING EXPENSES:					
6202 Technical & Personal Services	580,017	586,301	642,215	694,286	729,904
6203 Professional Services	3,516	6,454	5,700	10,567	5,440
6210 Vehicle Maintenance	1,465	2,852	3,100	3,100	3,450
6211 Equipment Maintenance	9	-	900	810	850
6213 Office Equipment Maint.	15,265	16,198	17,500	17,080	25,437
6253 Telephone	12,293	12,222	12,876	12,876	15,084
6260 Advertising	1,108	399	1,200	1,200	1,200
6261 Education & Training	1,626	5,001	7,625	6,950	10,075
6262 Dues, Memberships & Subsc.	1,907	2,325	3,520	3,520	3,695
6264 In Town Meetings	2,118	2,484	2,070	2,202	2,360
6265 Travel & Conferences	1,317	2,947	9,435	9,713	10,535
6271 Medical	4,096	5,552	7,001	6,857	5,125
7302 Small Tools	465	546	1,000	1,000	900
7304 General Supplies	1,438	1,266	4,000	3,000	3,000
7306 Memorials & Plaques	579	701	1,250	1,250	2,200
7307 Gasoline & Mileage	1,820	4,119	3,300	3,300	4,000
7308 Wearing Apparel & Linen	2,235	3,906	6,470	6,470	6,781
7309 Food For Prisoners	-	-	-	-	-
7310 Snow Removal Supplies	-	-	300	300	1,000
7314 Crime Prevention	-	-	5,500	5,000	5,000
Total Operating Expense	631,274	653,271	734,962	789,481	836,036

**POLICE - ADMINISTRATION**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
CAPITAL OUTLAY:					
9501 Buildings & Improvements	-	-	250	250	250
9502 Vehicles	-	-	-	-	-
9503 Equipment	3,370	2,114	1,250	1,250	6,000
9504 Office Equipment	240	354	500	500	500
9505 Office Machines	-	-	-	-	-
Total Capital Outlay	3,610	2,468	2,000	2,000	6,750
TOTAL POLICE ADMINISTRATIVE DIVISION	1,573,002	1,399,098	1,888,022	1,827,016	2,031,742

**POLICE - ADMINISTRATION
CAPITAL OUTLAY DETAIL**

<u>Capital Outlay Detail</u>	<u>Annual</u>
9501 Buildings and Improvements	
Parking and Building Signs	250
Total Account 9501	<u>250</u>
9503 Equipment	
Refrigerator for Break Room	1,500
Vehicle Upfittings for Car 2414	2,000
Replacement Ice Maker for Breakroom	2,500
Total Account 9502	<u>6,000</u>
9504 Office Equipment	
2 Replacement Chairs	500
Total Account 9504	<u>500</u>
9505 Office Equipment	
(Nothing Budgeted)	0
Total Account 9505	<u>0</u>
TOTAL CAPITAL OUTLAYS	<u><u>6,250</u></u>



POLICE DEPARTMENT – INVESTIGATIONS BUREAU

Mission Statement

The mission of the Investigations Bureau is to investigate, deter, prevent crimes whenever possible, and solve crimes through arrest and recovery of property. The Investigations Bureau accomplishes this by working in conjunction with the citizens of the city, victims, and witnesses as well as working with all Divisions within the Police Department. Furthermore, Detectives continue to enhance their effectiveness in their investigations by keeping current on investigative methods and skills as well as networking with other local, state, and federal law enforcement agencies.

Bureau Description

The Investigations Bureau consists of a Lieutenant, five (5) Detectives, and a School Resource Officer who also serves as the Juvenile Officer. In addition to a daily criminal investigation caseload, the Investigations Bureau has the responsibility of conducting employment backgrounds on new applicants. Detectives also assist on a regional level as investigators with the Greater St. Louis Major Case Squad. The Investigations Bureau is supervised by a Lieutenant who reports to the Captain of the Administrative and Support Services Division.

Investigators utilize interview and interrogation rooms for interviewing crime victims, witnesses, and suspects. These rooms are equipped with a closed-circuit monitoring and recording system. The Investigations Division maintains and operates a computer voice stress analyzer (CVSA), with two (2) detectives serving as certified operators. The Division also has the ability to conduct covert surveillance operations.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Total Case Assignments	449	427	473	450
Percentage of Clearance Rate for Cases Assigned	41%	43%	45%	43%
Percentage of Part I Clearance Rate (violent crimes)	49%	68%	55%	57%
Total Arrests	35	70	69	58
Property Value Recovery	\$1,172,859	849,442	\$2,516,876*	\$1,513,059
Percentage of Property Value Recovery	62%	48%	96%	69%

*FY23 had a significant increase in property value recovery due to a spike in vehicle thefts and the recovery of the vehicles.

During FY22, detectives were assigned to assist with Major Case Squad homicide investigations in Des Peres, Normandy (x2), and Overland. Detectives also investigated and solved several burglaries, robberies, assaults, and vehicle-related crimes during the past year within the City of Creve Coeur.

Service Standards

- Assign all completed crime reports to a detective/investigator within 48 hours.
- Contact crime victims within 48 hours and provide a case progress report within ten (10) days. Detectives update victims regularly during active investigations. Unsolved and cold cases are reviewed every three (3) months.



- Complete warrant applications promptly, not to exceed 30 days after the arrest or pending lab results.
- Complete liquor license background investigations within one (1) week of receiving documentation and fees, and massage business/therapist investigations within two (2) weeks of receiving documentation and fees.
- Complete pre-employment background investigations within three weeks of being assigned to an Investigator.

Goals/Objectives

- Maintain a 40% or greater clearance rate for Part I crimes.
- Ensure completion and certification in Medicolegal Death Investigation training for new detectives through St. Louis University. This comprehensive certification and training delve into many aspects of suicide, homicide, assault, and other crimes dealing with victims and suspects.
- Continue to improve our peer and constituent network by attending meetings with local, state, and federal agencies.
- Continue to pursue the use of technology including, but not limited to, DNA, facial recognition, and license plate recognition (LPR).
- Continue skill advancement of our investigators through training that focuses on interview/interrogation, sex crimes, human trafficking, white-collar crime, cybercrime, and death investigations.
- Plan for succession by assigning new officers to occasionally assist detectives on investigations for familiarization and development of investigative skills when timing and staffing allow.
- Refine the evidence transfer process by providing a means for citizens, laboratory analysis, and court hearings to take custody of evidence through a mobile transfer platform (MobileOnQ) that is compliant with our new evidence tracking system.

Budget Highlights

- Acct. 6203 – New fee for court order destruction now being charged by the St. Louis County Prosecuting Attorney's Office (\$200).
- Acct. 6203 – Guardian Alliance Platform Software License for background investigations (\$800).
- Acct. 6203 – Major Case Squad Investigations expenses (\$2,500).
- Acct. 6213 – Decrease due to transfer of FileOnQ Annual Maintenance costs from the Investigation budget to the Administrative budget (2111).
- Acct. 9502 – Two (2) light/siren packages for existing detective vehicles (\$5,154).
- Acct. 9504 – Coin counter for evidence and prisoner processing (\$225).
- Acct. 9504 – Storage/File cabinets for Investigations Bureau (\$2,265).
- Acct. 9504 – Digital SLR Investigations camera (\$2,500).

**POLICE - INVESTIGATIONS**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	531,222	499,913	510,680	464,425	587,980
5103 Overtime	16,783	21,323	16,000	25,000	25,000
5104 Vacation Pay	1,680	-	-	-	-
5105 Longevity Pay	2,812	2,504	2,112	2,112	2,112
5106 Holiday Pay	17,817	18,760	21,448	16,450	21,000
5107 Uniform Allowance	7,454	5,438	7,560	7,560	7,632
5109 Provision for Salary Adj.	8,031	-	34,758	8,147	26,925
5111 Cell Phone Allowance	1,800	-	-	-	-
5230 Hospital & Medical Insurance	72,304	42,227	44,485	66,000	91,634
5231 Self Insured Medical Benefits	1,800	2,400	1,800	1,200	1,200
5233 Dental Insurance	3,411	2,344	2,500	3,090	4,748
5234 Group Life Insurance	1,770	1,711	1,750	1,595	1,984
5235 Accidental Death & Dismem.	190	183	209	174	218
5236 Disability Insurance	1,475	1,426	1,660	1,397	1,541
5240 Social Security Contribution	43,660	41,400	44,500	38,000	50,000
5241 Pension Contribution	124,525	52,712	60,426	52,152	61,956
5243 Worker's Compensation	13,090	14,837	25,181	26,145	30,369
Total Personnel Services	849,822	707,180	775,069	713,447	914,299
OPERATING EXPENSES:					
6202 Technical & Personal Services	3,875	4,065	4,172	4,511	4,842
6203 Professional Services	5,469	6,991	9,595	9,955	10,955
6210 Vehicle Maintenance	989	2,269	4,300	2,500	2,900
6211 Equipment Maintenance	-	-	-	-	-
6213 Office Equipment Maint.	3,345	3,151	7,550	7,550	-
6253 Telephone	350	900	1,262	1,262	2,552
6261 Education & Training	1,050	5,185	2,845	2,845	3,295
6262 Dues, Memberships & Subsc.	1,015	1,590	1,145	1,145	1,340
6264 In Town Meetings	-	255	-	-	-
6265 Travel & Conferences	-	1,301	1,500	1,500	1,500
7301 Chemicals & Cleaning	-	-	200	200	250
7302 Small Tools	252	217	300	300	300
7304 General Supplies	2,048	1,845	2,600	2,600	2,600
7307 Gasoline & Mileage	1,677	3,577	3,150	3,500	3,500
7308 Wearing Apparel & Linen	408	42	2,100	1,760	1,800
7313 Range Supplies	491	750	-	-	-
7314 Crime Prevention Supplies	-	3,074	-	-	-
Total Operating Expense	20,970	35,211	40,719	39,628	35,834
CAPITAL OUTLAY:					
9501 Buildings and Improvements	-	-	-	-	-
9502 Vehicles	-	-	-	-	5,154
9503 Equipment	9,600	-	-	-	-
9504 Office Equipment	345	-	500	500	5,490
Total Capital Outlay	9,945	-	500	500	10,644
TOTAL POLICE INVESTIGATIONS DIVISION	880,737	742,391	816,288	753,575	960,777



**POLICE - INVESTIGATIONS
CAPITAL OUTLAY DETAIL**

Capital Outlay Detail

9501 Buildings and Improvements

(Nothing Budgeted)

Total Account 9501

Annual

-

-

9502 Vehicles

Light/Siren Package for Existing Detective Vehicle

Total Account 9502

5,154

5,154

9503 Equipment

(Nothing Budgeted)

Total Account 9503

-

-

9504 Office Equipment

Coin Counter for Evidence and Prisoner Processing

500

Investigations Camera (Digital SLR)

2,500

Storage/File Cabinets for Detectives

2,265

Office Chairs (Replacement) - 2

225

Total Account 9504

5,490

TOTAL CAPITAL OUTLAY

10,644



POLICE DEPARTMENT – PATROL & COMMUNITY POLICING DIVISION

Mission Statement

It is the mission of the Creve Coeur Police Department to partner with our community to safeguard life and property, enforce the law, preserve the peace, and reduce the fear of crime within the framework of the Constitution.

Department Description

The Patrol Division of the Police Department, when fully staffed, consists of thirty-seven (37) full-time commissioned officers, and one (1) Reserve Officer. A captain serves as the Patrol Division Commander and a Lieutenant serves as the Deputy Patrol Division Commander. Eight (8) Sergeants report to the Patrol Division commanders. There are four patrol squads, each supervised by a team of two (2) Sergeants with each sergeant team responsible for five (5) Patrol Officers, and a Traffic Safety Officer. Supplemental staffing in the Patrol Division consists of a K9 Officer, a Reserve Police Officer, and two (2) layover officers whose primary role is to target crime or areas where data indicates criminal activity is occurring.

A Captain is responsible for the overall supervision of police operations and traffic safety, which includes traffic management grants, surveys, and studies. This entails the daily operations of the Patrol Division including purchases and maintaining the continuity of police operations and professional services. In addition, a Captain oversees the coaching and performance of Patrol Division personnel, which includes the officers and supervisors. The Deputy Patrol Commander oversees the daily scheduling, new officer field training, purchasing, payroll, and any significant operations, such as critical incidents. As a wellness initiative, in FY 2022, the Police Department implemented a permanent dayshift patrol squad based on seniority. To balance the shifts, a permanent night shift was also created and is staffed by patrol officers who volunteer for the assignment and those with the lowest seniority.

Performance and Workload Measures

Performance measures are a means of comparing Police Department activity from year to year. The Police utilize a performance evaluation program that is intended to reinforce behavior and conduct that is consistent with the Department's mission, creates an awareness of deficiencies, and assists management in formulating decisions such as market adjustments, position assignments, promotions, and retention. Employee evaluations measure performance levels as follows:

- Meets Expectations
- Marginally Meets Expectations
- Below Expectations



Service Standards	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Average Response Time (Priority I)	4:47 min.	4:19 min.	4:15 min.	4:20 min.
Average Response Time (Priority II)	4:11 min.	4:33 min.	4:35 min.	4:35 min.
Crime Rate ¹	26.0	25.2	26.3	26.3
Total Crimes Reported²	903	908	1,086	1,086
Total Maintenance and Preventative Expenditures per Vehicle	\$704	\$1,402	\$940	\$1,000
Total Vehicle Maintenance Expenditures per Mile Driven	\$0.03	\$0.07	\$0.05	\$0.06
Arrests	364	500	600	600
Total Arrests Per Officer ³	9.3	12.8	15.4	15.4
Traffic Citations	3,689	2,653	2,780	2,780
Total Citations per Officer ⁴	105	76	79	79
Total DWI Arrests	95	84	81	81
Total DWI Arrests per Officer ⁵	2.7	2.4	2.3	2.5
Citizen Police Academy Sessions	1 ⁶	2	2	2
Crash Reports	779	1,032	1,132	1,100
Total Calls for Service	14,825	16,540	16,852	17,000
Total Reports Taken	2,073	2,051	2,334	2,400

Customer Service

- Ensure all contacts with the public are handled in a professional, polite, courteous, and legal manner while recognizing the needs of all parties involved.
- Acknowledge citizen complaints within 24 hours and resolve complaints as soon as practical.
- Maintain accountability and best practices in customer service through adherence to the professional standards set forth by the accreditation process (CALEA).

¹ Offenses per 1,000 population (FY 2020 population estimate of 18,834).

² CCPD uses the NIBRS model when classifying reported crimes.

³ Calculated using the number of staffing authorized to patrol and investigative functions. The actual number of officers assigned to that function varied throughout the FY.

⁴ Calculated using the number of staffing authorized to the patrol function. The actual number of officers assigned to that function varied throughout the FY.

⁵ Calculated using the number of staffing authorized to the patrol function. The actual number of officers assigned to that function varied throughout the FY.



Calls for Service

- Respond to calls promptly and safely, with an average response time of five (5) minutes or less.
- Provide life-saving first aid and seek immediate medical attention for sick or injured persons.
- Maintain a minimum staffing level of four (4) patrol sectors and sufficient supervisory personnel daily.
- Continue improving patrol availability through full staffing of five (5) patrol sectors and a traffic safety officer.
- Operate patrol vehicles safely and responsibly in all aspects of the job, including pursuit and emergency driving.
- Notify the Street Department and MoDOT immediately of emergency road conditions.
- Tow abandoned vehicles along state roadways within 48 hours. Tow unresolved derelict vehicles on private property within seven (7) days.

Crash Reduction

- Monitor, survey, and analyze traffic issues, taking action to promote the safe and efficient movement of traffic through education and enforcement, when necessary.
- Participate in quarterly MoDOT-sponsored speed reduction campaigns
- Direct enforcement efforts to reduce crashes.
- Complete most crash and incident reports within 24 hours, not to exceed 72 hours.

Crime Prevention Activities

- Perform residential vacation checks daily, before 6:00 PM.
- Perform overnight business security patrols; completing them by 6:00 AM daily.
- Partner with local banking facilities to review and improve hold-up and notification procedures.
- Review reported criminal activity and related data to determine possible crime patterns and ensure all patrol officers and citizens are informed of criminal information and activity within the city.
- Educate the general public on crime prevention methods to limit exposure to becoming a victim.
- Provide timely alerts about criminal activity occurring in the local area.
- Provide frequent patrols at all schools in the city, helping to provide students, teachers, and parents with a real sense of security for children.
- Provide increased patrols of residential areas during overnight hours, focusing on the reduction of thefts from vehicles.

Legal Compliance

- Comply with all laws, regulations, procedures, and reporting requirements on radio communications, access to and dissemination of protected information and public records, the Safe Schools Act, adult abuse, and racial profiling laws and civil rights.
- Comply with federal mandates for Use of Force Reporting.
- Provide after-hour emergency protective order services to all victims of domestic violence.
- Submit the Annual Vehicle Stops Report to Attorney General by March 1st.
- Comply with mandatory Missouri Peace Officer Standards and Training (POST) regulations for all commissioned police officers for each annual POST cycle by offering in-service and



computer-based in-house training, in addition to instruction at the St. Louis County and Municipal Police Academy.

- Conduct or host training in the CCPD training room, when beneficial to the department.
- Comply with state law by ensuring all commissioned personnel undergo a mental health wellness check-in at least once every three years.

Holding Facility

- Administer holding facilities following Department of Justice and Missouri Juvenile Justice Association standards.
- Remotely monitor prisoners through the West Central Dispatch Center (WCDC).
- Accept bail bonds for the city and other jurisdictions, while processing bonds by 9:00 AM.
- Execute arrest notifications from other jurisdictions within 48 hours.
- Obtain in-custody warrants on serious felony crimes within 24 hours.
- Provide bailiff services for Municipal Court as needed.
- Maintain a safe and secure holding facility for housing prisoners.
- Provide in-custody holding through a contract with the St. Louis County Jail for felons in custody until formal charges are issued

Equipment and Facilities

- Perform required testing and maintenance of speed measuring instruments and monthly maintenance of alcohol breath testing instruments.
- Monitor all city-owned property, including patrols of all city parks.
- Assist visitors to city facilities when needed.
- Continue to provide a high level of safety and security for City Council, Municipal Court, and other Government Center meetings and functions, as needed.

Objectives

- Continue efforts to reduce traffic collisions, with the goal of reducing opportunities for conflicts that lead to crashes. This will be accomplished through the identification of high crash locations, roadway engineering improvement recommendations, education, and enforcement in those problem areas.
- Continue to develop tactical training and response. The Police Department's goal is to have a practical exercise each year and to continue participation in regional Multi Assault Counter Terrorism Action Capabilities (MACTAC) training.
- Continue our credentialing and training in the application of civil disturbances, riot training, de-escalation training, and a resolute awareness of those protesting and their civil rights.
- Continue participation in the St. Louis Area Police Chief's (SLAPCA) region-wide MRT program, addressing civil disturbances.
- Continue the development of our Crisis Intervention Team (CIT) program to deal effectively with mentally and emotionally disturbed individuals with the goal to have at least 85% of patrol officers CIT certified.
- Regularly evaluate physical fitness and wellness training and initiatives to ensure physical and mental fitness for duty.
- Increase patrol and investigative effectiveness. The overall goal is to reduce incidences of crimes against persons and property and be attentive to problems, through extra patrols which are assigned at daily briefings.
- Promote safe driving, awareness, and training to reduce officer-involved collisions.



- Promote consistent and effective responses to domestic violence incidents. Our goal is to reduce recurring incidents, whenever possible. Eight officers are trained to issue “after-hours” court orders of protection.
- Increase patrol availability by being fully staffed, to the extent possible.
- Maintain international accreditation as a law enforcement agency through CALEA.
- Continue our focus on recruiting the best-qualified police officer applicants by posting job announcements in a variety of methods that reach a diverse applicant pool.

Budget Highlights

- Acct. 6210 – Increase in vehicle fluids and parts. Added (2) barrels of oil for fleet (\$2,500).
- Acct. 6253 – Replacement of six (6) mobile phones for patrol commanders, patrol supervisors, K9 Officer, booking, and patrol cars (\$2,880).
- Acct. 6265 – New conference attendance at North American Police Work Dog Association (NAPWDA) (\$1,000).
- Acct. 6271 – Replacement of expired Narcan (\$3,000).
- Acct. 7308 – Police officer uniforms and duty accessories (\$1,800).
- Acct. 7313 – Sixty (60) Less Lethal Sock Rounds (\$1,040).
- Acct. 9502 – Six (6) 2023 Hybrid Ford Interceptor Utility Vehicles (\$306,000); cost will be partially offset by the estimated auction value on five (5) retired vehicles (\$37,500) and the anticipated reduction in gasoline usage.
- Acct. 9502 – New equipment for six (6) new vehicles (\$66,000).
- Acct. 9502 – Change over services for six (6) new vehicles (\$16,800).
- Acct. 9503 – Two (2) breaching tool kits and backpacks for active shooter response (\$1,400).
- Acct. 9503 – Replacement of nine (9) tasers (\$17,010).
- Acct. 9503 – One (1) Level III rifle-rated ballistic shield/equipment (\$5,000).
- Acct. 9503 – Replacement of twenty-two (22) ballistic vests to replace those due to expire and newly hired officers (\$18,700).
- Acct. 9503 – Portable Breath Test Unit (DWI Enforcement) (\$400).
- Acct. 9503 – Replacement of one (1) radar unit (\$3,100); cost may be reimbursable after purchase through MoDOT traffic safety grant.
- Acct. 9503 – Replacement of ten (10) duty holsters (\$1,400).
- Acct. 9503 – Replacement of nine (9) tasers with four (4) year extended warranties (\$17,010).
- Acct. 9503 – Lighting for safety purposes in two (2) traffic cars (\$4,500).
- Acct. 9503 – Four (4) Zebra Mobile ticket printers, cradles and installation (\$3,300).

**POLICE - PATROL**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	2,609,704	2,613,079	2,707,103	2,875,945	2,855,035
5103 Overtime	34,407	60,275	65,000	65,000	65,000
5104 Vacation Pay	3,355	7,278	3,664	15,510	16,600
5105 Longevity Pay	10,944	9,328	9,792	9,792	9,792
5106 Holiday Pay	98,653	97,939	112,036	103,000	110,500
5107 Uniform Allowance	2,200	2,050	2,400	2,400	2,400
5109 Provision for Salary Adj.	37,213	-	260,472	59,556	172,860
5230 Hospital & Medical Insurance	376,771	416,857	447,500	409,398	408,757
5231 Self Insured Medical Benefits	2,950	3,000	3,000	3,800	3,800
5233 Dental Insurance	16,453	16,844	18,200	14,775	14,942
5234 Group Life Insurance	8,931	8,830	9,800	10,365	11,850
5235 Accidental Death & Dismem.	957	946	1,030	1,027	1,049
5236 Disability Insurance	6,872	6,579	8,000	6,916	8,674
5240 Social Security Contribution	207,101	205,525	234,000	236,500	240,000
5241 Pension Contribution	517,743	248,488	312,754	272,507	307,303
5243 Worker's Compensation	90,794	102,911	136,982	142,223	165,202
Total Personnel Services	4,025,048	3,799,929	4,331,733	4,228,714	4,393,764
OPERATING EXPENSES:					
6202 Technical and Personal Services	6,949	6,594	7,640	7,189	7,050
6203 Professional Services	-	371	1,750	1,750	1,750
6210 Vehicle Maintenance	47,912	44,018	65,600	40,000	40,000
6211 Equipment Maintenance	4,661	4,373	4,010	3,810	4,250
6213 Office Equipment Maintenance	21	330	1,000	200	340
6253 Telephone	4,381	1,527	1,850	1,554	4,384
6261 Education & Training	6,781	6,161	7,575	7,575	7,075
6262 Dues, Memberships & Subsc.	325	548	1,113	1,113	1,670
6264 In Town Meetings	48	-	100	100	100
6265 Travel & Conferences	1,789	2,004	4,750	4,150	6,050
6271 Medical	2,892	7,579	7,900	7,900	9,100
7301 Chemicals & Cleaning	645	764	1,000	1,000	1,000
7302 Small Tools	2,297	1,505	5,270	4,780	5,480
7304 General Supplies	1,523	1,277	2,200	2,701	2,750
7307 Gasoline & Mileage	44,813	95,759	87,500	87,500	95,150
7308 Wearing Apparel & Linen	30,306	42,180	61,770	67,350	54,525
7313 Range Supplies	6,989	12,984	13,840	12,940	15,340
7314 Crime Prevention	3,725	-	-	-	-
Total Operating Expense	166,057	227,974	274,868	251,611	256,014
CAPITAL OUTLAY:					
9501 Buildings & Improvements	-	-	-	-	-
9502 Vehicles	79,432	-	375,560	417,743	388,800
9503 Equipment	75,504	85,129	65,675	64,431	59,136
9504 Office Equipment	420	4,694	500	500	500
Total Capital Outlay	155,356	89,824	441,735	482,674	448,436
TOTAL PATROL DIVISION	4,346,462	4,117,727	5,048,336	4,962,999	5,098,214

**POLICE - PATROL
CAPITAL OUTLAY DETAIL**

Capital Outlay Detail	Annual
9502 Vehicles	
2023 Hybrid Ford Interceptor Utility Patrol Vehicle (6)	306,000
Vehicle Changeover for New Vehicles (6)	16,800
Vehicle Equipment for New Vehicles (6)	66,000
Total Account 9502	388,800
9503 Equipment	
Breeching Toolkit and Backpack	1,400
Emergency Lightbars for 3 New Patrol Vehicles	0
Emergency Trim Lighting	0
Equipment Boxes for 3 New Patrol Vehicles	-
Equipment Trays for 3 New Patrol Vehicles	0
Equipment/Ballistic Shields	5,000
Male and Female Ballistic Vests	18,700
Morpho-ID Fingerprint Scanner	-
Motorola APX6000 Walkie Talkie	0
Personal Gun Safe for Home Use	525
Pistol Magazines	120
Portable Breath Test Unit (Reimburse by Blue Print Grant)	400
Prisoner Partitions for 3 New Patrol Vehicles	0
Push Bumpers for 3 New Patrol Vehicles	-
Radar Units(Reimbursed by Grant)	3,100
Replacement Duty Holsters	1,200
Rumbler Sirens for 2 New Patrol Vehicles	-
Siren Boxes for 3 New Patrol Vehicles	0
Siren Speakers for 3 New Patrol Vehicles	0
Tasers and Four Year Extended Warranties	17,010
Traffic Car Lighting for Safety	4,500
Traffic Cones (ANSI Compliant Cones)	600
Traffic Counter	0
UAV Equipment (Batteries/Props)	0
UAV Remote Identification (FAA Required)	1,500
Underbody Emergency Side Lights	0
Zebra Mobile Ticket Printers Cradles and Installation	5,081
CPU Monitor Mounts	-
Patrol Bicycle	0
Portable Stop Signs (includes Shipping Costs)	0
Total Account 9503	59,136
9504 Office Equipment	
Office Chairs (Replacement) - 2	500
Total Account 9504	500
TOTAL CAPITAL OUTLAY	448,436

**PUBLIC WORKS - ALL DIVISIONS**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	893,084	826,728	1,027,616	1,030,225	1,088,907
5102 Salaries, Temporary Empl.	18,672	12,558	34,944	9,374	34,944
5103 Overtime	27,714	29,670	34,000	23,500	34,000
5104 Vacation Pay	4,212	2,408	2,553	5,020	5,375
5105 Longevity Pay	5,069	3,221	2,957	2,381	2,381
5109 Provision for Salary Adj.	11,935	-	92,695	19,901	65,090
5110 Auto Allowance	4,200	4,200	4,200	4,200	4,200
5111 Cell Phone Allowance	-	-	-	-	-
5230 Hospital & Medical Insurance	161,398	138,866	167,875	163,936	190,718
5231 Self Insured Medical Benefits	2,130	1,680	2,280	2,355	2,380
5233 Dental Insurance	6,632	5,804	6,550	6,206	6,710
5234 Group Life Insurance	3,046	2,822	3,480	3,866	4,450
5235 Accidental Death & Dismem.	326	302	377	361	394
5236 Disability Insurance	2,333	1,811	2,595	1,825	2,872
5240 Social Security Contribution	70,260	64,444	88,811	83,000	93,000
5241 Pension Contribution	170,584	74,985	102,313	77,507	96,827
5243 Worker's Compensation Ins.	29,369	33,288	53,448	55,493	64,459
Total Personnel Services	1,410,965	1,202,789	1,626,694	1,489,150	1,696,707
OPERATING EXPENSES:					
6202 Technical & Personal Services	8,640	9,354	15,500	77,500	80,600
6203 Professional Services	1,789	50,031	50,100	10,100	24,600
6207 Temporary Personnel Services	62,507	127,400	130,950	105,000	109,000
6210 Vehicle Maintenance	34,097	34,215	39,500	39,500	47,400
6211 Equipment Maintenance	104,115	76,533	88,000	92,600	90,600
6212 Building & Ground Maint.	239,602	222,656	274,520	269,520	281,720
6213 Office Equipment Maint.	3,359	3,930	3,800	3,800	3,800
6214 Refuse Collections	766,268	800,800	833,169	838,130	871,555
6215 Weed Cutting/Tree Removal	-	-	-	-	-
6216 Larviciding	2,861	2,584	3,400	3,400	3,400
6224 Tappemeyer House.	19,166	20,245	18,000	15,000	15,000
6247 Dog Park Expenses	1,175	1,225	1,225	1,225	3,225
6250 Electricity	24,983	27,988	29,160	30,350	31,950
6251 Street Lighting	116,535	119,158	120,000	120,000	120,000
6252 Natural Gas	5,861	7,575	7,940	7,940	8,300
6253 Telephone	5,679	4,264	4,952	4,952	7,962
6254 Water & Sewer	57,227	63,718	81,225	71,060	79,000
6260 Advertising	106	475	200	200	200
6261 Education & Training	1,489	892	3,750	3,750	11,480
6262 Dues, Memberships & Subsc.	1,168	215	1,100	1,100	1,130
6264 In Town Meetings	-	-	40	40	120
6265 Travel & Conferences	-	2,587	3,995	4,195	4,165
6266 Equipment Rental	4,075	5,723	7,100	10,100	7,100
6271 Medical	584	213	800	800	800
7301 Chemicals & Cleaning	1,823	971	2,200	2,350	3,200
7302 Small Tools	6,349	5,688	6,200	6,200	6,200
7303 Horticultural Supplies	26,578	28,400	29,150	26,000	28,000
7304 General Supplies	2,944	2,549	3,400	3,700	3,700

**PUBLIC WORKS - ALL DIVISIONS**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
OPERATING EXPENSES (CONT'D):					
7305 Street and Sidewalk Maint.	20,831	22,043	30,000	30,000	32,500
7307 Gasoline & Mileage	31,417	53,451	48,900	57,900	57,900
7308 Wearing Apparel & Linen	13,392	17,209	16,465	16,815	17,610
7310 Snow Removal Supplies	96,828	63,158	115,000	115,000	122,500
7311 Street Signs	17,020	14,297	17,000	17,000	20,000
7318 Small Storm Water Projects	3,358	1,395	5,000	5,000	-
Total Operating Expense	1,681,825	1,790,942	1,991,741	1,990,227	2,094,717
CAPITAL OUTLAY:					
9501 Buildings & Improvements	-	-	-	-	-
9502 Vehicles	-	-	-	-	-
9503 Equipment	13,219	14,477	17,500	21,107	17,000
9504 Office Equipment	-	-	-	-	-
Total Capital Outlay	13,219	14,477	17,500	21,107	17,000
TOTAL PUBLIC WORKS	3,106,009	3,008,208	3,635,935	3,500,484	3,808,424



PUBLIC WORKS DEPARTMENT – ADMINISTRATION DIVISION

Mission Statement

To provide engineering services, project management, and contract administration for the construction and maintenance of all city infrastructures from design to construction completion.

Description

The Department of Public Works consists of the following five (5) divisions: Administration, Building Maintenance, Street Maintenance, Parks Maintenance, and Health and Environment. The Director of Public Works oversees the activities of these divisions. The Director of Public Works enforces codes, specifications, standards and regulations on engineering matters. Public Works-Administration includes a full-time Public Works Director, an Assistant Public Works Director/City Engineer, two (2) Civil Engineers¹, two (2) Project Manager-Engineering², an Administrative Support Supervisor³ and an Administrative Support Associate.

¹One (1) Civil Engineer position is expensed (100%) to the Capital Improvement Fund; one (1) Civil Engineer expensed (50%-50%) to Capital Improvement Fund and Parks & Stormwater Fund to manage fund-specific projects.

²One (1) Project Manager position is partially expensed (20%) to the Sewer Lateral Fund and one (1) Project Manager is expensed (100%) to Parks & Stormwater Fund to manage fund-specific projects.

³One (1) Administrative Support Supervisor is expensed (50%-50%) between Public Works-Administration and Community Development.

Related major Division duties and responsibilities include the following:

- Recommend contracts for city construction projects.
- Oversee the execution of professional services including engineering, surveying, appraisal, and title service for public improvement projects.
- Administer the Sanitary Sewer Lateral Program.
- Applies for road, sidewalk, park and storm water grants. Manages grant administration when grants are secured.
- Develop cost estimates for the Capital Improvement Program.
- Project Management of Facility Improvement Projects
- Provide technical assistance to the Planning & Zoning Commission (P&Z), the Stormwater, Horticulture, Ecology and Beautification, Parks and Historic Preservation, Arts, and Police and Safety committees.
- Manage the annual street repair/replacement programs, trash/recycling/yard waste, leaf hauling, limb chipping, and lawn maintenance.
- Oversee the Street Tree Planting Program.
- Facility Management of the Government Center.
- Manages road and sidewalk, storm water and park improvement projects.
- Inspect all subdivision and public improvement projects to ensure compliance with all applicable codes and ordinances.
- Apply for and manage Department grant projects.
- Maintain the City's rights-of-way (ROWs).
- Manage Site Development Reviews/Permits/Inspections on private developments.

**Performance and Workload Measures**

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Number of Open Engineering and Construction Projects (includes all capital, Parks-Stormwater Tax Fund)	25	34	35	38
Dollar Amount of Grants Awarded ¹	\$1,794,620	\$0	\$1,505,000	\$2,320,000
Average Hours of Training per Employee, All Department Divisions	21 ²	22 ²	25	30
Total Number of Workman's Compensation Claims, All Department Divisions	13 ³	2	8 ³	8
Total Days of Missed Work Due to On-The-Job Injuries, All Department Divisions	160 ³	56	96 ³	96
Dollar Amount of Spending Through Cooperative Purchasing, All Divisions (i.e., vehicles, salt, micro-surfacing)	\$263,000	\$352,000	\$503,000	\$804,000

¹Grant funding approved for project application during Fiscal Year specified.

²Training reduced or canceled altogether due to COVID-19 pandemic restrictions.

³Includes claims related to COVID pandemic with some reimbursable through the Federal government.

Service Standards

- Prepare bid documents for grounds maintenance in city parks, Olive and I-270 interchange, and medians.
- Prepare bid documents for asphalt materials (cold patch, crack seal, etc.), concrete, asphalt overlays, micro-surfacing, road and sidewalk construction, and lane striping for bidding.
- Maintain an average Pavement Condition Index (PCI) of 65 for all of the city-maintained streets without exceeding budget.
- Provide the highest quality of customer service.
- Prepare bid documents for equipment, building improvements, pavement improvements, grounds maintenance, mowing, tree planting, trash and recycle service, and hauling leaves for spring/fall pickups.
- Respond to resident complaints within 48 hours and resolve such matters that are within the city jurisdiction.
- Review Planning and Zoning Commission (P&Z) matters/communication with the P&Z Chairman in the time frame requested by the Director of Community Development.
- Process ROW permit applications within 48 hours of the submission date.
- Execute grant applications for Community Development Block Grant (CDBG), Municipal Parks, Surface Transportation Program (STP), Safe Routes to School (SRTS), Congestion Mitigation and Air Quality (CMAQ), Transportation Alternative Program (TAP), Land and Water Conservation (LWC) and Tree Resource Improvement and Maintenance II (TRIM II) and other miscellaneous grants as they become available.
- Manage construction projects as related to successful grant applications.



Objectives

- Manage Capital Improvement Program (CIP) pavement replacement programs.
- Create a multi-year pavement management plan.
- Improve the utilization of the Geographical Information System (GIS) software. Produce more maps that will help with planning, cost estimating, design, and emergency management.
- Prepare bid specifications for CIP and grant projects.
- Apply for grants to seek funding for projects that have been placed on the CIP five-year and future project list.
- Work with the Stormwater Committee to review stormwater issues and recommend corrective projects.
- Create a three- to five-year planning schedule for projects and goals.
- Oversee maintenance of in-house programs:
 - Concrete sidewalk replacement/grinding programs
 - Proper tree/plant care programs
 - Storm sewer replacement programs (small and large projects)
 - Decorative lighting maintenance
 - Asphalt milling/replacement (small projects)

Budget Highlights

- Acct. 6202 – Project Management Software (\$2,100).
- Acct. 6202 – Weather-Or-Not Forecasting service fees (\$5,600).
- Acct. 6203 – Increase for contracted services for structural evaluation of Public Works Garage Building (\$19,000).
- Acct. 6211 – Funding for traffic signal locates (\$24,000).
- Acct. 6211 – Traffic signal maintenance (\$17,000).
- Acct. 6213 – Copier lease and maintenance fees (\$2,700).
- Acct. 6253 – Increase to replace three (3) smart phones (\$1,290).

**PUBLIC WORKS ADMINISTRATION**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	296,043	285,603	353,155	326,440	366,982
5103 Overtime	606	1,127	1,000	2,200	1,000
5104 Vacation Pay	4,212	2,408	2,553	5,020	5,375
5105 Longevity Pay	2,381	2,381	2,381	2,381	2,381
5109 Provision for Salary Adj.	4,373	-	18,754	5,210	20,320
5110 Auto allowance	4,200	4,200	4,200	4,200	4,200
5230 Hospital & Medical Insurance	34,217	26,101	35,970	30,758	44,372
5231 Self-insured Medical Benefits	505	480	480	755	780
5233 Dental Insurance	1,490	1,095	1,250	1,144	1,462
5234 Group Life Insurance	987	891	1,285	1,278	1,432
5235 Accidental Death & Dismem.	106	96	120	111	130
5236 Disability Insurance	809	685	995	530	750
5240 Social Security Contribution	22,840	22,174	28,000	26,000	30,000
5241 Pension Contribution	74,008	25,590	39,989	26,328	39,996
5243 Worker's Compensation	9,672	10,963	3,400	3,530	4,100
Total Personnel Services	456,447	383,793	493,532	435,885	523,280
OPERATING EXPENSES:					
6202 Technical & Personal Services	5,693	5,786	6,000	6,400	9,000
6203 Professional Services	1,789	7,726	10,100	10,100	24,600
6211 Equipment Maintenance	67,277	42,213	50,000	41,000	45,000
6213 Office Equipment Maint.	3,359	3,930	3,500	3,500	3,500
6253 Telephone	2,104	1,333	1,832	1,832	3,122
6260 Advertising	106	475	200	200	200
6261 Education & Training	550	773	1,000	1,000	1,000
6262 Dues, Memberships & Subsc.	1,168	215	1,100	1,100	1,130
6264 In Town Meetings	-	-	40	40	120
6265 Travel & Conferences	-	2,587	2,120	2,120	2,290
7302 Small Tools	-	80	200	200	200
7304 General Supplies	445	465	200	500	200
7307 Gasoline & Mileage	117	301	300	300	300
7308 Wearing Apparel & Linen	453	437	1,515	1,515	1,960
7332 Computer Software	-	-	-	-	-
Total Operating Expense	83,060	66,320	78,107	69,807	92,622
CAPITAL OUTLAY:					
9504 Office Equipment	-	-	-	-	-
Total Capital Outlay	-	-	-	-	-
TOTAL PUBLIC WORKS ADMINISTRATION	539,507	450,114	571,639	505,692	615,902



**PUBLIC WORKS - ADMINISTRATION
CAPITAL OUTLAY DETAIL**

Capital Outlay Detail	Annual
9504 Office Equipment	
(Nothing Budgeted)	-
Total Account 9504	-
TOTAL CAPITAL OUTLAY	-

**PUBLIC WORKS DEPARTMENT - STREET MAINTENANCE DIVISION****Mission Statement**

To provide for enhanced public safety through maintenance, care, and repair of all city streets, sidewalks and rights-of-ways (ROWs). To perform limb and leaf collection and ice and snow removal services during the appropriate season for the safety and convenience of city residents.

Description

The Street Division consists of an Operation Superintendent and a pool of three (3) Foreman I, a *Maintenance II Worker/Mechanic; three (3) Maintenance II Workers; and six (6) Maintenance I Workers which are shared with the Parks Division as needed to complete projects. In addition, two (2) seasonal Maintenance Workers assist with leaf pick up and snow removal during peak service months.

**Maintenance Worker II/Mechanic salary cost shared Public Works-Streets (75%) and Police-Administration (25%)*

Related Streets Division duties and responsibilities include the following:

- Maintain approximately 180 lane miles of city-maintained streets.
- Provide snow removal, leaf/limb pickup for approximately 32 privately owned lane miles.
- Maintain and/or construct sidewalks, road pavement and right-of-way (ROW).
- Remove snow and treat streets for emergency ice control.
- Perform seasonal curbside limb and leaf collection.
- Install and maintain catch basins and storm inlet systems.
- Assist in inspecting creeks to ensure they are free and clear of blockage to assist in flood control.
- Maintain vehicle and equipment fleets.
- Help coordinate and inspect concrete/asphalt/mudjacking contractors during construction.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
FLEET				
Average Age, Heavy-Duty Vehicles (>19,500 GVW)	9.6	9.7	9	10
Average Miles Driven, Heavy-Duty Vehicles	3,584	3,600	3,226	3,600
Average Age, Medium-Duty Vehicles (10,000-19,500 GVW)	6	6	7	7
Average Miles Driven, Medium-Duty Vehicles	3,145	2,236	6,900	4,800
Average Age, Light Vehicles (<10,000 GVW)	5.5	5.5	9	7
Average Miles Driven, Light-Duty Vehicles	9,060	3,117	2,600	3,000
Total Fleet Maintenance Expenditures, In-House (Parts and Supplies only)	\$27,252	\$30,000	\$35,000	\$45,000
Total Fleet Maintenance Expenditures, (Contracted)	\$0	\$0	\$0	\$0
Percentage of Contracted-Out Fleet Maintenance	0%	0%	0%	0%



	FY 2020	FY 2021	Projected FY 2022	Estimated FY 2023
STREETS/SIDEWALKS				
Expenditures (In-House), Road Rehabilitation, Per Lane Mile	\$290	\$167	\$ 167	\$222
Expenditures, Road Rehabilitation (Contracted)	\$1,815,000	\$1,848,713	\$ 3,234,706	\$ 3,446,600
Expenditures, Sidewalk Rehabilitation (Contracted)	\$161,000	\$146,030	\$346,933	\$210,000
Expenditures, (Contracted) Road Rehabilitation, Per Lane Mile	\$7,900	\$10,270	\$17,970	\$ 19,147
Paved Lane Miles Assessed as Being Satisfactory or Better	132	133	134	135
Percentage of Streets with Pavement Index of Rating 65 or Higher (By Square Yard Area)	73%	73%	73%	74%
SNOW & ICE REMOVAL				
Percentage of Streets Cleared within Eight (8) Hours of Normal Snowfall Stop	100%	100%	100%	100%
Average Response Time from Time Called Out (Average Snow/Ice Event), Hours	<1 hour	<1 hour	<1 hour	<1 hour
Inches of Snowfall, Annually	7.1	8.0	9.0	16
Total Number of Lane Miles Treated for Snow/Ice Control	1,950	3,134	2,850	2,500
LEAF & LIMB PICK-UP				
Number of Verified Leaf Misses	2	3	2	2
Number of Verified Limb Misses	2	2	2	2
Number of Dead Animal Pick-Ups (In-House)	28	30	35	35
Number of Signs Fixed, Repairs or Replaced	93	236	375	250

Service Standards

- Provide chipping of limbs, up to three (3) inches in diameter, during the period from mid-March through mid-October and a mid-winter pick-up.
- Provide leaf collection from early November through December, and each April based on the established collection schedule.
- Complete snow removal within eight (8) hours following a normal storm event of three (3) inches.
- Complete salt/chloride (CaCl) treatment for snow events less than three (3) inches within six (6) hours following the snow event when it is the only treatment necessary.
- Respond to citizen requests within 48 hours, which includes, but not limited to, removing dead trees and brush in the ROW, cleaning storm inlets and creek debris, repair potholes, missing traffic regulatory signs, or notifying the appropriate agencies as needed.
- Remove or contain emergencies or dangerous conditions within four (4) hours.
- Complete street and sidewalk repairs within five (5) days as materials, weather, and workload permit.
- Maintain all equipment and perform preventive maintenance to minimize downtime.
- Provide an average of (25-35) lane miles of crack sealing per year as per the five-year schedule.
- Water grass, trees, and plants for new city projects, as needed.



- Provide a 24-hour or less average response time to complaints and concerns received from residents.
- Maintain an up-to-date inventory of city vehicles on the fleet management software and the corresponding service records on a daily basis.
- Provide at least four (4) pickups¹ of leaves per residence each year for a total of approximately 19,600 pickups citywide.
- Provide an average of seventeen (17) pickups¹ of limbs per residence each year for a total of approximately 83,300 pickups citywide.
- Repair asphalt roads in preparation for annual microsurface application.

¹A minimum of three (3) leaf pickups per household in fall and one (1) per household in spring. Limb pick-up runs continuously from mid-March through mid-October with one (1) mid-winter pick up in January. Pick-up estimates based on approximately 4,900 single-family home count.

Objectives

- Seek ways to improve proficiency using pavement management software to determine the most efficient and cost-effective method to maintain city streets. Maintain average Pavement Condition Index (PCI) of sixty-five (65) or above.
- Manage the timetable for the five-year Crack Sealing Program.
- Utilize alternative pavement applications such as micro-surfacing and rejuvenators, to extend the life of city streets.
- Manage maintenance of Olive Boulevard and I-270 Interchange and west Olive Boulevard landscaping.
- Enter all daily activity electronically.
- Improve efficiency and productivity of current annual programs.
- Continue in-house programs such as sidewalk and street slab replacements, stormwater projects, asphalt pavement preparation for micro-surfacing, etc., to reduce the cost of contracted pavement repairs.

Budget Highlights

- Acct. 5102 – Part-time seasonal maintenance workers used during peak service months and assist in transporting contracted seasonal workers to various job sites within the city (\$34,944).
- Acct. 6202 – Contracted leaf collection services to provide additional leaf pick up during peak fall leaf season (\$61,600).
- Acct. 6207 – Costs associated with temporary workers to supplement full-time staff in leaf collection and chipping services (\$75,000).
- Acct. 6210 – Vehicle maintenance repair cost-shared between Streets (75%) and Parks (25%) (\$38,400).
- Acct. 6211 – Equipment maintenance repairs cost-shared between Streets (75%) and Parks (25%) (\$38,400).
- Acct. 6212 – Leaf and Limb Program debris haul off and recycling (\$40,000).
- Acct. 6212 – City-resident cost shared street tree plantings (\$10,000).
- Acct. 6212 – Ground maintenance for right-of-way (ROW) mowing (\$19,100).
- Acct. 6212 – Seal parking lot at maintenance facility (\$7,500).
- Acct. 6212 – Contract services for ground maintenance of the Olive Boulevard and I-270 interchange including mowing services, irrigation start-up, winterization, repairs, spring



trimming of fountain grasses, weekly weeding and trash pick-up, traffic control, fertilization and pesticide applications (\$55,380).

- Acct. 6251 – Street Lighting Program (\$120,000).
- Acct. 6254 – Water and Sewer for irrigation systems (\$71,000).
- Acct. 6261 – General safety and operations training for employees (\$2,500).
- Acct. 6261 – Increase due to one (1) employee participating in the college tuition reimbursement benefit program (\$4,000).
- Acct. 7303 – Plants for median designs (\$6,000).
- Acct. 7303 – Mulch for city ROW landscape areas (\$12,000).
- Acct. 7305 – Material purchases for asphalt, concrete and other supplies for street and sidewalk maintenance repairs due to increase in additional in-house work performed (\$32,500).
- Acct. 7307 – Increase due to gasoline and propane inflation (\$50,000).
- Acct. 7310 – De-icing salt (1,200 tons) through salt co-operative purchase (\$90,000).
- Acct. 7310 – Ice Ban as a snow-ice control product (\$21,000).
- Acct. 7310 – Snow removal supplies including replacement parts, blades, calcium pumps, etc. (\$10,000).
- Acct. 7311 – Street sign replacement supplies (\$6,000).
- Acct. 9503 – Replace parking lot light at Maintenance Facility with LED fixtures (\$5,000).
- Acct. 9503 – Replacement of worn mold boards for snow plows (\$7,000).

**STREET MAINTENANCE**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	443,034	372,323	457,369	486,095	474,580
5102 Salaries, Temporary Empl.	18,672	12,558	34,944	9,374	34,944
5103 Overtime	21,356	20,672	25,000	17,000	25,000
5105 Longevity Pay	1,824	624	576	-	-
5109 Provision for Salary Adj.	5,698	-	48,383	9,755	28,765
5230 Hospital & Medical Insurance	93,859	72,553	87,940	77,202	81,301
5231 Self Insured Medical Benefits	1,450	1,200	1,200	1,600	1,600
5233 Dental Insurance	3,619	3,362	3,600	3,700	3,792
5234 Group Life Insurance	1,621	1,390	1,555	1,764	2,004
5235 Accidental Death & Dismem.	174	149	185	171	175
5236 Disability Insurance	1,189	889	1,100	864	1,466
5240 Social Security Contribution	35,701	29,659	42,000	40,000	43,000
5241 Pension Contribution	68,619	33,024	45,348	38,819	41,031
5243 Worker's Compensation	14,938	16,932	39,778	41,300	47,973
Total Personnel Services	711,754	565,335	788,978	727,644	785,631
OPERATING EXPENSES:					
6202 Technical & Personal Services	279	1,068	5,500	67,100	69,100
6203 Professional Services	-	42,305	40,000	-	-
6207 Temporary Personnel Services	46,880	99,750	92,700	75,000	75,000
6210 Vehicle Maintenance	27,253	26,093	32,000	32,000	38,400
6211 Equipment Maintenance	29,623	27,609	32,000	45,000	38,400
6212 Buildings & Grounds Maint.	168,637	154,161	185,000	180,000	185,000
6213 Office Equipment Maint.	-	-	300	300	300
6250 Electricity	12,236	13,045	12,960	13,350	14,100
6251 Street Lighting	116,535	119,158	120,000	120,000	120,000
6252 Natural Gas	2,885	4,508	4,700	4,700	4,900
6253 Telephone	3,223	2,482	2,580	2,580	3,870
6254 Water and Sewer	51,131	56,811	57,225	63,060	71,000
6261 Education & Training	174	119	2,000	2,000	9,500
6265 Travel & Conferences	-	-	1,875	2,075	1,875
6266 Equipment Rental	1,941	2,724	5,100	5,100	5,100
6271 Medical	562	107	600	600	600
7301 Chemicals & Cleaning	787	107	700	350	700
7302 Small Tools	4,852	4,362	4,500	4,500	4,500
7303 Horticulture Supplies	20,316	20,835	16,000	16,000	18,000
7304 General Supplies	2,049	961	2,200	2,200	2,200
7305 Street & Sidewalk Maint.	20,831	22,043	30,000	30,000	32,500
7307 Gasoline & Mileage	26,931	45,840	41,000	50,000	50,000
7308 Wearing Apparel & Linen	9,936	12,537	11,250	11,250	11,500
7310 Snow Removal Supplies	96,828	63,158	115,000	115,000	122,500
7311 Street Signs	17,020	14,297	17,000	17,000	20,000
7318 Small Storm Water Projects	3,358	1,395	5,000	5,000	-
Total Operating Expenses	664,270	735,475	837,190	864,165	899,045



STREET MAINTENANCE

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
CAPITAL OUTLAY:					
9501 Building and Improvements	-	-	-	-	-
9503 Equipment	1,400	10,822	15,000	15,000	12,000
9505 Office Machines	-	-	-	-	-
Total Capital Outlay	1,400	10,822	15,000	15,000	12,000
TOTAL STREET MAINTENANCE	1,377,424	1,311,632	1,641,168	1,606,809	1,696,676

STREET MAINTENANCE
CAPITAL OUTLAY DETAIL

9503 Equipment	
Mold Boards for Snow Plows	7,000
LED Parking Lot Lighting	5,000
Total Account 9503	12,000
9505 Office Equipment	
(Nothing Budgeted)	-
Total Account 9505	-
TOTAL CAPITAL OUTLAY	12,000

**PUBLIC WORKS DEPARTMENT - HEALTH AND ENVIRONMENT DIVISION****Mission Statement**

To control and monitor the removal of refuse and recyclables from within the city limits.

Description

This division has no employees budgeted to it. Funding for specific services and activities have been assigned to the Health and Environment budget for accounting purposes. The city contracts with a licensed refuse hauler to provide for the removal of refuse, recycling, and yard waste on a weekly basis. The city provides for the collection of all refuse and recyclable materials from single-family residences and participating condominiums.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
External Survey, Percentage of Residents Rating Overall Satisfaction with Refuse Collection as Very Satisfied and Satisfied ¹	N/A	88%	N/A	N/A
All Recycling (tons)	1,584	1,513	1,550	1,550
All Trash (tons)	3,911	3,737	3,700	3,672
All Yard Waste (cubic yards), contracted	2,326	1,890	1,900	1,920
Percentage of Complaints per Total Pick-Ups, All Refuse Services	.04%	.06%	.08%	.05%
Dollar Value of Recycle Rebate	\$15,845	\$5,000	\$5,000	\$5,000
Percentage of Residents Enrolled in Rear-Yard Trash Collection	11.8%	11.5%	11.0%	11.0%

¹Triennial Resident Survey conducted in FY 2022.

Service Standards

- Respond to citizen calls within 24 hours of initial contact.
- Provide for the collection of all refuse and recyclable materials from single-family residences and refuse from condominiums weekly. Provide special pick-up any time during the year, upon request. Complaints are handled swiftly to minimize the potential for health related consequences. Any missed refuse pickups are reported the same day and collected that day or by the next pick-up day.
- Utilize alternative solid waste disposal programs such as source separation, recycling, composting, and increased utilization of recycled materials to comply with state mandated regulations (included in Senate Bill 530). Maintain minimum 50% participation in these programs through public education efforts.

Objectives

Provide trash and recycle services to residents. Contract with St. Louis County Vector Control to provide mosquito control service.



Budget Highlights

- Accts. 6214 – Costs associated with providing curbside trash and recycle services to single family property residents and dumpster service to multi-family condominium buildings, includes a potential 4% increase (\$866,495). The City entered into a 5-year contract in FY 2021.

**HEALTH AND ENVIRONMENT**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
OPERATING EXPENSES:					
6214 Refuse Collections	766,268	800,800	833,169	838,130	871,555
6215 Weed Cutting/Tree Removal	-	-	-	-	-
6216 Larviciding	2,861	2,584	3,400	3,400	3,400
6253 Telephone	-	-	-	-	-
7302 Small Tools	-	-	-	-	-
Total Operating Expenses	769,129	803,384	836,569	841,530	874,955
CAPITAL OUTLAY:					
9502 Vehicles			-	-	-
9503 Equipment	-	-	-	-	-
Total Capital Outlay	-	-	-	-	-
TOTAL HEALTH & WELFARE	769,129	803,384	836,569	841,530	874,955

**PUBLIC WORKS DEPARTMENT - PARKS DIVISION****Mission Statement**

To maintain city parks and right-of-way (ROW) to promote the enjoyment and safe use of park facilities by all citizens.

Description

The Parks Division consists of an Operation Superintendent and a pool of three (3) Foreman I, a Maintenance II Worker/Mechanic; four (4) Maintenance II Workers, six (6) Maintenance I Workers which are shared with the Streets Division. Related major Parks Division duties and responsibilities include the following:

- Maintenance of the turf and landscaped areas in the city parks, around city entrance signs, medians along Ballas Road and Olive Boulevard, and the Government Center.
- Cleanliness of all six (6) parks, park facilities and the historic buildings.
- Trash pickup in parks and at the Olive Boulevard bus stops, Ballas Road medians, and other locations.
- Regular cleaning and maintenance of park restrooms and historic buildings.
- Assisting the street department with the leaf, limb, and snow removal programs, in season.
- Oversee contracted park maintenance, ROW maintenance, and Olive Boulevard and I-270 Interchange grounds maintenance.
- Maintain landscape on medians along Olive Boulevard, New Ballas Road, Ladue Road, and other city owned facilities.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Number of Trees Planted/Removed (in-house) ¹	250	12	24	20
Number of Trees Planted/Removed (contracted) ¹	128	194	35	40
Total Percent of Trees and Shrubs Planted/Removed (in-house) ¹	66%	6%	18%	15%
Number of City Trees in Inventory (includes parks, rights-of-ways, streets) ¹	7,589	7,659	7,115	7,200
Percentage of Public Land Maintained (in-house)	18%	18%	18%	15%
Cost to Maintain Parks (per acre)	\$4,199	\$ 4,785	\$5,100	\$5,500

¹*Emerald Ash Borer Maintenance Program includes removal of 200+ ash trees per year.*

Service Standards

- Clean all of the restrooms and pick up trash three times a week from every park from April through November, and twice a week the other months of the year.
- Cut and trim the Government Center and maintenance facility at least once every 10 days, weather permitting.
- Maintain landscape and natural areas and provide seasonal plantings to improve appearance for the public.



- Maintain historical buildings, fountains, and park lighting for safety and public use.
- Enhance safety and improve quality of facilities through annual improvement projects.
- Ensure all of the irrigation systems are functioning properly and make immediate repairs as needed.
- Manage contract mowing of active use areas in Dr. H. Phillip Venable Park, Lake School Park, Malcolm Terrace Park, LaVerne Collins Park, Millennium Park including playgrounds, ball fields and parking lot islands, and street medians once per week, April-October.
- Manage contract mowing of passive use areas in LaVerne Collins Park, Malcolm Terrace Park, and selected city ROWs once every two (2) weeks. These two parks are primarily for walking trails and other passive activities.
- Plant perennials in parks, medians, ROWs, and at the Government Center.

Objectives

- Continue to improve all grass areas in city parks, properties, and medians.
- Improve wildflower areas at Millennium and Conway Parks and the I-270 ROW.
- Continue weed control on west Olive Boulevard, New Ballas Road, and Ladue Road medians and park plant areas.
- Improve landscaping on Olive Boulevard by implementing and maintaining new plantings.
- Maintain landscape, trees and lawn at the Government Center and Police Building property.

Budget Highlights

- Acct. 6202 – Tree inventory software maintenance fees (\$2,500).
- Acct. 6207 – Increase in costs due to increase in hourly rate for temporary laborers; expenses are shared between Streets (75%) and Parks (25%) to provide additional labor force and leaf and limb services (\$38,250).
- Acct. 6210 – Vehicle maintenance expenses cost-shared between Streets (75%) and Parks (25%) budgets (\$9,000).
- Acct. 6211 – Equipment maintenance expenses cost-shared between Streets (75%) and Parks (25%) budgets (\$7,200).
- Acct. 6212 – Contract services to safety prune and remove dead trees in hard-to-reach areas of city parks and ROWs (\$2,000).
- Acct. 6212 – Asphalt path repairs (\$8,000).
- Acct. 6212 – Emerald Ash Borer (EAB) Tree Management Program includes removal, replacement and treatment of ash trees in city parks. This is a multi-year program (\$5,000).
- Acct. 6212 – Mowing contract services for parks (\$47,200).
- Acct. 6224 – Maintenance expenses for the Tappmeyer House in Millennium Park (\$15,000).
- Acct. 6250 – Increase in electricity in anticipation of costs associated with winterizing additional park bathrooms (\$17,850).
- Acct. 6254 – Water and sewer costs for spray pad and irrigation at Millennium Park and restrooms at Lake School, Conway and Venable parks (\$8,000).
- Acct. 7307 – Gasoline and propane expenses cost-shared between Streets (75%) and Parks (25%) budgets (\$7,600).
- Acct. 9503 – Replace irrigation controllers (\$2,500).
- Acct. 9503 – Replace flail mower quick connect and controls (\$2,500).

**PARKS MAINTENANCE**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	154,008	168,802	217,092	217,690	247,345
5103 Overtime	5,752	7,871	8,000	4,300	8,000
5105 Longevity Pay	864	216	-	-	-
5109 Provision for Salary Adj.	1,864	-	25,558	4,936	16,005
5230 Hospital & Medical Insurance	33,323	40,213	43,965	55,976	65,045
5231 Self Insured Medical Benefits	175	-	600	-	-
5233 Dental Insurance	1,523	1,348	1,700	1,362	1,456
5234 Group Life Insurance	437	540	640	824	1,014
5235 Accidental Death & Dismem.	47	58	72	79	89
5236 Disability Insurance	335	236	500	431	656
5240 Social Security Contribution	11,719	12,611	18,811	17,000	20,000
5241 Pension Contribution	27,958	16,371	16,976	12,360	15,800
5243 Worker's Compensation	4,758	5,393	10,270	10,663	12,386
Total Personnel Services	242,765	253,660	344,184	325,621	387,796
OPERATING EXPENSES:					
6202 Technical & Personal Services	2,668	2,500	4,000	4,000	2,500
6207 Temporary Personnel Services	15,627	27,650	38,250	30,000	34,000
6210 Vehicle Maintenance	6,844	8,122	7,500	7,500	9,000
6211 Equipment Maintenance	7,215	6,711	6,000	6,600	7,200
6212 Building & Ground Maint.	70,965	68,495	89,520	89,520	96,720
6224 Tappemeyer House Maint.	19,166	20,245	18,000	15,000	15,000
6247 Dog Park Expenses	1,175	1,225	1,225	1,225	3,225
6250 Electricity	12,747	14,943	16,200	17,000	17,850
6252 Natural Gas	2,975	3,067	3,240	3,240	3,400
6253 Telephone	353	449	540	540	970
6254 Water & Sewer	6,096	6,907	24,000	8,000	8,000
6261 Education and Training	765	-	750	750	980
6266 Equipment Rental	2,134	2,999	2,000	5,000	2,000
6271 Medical	22	107	200	200	200
7301 Chemicals & Cleaning	1,036	864	1,500	2,000	2,500
7302 Small Tools	1,497	1,246	1,500	1,500	1,500
7303 Horticultural Supplies	6,262	7,565	13,150	10,000	10,000
7304 General Supplies	450	1,123	1,000	1,000	1,300
7307 Gasoline & Mileage	4,369	7,309	7,600	7,600	7,600
7308 Wearing Apparel & Linen	3,002	4,236	3,700	4,050	4,150
Total Operating Expense	165,366	185,763	239,875	214,725	228,095
CAPITAL OUTLAY:					
9503 Equipment	11,819	3,654	2,500	6,107	5,000
Total Capital Outlay	11,819	3,654	2,500	6,107	5,000
TOTAL PARK MAINTENANCE	419,950	443,078	586,559	546,453	620,891



**PARKS MAINTENANCE
CAPITAL OUTLAY DETAIL**

9503 Equipment	Annual
Irrigation Controllers	2,500
Flail Mower Quick Connect, New Controllers	2,500
Total Account 9503	<u>5,000</u>
TOTAL CAPITAL OUTLAY	<u><u>5,000</u></u>



COMMUNITY DEVELOPMENT-ALL DIVISIONS

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	907,556	817,071	852,900	790,285	772,615
5102 Salaries, Temporary Empl.	7,695	22,638	7,650	37,841	39,682
5103 Overtime	2,480	1,574	3,000	3,500	3,000
5104 Vacation Pay	4,598	-	3,160	-	-
5105 Longevity Pay	7,584	4,224	4,224	3,800	3,168
5109 Provision for Salary Adj.	13,736	-	48,334	15,430	55,780
5110 Auto Allowance	3,600	3,600	3,600	3,600	3,600
5230 Hospital & Medical Insurance	125,341	100,398	103,385	95,966	101,904
5231 Self Insured Medical Benefits	1,225	1,400	1,800	2,025	2,050
5233 Dental Insurance	5,752	5,479	5,450	4,365	4,418
5234 Group Life Insurance	2,723	2,546	3,137	2,806	3,187
5235 Accidental Death & Dismem.	292	274	311	272	279
5236 Disability Insurance	2,463	1,610	2,451	2,112	2,324
5240 Social Security Contribution	70,239	63,317	69,437	65,000	66,500
5241 Pension Contribution	227,957	74,378	95,596	80,674	73,440
5243 Worker's Compensation Ins.	26,012	29,483	27,499	28,551	33,165
Total Personnel Services	1,409,253	1,127,992	1,231,934	1,136,227	1,165,112
OPERATING EXPENSES:					
6202 Technical & Personal Services	4,287	3,343	4,500	4,250	6,000
6203 Professional Services	17,125	6,125	15,000	21,000	19,000
6204 Planning & Design Services	-	-	30,000	10,000	30,000
6213 Office Equipment Maint.	-	-	2,000	2,000	2,000
6215 Weed Cutting/Tree Removal	7,790	6,013	6,000	7,600	6,000
6253 Telephone	7,616	6,510	7,356	5,800	8,475
6260 Advertising	1,488	954	1,200	2,000	2,000
6261 Education & Training	2,643	3,407	3,950	3,950	3,990
6262 Dues, Memberships & Subsc.	2,328	1,554	2,823	2,823	2,685
6264 In Town Meetings	288	310	900	900	900
6265 Travel & Conferences	810	7,115	10,500	5,300	12,700
7302 Small Tools	551	550	900	900	900
7304 General Supplies	9,477	7,223	11,250	6,500	7,500
7307 Gasoline & Mileage	11,899	11,106	13,100	12,100	12,600
7308 Wearing Apparel & Linen	785	1,181	1,350	1,350	1,550
Total Operating Expense	67,088	55,390	110,829	86,473	116,300
CAPITAL OUTLAY:					
9504 Office Equipment	399	333	850	850	1,050
Total Capital Outlay	399	333	850	850	1,050
TOTAL COMMUNITY DEVELOPMENT	1,476,740	1,183,715	1,343,613	1,223,550	1,282,462



COMMUNITY DEVELOPMENT DEPARTMENT – PLANNING DIVISION

Mission

The overall mission is to employ sound urban planning techniques and policies, and offer quality development-related services. The division provides the City Administrator, City Council, and city-appointed committees with information and professional planning expertise to enhance and support decisions on community policies emphasizing both current and advanced planning and development related tasks.

Description

The Planning Division consists of the Community Development Director, a City Planner, and an Administrative Services Supervisor shared (50%) with Public Works-Administration (3111). The staff members are responsible for all aspects of planning-related activities for Creve Coeur. Primary activities include professional planning support for the City Council, Planning & Zoning (P&Z) Commission, Board of Adjustment, and the Arts, Economic Development committees.

Related major division duties and responsibilities include: assisting residential and commercial residents with approval and compliance issues; administering and updating the Zoning Code; maintaining the official zoning map; developing, maintaining and implementing the Comprehensive Plan; serving as liaison between the City Council and the P&Z Commission; assisting with development of the Capital Improvement Program; facilitating economic opportunities consistent with the community's overall goals and expectations; pursuing projects eligible for federal or state funding to advance the community's identified goals, sign and fence permits; and, reviewing business and occupancy permit applications.

Service Standards

- Continue to provide genuine customer service and personal assistance 100% of the time.
- Understand the needs, perspective, and expectations of our customers.
- Update and maintain applications, forms, brochures, and policies to assist users and clarify procedures and steps.
- Meet with our customers (residents, developers, design professionals, and contractors) when requested to assist and facilitate projects and applications, and address issues in a timely fashion.
- Utilize all facets of communication to further the goals of the division.
- Review P&Z applicant submissions in accordance with the predetermined schedule.
- Ensure agendas and reports shall be professional, technically accurate, in accordance with city policies, and distributed to the various committees as necessary.
- Prepare meeting minutes by next packet deadline and provide follow-up communications to applicants the same week.

**Performance and Workload Measures**

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024*
Planning Applications Reviewed	33	29	40	35
Sign Permit Applications Reviewed	82	87	80	80
Percentage of Sign Permit Applications Reviewed within Three Business Days*	100%	100%	100%	100%

**Measurement is based upon the time when an application is submitted and review is completed and permit is issued or comments are sent to the applicant with requested revisions.*

Objectives

- Provide excellent customer service and professional assistance through all aspects of the division and to develop positive relationships with the development community.
- Continue to enhance current planning activities within the department and provide professional consultation and expertise to the P&Z Commission and City Council.
- Advance and focus on the long-range planning efforts including advancing the downtown form-based code and plant science district concepts.
- Provide professional guidance and leadership in the implementation of the Comprehensive Plan and the 39N area plans.
- Identify areas facing immediate development pressure and continue analysis of the Comprehensive Plan to determine applicability of potential development proposals.
- Review, analyze, and propose changes, additions, and modification to the Zoning Ordinance and other city codes to meet the needs of the community.
- Identify methods to increase the utilization of the City's Geographic Information System (GIS) as a support tool for land use decisions and analysis.
- Assist in researching and implementing a new permit software system to integrate all development applications including site development plans, site improvement plans, and building permitting.
- Provide superior public notice of P&Z Commission and Board of Adjustment activities through the city website, city newsletters, posted signs, direct mailing, and newspaper publication(s).
- Provide staff support to Economic Development Committee to further City's economic development efforts as requested.
- Provide staff support to the Arts Committee as requested.
- Review and improve intra-office communication and review processes to reduce errors and improve customer response times.

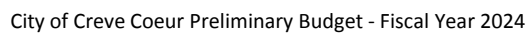
Budget Highlights

- Acct. 6203 – Web-based GIS service hosting and support fees (\$5,000).
- Acct. 6203 – Web-based GIS service for special mapping projects (\$3,000).
- Acct. 6204 – Professional planning consulting services to assist staff with analyzing large development proposals and advising on development finance requests (\$20,000).



COMMUNITY DEVELOPMENT - PLANNING DIVISION

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	256,990	211,634	200,894	207,100	208,340
5102 Salaries, Temporary Empl.	7,695	5,805	7,650	7,650	7,650
5103 Overtime	1,162	525	1,000	1,500	1,000
5104 Vacation Pay	1,490	-	-	-	-
5109 Provision for Salary Adj.	3,870	-	10,830	4,162	13,545
5110 Auto Allowance	3,600	3,600	3,600	3,600	3,600
5230 Hospital & Medical Insurance	35,787	26,673	22,370	22,370	23,486
5231 Self-insured Medical Benefits	25	-	-	275	300
5233 Dental Insurance	1,865	1,300	1,200	857	878
5234 Group Life Insurance	866	695	712	747	855
5235 Accidental Death & Dismem.	93	75	76	72	75
5236 Disability Insurance	722	410	550	543	623
5240 Social Security Contribution	19,896	16,328	17,000	17,000	17,500
5241 Pension Contribution	19,922	12,467	16,394	13,980	16,587
5243 Worker's Compensation Ins.	8,617	9,767	420	436	507
Total Personnel Services	362,602	289,277	282,696	280,292	294,946
OPERATING EXPENSES:					
6202 Technical & Personal Services	4,287	3,343	4,500	4,250	6,000
6203 Professional Services	7,933	5,000	15,000	21,000	19,000
6204 Planning & Design Services	-	-	30,000	10,000	30,000
6253 Telephone	468	296	636	300	800
6260 Advertising	1,488	954	1,200	2,000	2,000
6261 Education & Training	400	940	1,850	1,850	1,450
6262 Dues, Memberships & Subsc.	1,304	844	1,360	1,360	1,360
6264 In Town Meetings	-	177	500	500	500
6265 Travel & Conferences	810	5,236	4,000	2,800	6,800
7302 Small Tools	-	27	100	100	100
7304 General Supplies	245	255	2,000	2,000	500
7307 Gasoline & Mileage	39	-	100	100	100
7308 Wearing Apparel and Linen	-	-	-	-	200
Total Operating Expense	16,974	17,072	61,246	46,260	68,810
CAPITAL OUTLAY:					
9504 Office Equipment	399	-	500	500	700
Total Capital Outlay	399	-	500	500	700
TOTAL PLANNING DEPARTMENT	379,975	306,350	344,442	327,052	364,456



Capital Outlay Detail

700

**COMMUNITY DEVELOPMENT DEPARTMENT – BUILDING DIVISION****Mission Statement**

To ensure adherence to life safety codes and professional construction methods in an efficient, cost-effective, and customer-friendly manner. To accomplish this mission, division personnel must partner with citizens and construction professionals to create an atmosphere of understanding and acceptance of the community's desire for quality building code compliance from the initial plan review to project completion – regardless of project type or size.

Description

The Building Division consists of eight (8) full-time employees including: a Chief Building Official, two (2) Plans Examiners, three (3) Building Inspectors, an Apartment Re-Occupancy Inspector/Code Enforcement Officer, an Administrative Services Associate, and a Part-Time Community Development Clerk. The Building Division is responsible for all aspects of building, energy conservation, property maintenance, apartment re-occupancy, nuisance and zoning code enforcement related activities.

Primary Division activities include:

- Ensuring that life safety codes and professional construction methods are adhered to during the construction process.
- Ensuring that the energy conservation code is complied with during the construction process.
- Administering and coordinating all aspects of the residential and commercial building permit submittal, plan review, permit issuance, field inspection, escrow release, and archiving processes.
- Ensuring that the Stormwater Management Ordinance is complied with when stormwater management plans are required for the construction of new homes, swimming pools and room additions.
- Ensuring that all residential and commercial buildings and properties are in compliance with the city's exterior property maintenance, nuisance, and sign codes.
- Ensuring that apartment dwelling units and apartment properties are in compliance with the city's apartment re-occupancy ordinance.
- Maintaining a quality, cooperative relationship with the three (3) governing fire districts.
- Ensuring that St. Louis County provides quality permit issuance and field inspection contractual services pertaining to all electrical, plumbing, and commercial mechanical work completed within the city.
- Providing professional staff support for the Building Code Board of Appeals.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
External Survey, Percentage of Residents Rating Overall Satisfaction with Permit Services as Very Satisfied or Satisfied	N/A	47%	88.4%	90%
Percentage of Residential Building Plans Reviewed within Five (5) Days ¹	80%	90%	95%	95%
Percentage of Commercial Building Plans Reviewed within 10 Days ²	84%	90%	95%	95%
Building Permits Issued	1617	1,426	1,400	1,400
Apartment Re-Occupancy Permits Issued	1,020	1,073	1,050	1,050



Other Permits Issued	301	314	325	325
Permits Issued per Full-Time Building Staff	243	272	270	270
Building Inspections Completed	5,738	5,996	5,700	5,700
Other Inspections Completed	832	825	800	800
Apartment Re-Occupancy Inspections Completed	1,349	1,286	1,300	1,300
Value of Residential Building Permits Issued	\$28,819,642	\$25,637,614	\$25,000,000	\$25,000,000
Value of Commercial Building Permits Issued	\$131,403,681	\$124,341,522	\$125,000,000	\$125,000,000

¹ Building Permit/Plan Review turn-a-round service level is the number of working days elapsed between the time a building permit is submitted to the time the Building Division either reviews and approves the documents as submitted or reviews and forwards comments to the design professionals for their revisions.

²Based on eight (8) full-time employees and one (1) part-time employee.

Percentage (%) of Recovered Building Code Enforcement Costs

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	5 FY AVG.	Projected FY 2023	Estimated FY 2024
Total Revenue ¹	\$741,332	\$718,894	\$761,230	\$1,144,164	\$1,475,120	\$968,148	\$1,003,810	\$757,487
Total Expenditures ²	\$971,349	\$1,040,877	\$1,094,354	\$1,050,765	\$846,366	\$1,000,742	\$865,498	\$881,006
-Loss/Gain	-\$230,017	-\$321,983	-\$333,124	\$93,399	\$628,754	-\$32,594	\$138,312	-\$123,519
% of Recovered Costs ³	76%	69%	70%	109%	174%	97%	116%	86%

¹The sum total of building permit fees, commercial certificate of occupancy fees, sign permit fees, demolition permit fees, fence permit fees and escrow deductions. It does not include any revenue collected by the Apartment Re-Occupancy Program. Dollar amounts are from fiscal year revenue statements.

²Total costs for operating the plan submittal, plan review, permit issuance, field inspection, escrow release and archiving processes that make up the building code enforcement program. It also includes any Total Non-Departmental Overhead and Total Municipal Property Overhead (approximately \$60,000). It does not include any operating costs for the Apartment Re-Occupancy Program (approximately \$105K for FY22 and \$91K for FY23). Dollar amounts are from fiscal year expenditure statements. FY21, FY22 and FY23 percentage of recovered cost experienced a sharp increase because of the record years for building permit revenues.

³The city's goal is to recover at least 80% of its building code enforcement costs each fiscal year per Ord. No. 5166 which was approved in 2011.



Service Standards

- Intake and process building permit, demolition permit, certificate of occupancy, fence permit, and excavation permit applications in accordance with department standards and timelines. Applications received are logged into the tracking system within 24 hours.
- Schedule building inspection and apartment re-occupancy requests made by a contractor or apartment manager for a specific day. Inspections that are requested by 4:00 PM are made the next business day. A specific time of day may be requested for inspections that involve concrete pours (piers, footings, and foundations) or the testing of fire alarm systems.
- Complete and initiate building plan review comments within five (5) working days for residential projects and 10 working days for small/medium size commercial projects.
- Process building permit escrows and payment within 30 days (per state statutes) of the final inspection approval and issuance of the final certificate of occupancy.
- Authorize staff overtime upon request by general contractors to assist them with meeting their construction deadlines whenever feasible.
- Update the Building Division pages on the city website with relevant building code and building permit information on a monthly basis.
- Ensure staff attend necessary professional training seminars on a consistent basis in preparation of triennial renewals of International Code Council inspection and plan review certifications.

Objectives

- Provide first-class customer service and professional assistance to all customers of the Building Division.
- Enhance permit administration (application coordination, personnel management, permit tracking, inspection scheduling) by continuing to improve the permit tracking system.
- Ensure timely service as well as professional and quality assistance during the building permit submittal, plan review, permit issuance, field inspection, and escrow release processes.
- Provide quality building code and energy conservation code enforcement by ensuring compliance with established city codes and professional construction methods while fostering a customer-friendly approach.
- Enforce the city property maintenance, apartment re-occupancy, zoning, and nuisance codes effectively and efficiently.
- Communicate effectively with customers regarding city policies and procedures on building plan review, inspections, and permit issuance procedures. Host an annual forum with contractors/foremen, architects/engineers, and building owners/property managers with this objective in mind.
- Provide building code related articles to the city's monthly newsletter that highlight the responsibilities and objectives of building division as they relate to residential construction.
- Improve our Insurance Services Office (ISO) rating (Class 1 is the highest attainable rating, Class 10 is the lowest). Every four (4) to six (6) years, the Insurance Services Office evaluates the "building code effectiveness" of every building department in the U.S. In 1998, the Building Division was rated a Class 5 (68.81). In 2019, it was given a rating of Class 3 (81.97) for residential property and a rating of Class 2 (86.48) for commercial property. The next ISO rating period will be in 2024-2025.
- Become more familiar with the 2015 International Building Code, the 2015 International Residential Code, the 2015 International Energy Conservation Code, the 2015 International Swimming Pool & Spa Code and the 2015 International Property Maintenance Code as these were the codes adopted by the city on May 1, 2020.



Budget Highlights

- Building permit fees were raised in FY 2020 to recover up to 80% of building code enforcement costs. For the past five (5) fiscal years, the Building Division has recovered approximately 97% of its building code enforcement costs. The Building Department has contracted with The Davenport Group to utilize their LAMA permitting software. With this software, the building division will improve efficiencies by accommodating online plan submittals, digital plan review, immediate inspection results, and more.
- Acct. 6265 – Increase for gasoline reimbursement due to federal mileage rate increase (\$14,000).



COMMUNITY DEVELOPMENT - BUILDING DIVISION

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	650,566	605,437	652,006	583,185	564,275
5102 Salaries, Temporary Empl.	-	16,833	-	30,191	32,032
5103 Overtime	1,318	1,050	2,000	2,000	2,000
5104 Vacation Pay	3,107	-	3,160	-	-
5105 Longevity Pay	7,584	4,224	4,224	3,800	3,168
5109 Provision for Salary Adj.	9,866	-	37,504	11,268	42,235
5230 Hospital & Medical Insurance	89,554	73,725	81,015	73,596	78,418
5231 Self-insured Medical Benefits	1,200	1,400	1,800	1,750	1,750
5233 Dental Insurance	3,887	4,178	4,250	3,508	3,540
5234 Group Life Insurance	1,857	1,851	2,425	2,059	2,332
5235 Accidental Death & Dismem.	199	199	235	200	204
5236 Disability Insurance	1,741	1,201	1,901	1,569	1,701
5240 Social Security Contribution	50,343	46,989	52,437	48,000	49,000
5241 Pension Contribution	208,035	61,911	79,202	66,694	56,853
5243 Worker's Compensation	17,395	19,717	27,079	28,115	32,658
Total Personnel Services	1,046,651	838,715	949,238	855,935	870,166
OPERATING EXPENSES:					
6203 Professional Services	9,192	1,125	-	-	-
6213 Office Equipment Maint.	-	-	2,000	2,000	2,000
6215 Weed Cutting and Tree Removal	7,790	6,013	6,000	7,600	6,000
6253 Telephone	7,148	6,213	6,720	5,500	7,675
6261 Education & Training	2,243	2,467	2,100	2,100	2,540
6262 Dues, Memberships & Subsc.	1,025	710	1,463	1,463	1,325
6264 In Town Meetings	288	133	400	400	400
6265 Travel & Conferences	-	1,879	6,500	2,500	5,900
7302 Small Tools	551	523	800	800	800
7304 General Supplies	9,232	6,968	9,250	4,500	7,000
7307 Gasoline & Mileage	11,860	11,106	13,000	12,000	12,500
7308 Wearing Apparel & Linen	785	1,181	1,350	1,350	1,350
Total Operating Expense	50,113	38,318	49,583	40,213	47,490
CAPITAL OUTLAY:					
9504 Office Equipment	-	333	350	350	350
Total Capital Outlay	-	333	350	350	350
TOTAL BUILDING DEPARTMENT	1,096,765	877,366	999,171	896,498	918,006



COMMUNITY DEVELOPMENT-BUILDING DIVISION
CAPITAL OUTLAY DETAIL

Capital Outlay Detail	Annual
9504 Office Equipment	
Chair	350
TOTAL ACCOUNT 9504	350
TOTAL CAPITAL OUTLAY	350



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Capital Budget Policies

1. The City will develop a Capital Improvement Program (CIP), which shall provide the City's five-year plan for capital improvements, and all capital improvement shall be made in accordance with this plan. The CIP shall be updated on an annual basis, but the City Council may determine that circumstances warrant revisions to the CIP more frequently than the annual update.
2. The City will maintain its physical assets at a level adequate to protect the City's capital investments and to minimize future maintenance and replacement costs. The budget will provide for the maintenance and orderly replacement of the City's infrastructure and equipment from current revenues to the extent possible.
3. The City will pursue grant funding and will utilize cooperative agreements to extend the effectiveness of the capital improvement budget.
4. The City will use the following criteria to evaluate the relative merit of each capital project. Capital investments will foster goals of:
 - *Availability of Outside Funding*: projects that are eligible for and are likely to be considered for grant funding or shared-cost programs.
 - *Beautification*: aesthetic improvements to natural habitats or frequently traveled or visited areas within the City for public enjoyment such as the use of public art on public lands.
 - *Citizen Demand*: projects that have received a level of demonstrated citizen support or demand, including support of City departments, boards, committees, and commissions.
 - *Condition of Existing Facility*: improvements that replace or maintain the City's infrastructure, facilities, or equipment so that it remains in a serviceable, safe, and efficient condition.
 - *Coordination (projects, regulations, City-adopted plans)*: projects that fit within planned coordination between multiple projects or agencies to reduce costs or minimize disruption to services, meet state or federal law requirements, or identified in other City-adopted plans.
 - *Economic Growth*: projects focused on maintaining housing values and attracting businesses, residents, or visitors to the City. Projects supporting private development must include return on investment ratios or a fully documented cost/benefit analysis.
 - *Operating Efficiency*: equipment or facilities improvements to streamline work processes or benefit from technological advancements; projects which reduce the cost of operations will receive priority. Projects which increase the cost of operations shall have identified trade-offs to support those additional costs.
 - *Protection & Conservation*: improvements to the City's park system or historical landmarks that allow these facilities to be enjoyed by future generations or projects that reduce the City's environmental impact.
 - *Public Safety*: improvements that focus on preserving and protecting the general public from harm and reducing the City's risk exposure.



5. Capital improvements using revenue generated from the parks and stormwater sales tax shall be managed through the CIP with the following approximate allocation over the five-year CIP:

Park improvements	50% - 65%
Stormwater improvements	35% - 50%
Project management	7%

This allocation will be reviewed annually along with the CIP and the relative needs of the City's parks and stormwater infrastructure.



CAPITAL IMPROVEMENT FUND
STATEMENT OF ESTIMATED REVENUES AND EXPENDITURES
FOR FISCAL YEAR ENDING JUNE 30, 2024
IN COMPARISON WITH BUDGETED AND PROJECTED TOTALS FOR FY 2023
AND ACTUAL TOTALS FOR FY 2021 & FY 2022

	Actual FY 2021	Actual FY 2022	Budget FY 2023	Projected FY 2023	Estimated FY 2024	% Change to Projected FY 2023
Revenues:						
Intergovernmental Revenue	2,148,815	2,694,347	3,654,954	3,820,256	5,556,260	45.44%
Other Revenues	50,104	228,793	12,150	51,813	18,997	-63.34%
Total Operating Revenues	2,198,920	2,923,140	3,667,104	3,872,069	5,575,257	52.03%
Other Financing Sources:						
Transfers From General Fund	400,000	400,000	800,000	2,298,325	2,070,535	-9.91%
Bond Proceeds	-	-	-	-	-	0.00%
Total Other Financing Sources	400,000	400,000	800,000	2,298,325	2,070,535	
Total Operating Revenues and Other Financing Sources	2,598,920	3,323,140	4,467,104	6,170,394	7,645,792	23.91%
Expenditures:						
Personnel	92,183	93,634	141,831	138,542	153,104	0.00%
Building & Improvements	2,862	99,705	482,522	63,970	492,500	669.89%
Park Development Projects	254,338	123,483	330,833	589,629	2,723,000	361.82%
Storm water Projects	287,721	-	-	-	-	0.00%
Street Overlay/Repair	2,008,793	2,171,189	3,811,171	5,417,441	4,496,500	-17.00%
Capital Equipment	18,433	267,982	839,255	816,182	674,000	-17.42%
Total Expenditures	2,664,328	2,755,993	5,605,611	7,025,764	8,539,104	21.54%
Other Financing Uses:						
Transfer Out to General Fund	-	-	-	-	-	
Total Other Financing Uses	-	-	-	-	-	
REVENUES AND OTHER FINANCING USES OVER (UNDER) EXPENDITURES						
	(65,409)	567,147	(1,138,507)	(855,370)	(893,312)	
FUND BALANCE - BEGINNING OF YEAR	2,118,358	2,052,950	1,191,479	2,620,097	1,764,727	
FUND BALANCE - END OF YEAR	2,052,950	2,620,097	52,972	1,764,727	871,415	

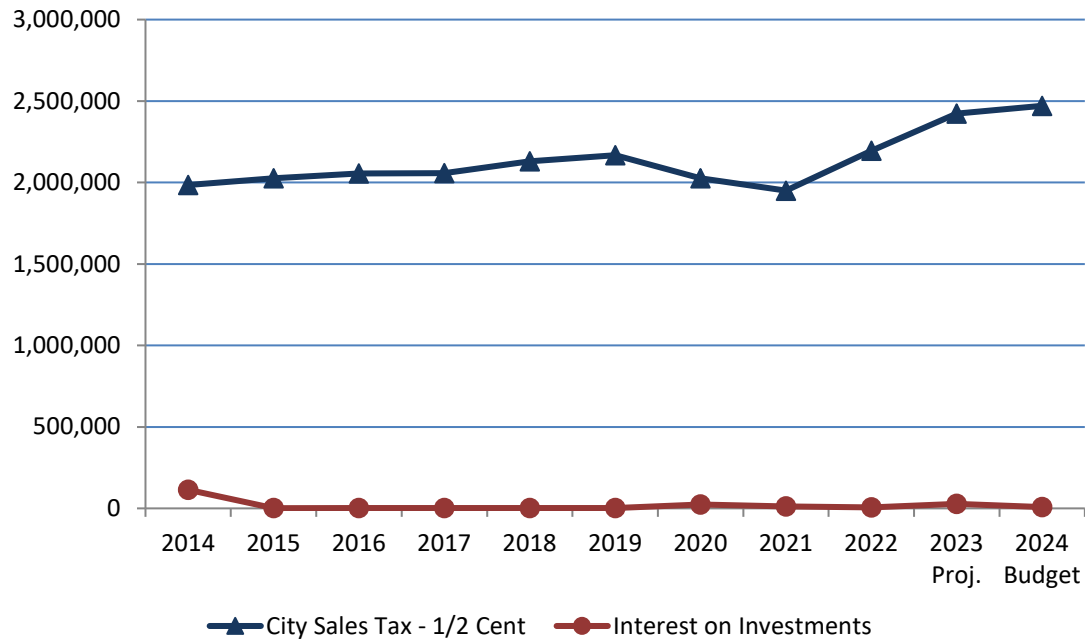


CAPITAL IMPROVEMENTS FUND
COMPARISON OF FISCAL YEAR 2024 ESTIMATED REVENUE WITH 2023 BUDGETED AND PROJECTED
AND ACTUAL REVENUES FOR FISCAL YEARS 2021 AND 2022

	Actual Revenues FY 2021	Actual Revenues FY 2022	Budgeted Revenues FY 2023	Projected Revenues FY 2023	Estimated Revenues FY 2024
INTERGOVERNMENTAL REVENUE:					
4301 City Sales Tax - 1/2 Cent	1,950,326	2,195,653	2,206,608	2,422,402	2,470,850
4737 Other Agency Funding	198,490	498,694	1,448,346	1,397,854	3,085,410
Total Intergovernmental Revenue	2,148,815	2,694,347	3,654,954	3,820,256	5,556,260
OTHER REVENUES:					
4703 Gain (loss) on investments	(9,420)	-	-	-	-
4704 Interest on Investments	11,712	6,166	2,150	28,468	8,997
4730 Reimbursements	-	177,803	-	6,345	-
4729 Misc. revenues	31,712	41,724	-	-	-
4771 Proceeds-Sales of Fixed Asset	16,100	3,100	10,000	17,000	10,000
Total Other Revenues	50,104	228,793	12,150	51,813	18,997
Total Current Year's Revenue	2,198,920	2,923,140	3,667,104	3,872,069	5,575,257
4901 Transfers From Other Funds	400,000	400,000	800,000	2,298,325	2,070,535
Total Intergovernmental Funding	400,000	400,000	800,000	2,298,325	2,070,535
TOTAL REVENUES	2,598,920	3,323,140	4,467,104	6,170,394	7,645,792



Sales Tax, Interest on Investments



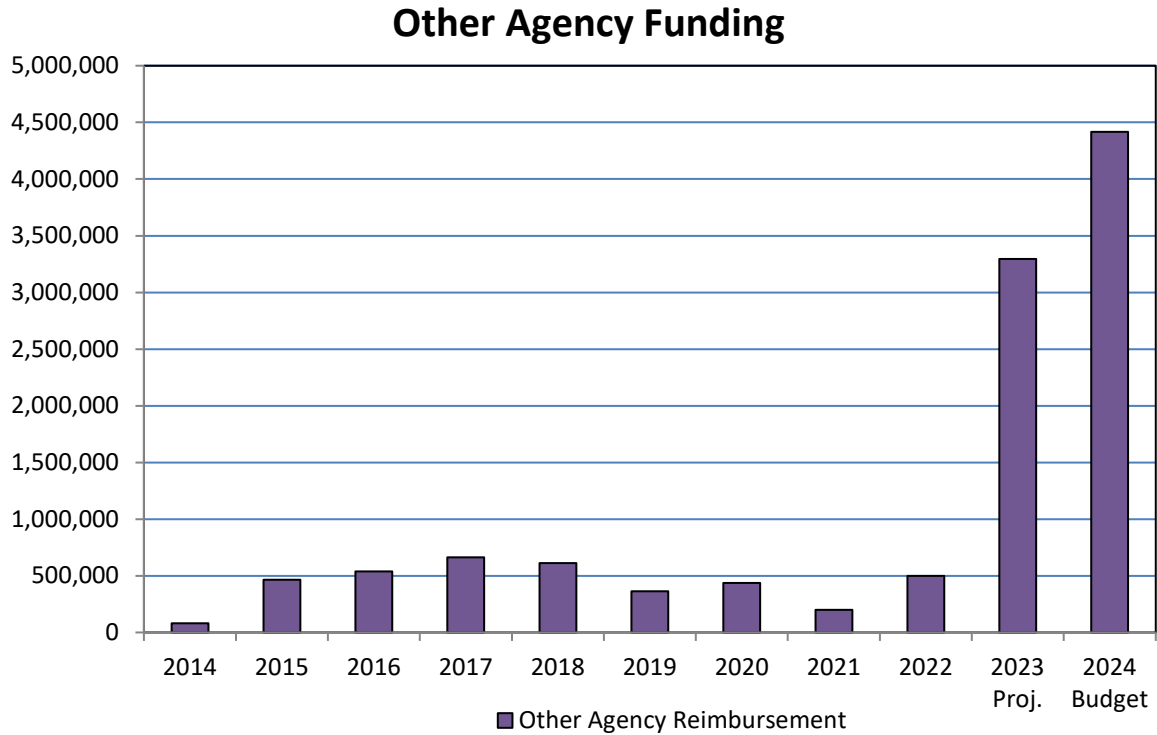
City Sales Tax - 1/2 Cent

In accordance with City Ordinances a Capital Improvement Sales Tax referendum was presented to and approved by City voters on November 4, 1997. The Capital Improvement Sales Tax is used to support infrastructure investments within the City of Creve Coeur. The FY 2023 budget reflects a 10% increase over FY 2022 due to COVID-19 coming to an end. FY 2024 budget reflects a 2% increase over FY 2023.

Interest on Investments

In accordance with Administrative policy, interest is earned on excess funds available for investment into treasuries and/or federal agencies. The FY 2023 revenue is estimated at \$28,468. FY 2024 revenue is estimated to decrease to \$8,997, as a result of a decrease in fund balance (rates will level off from FY 2023).

Fiscal Year	City Sales Tax - 1/2 Cent	Interest on Investments
2014	1,984,134	113,984
2015	2,026,656	1,253
2016	2,056,301	1,493
2017	2,057,326	2,115
2018	2,130,456	2,795
2019	2,167,326	1,704
2020	2,025,908	23,977
2021	1,950,326	11,712
2022	2,195,653	6,166
2023 Proj.	2,422,402	28,468
2024 Budget	2,470,850	8,997

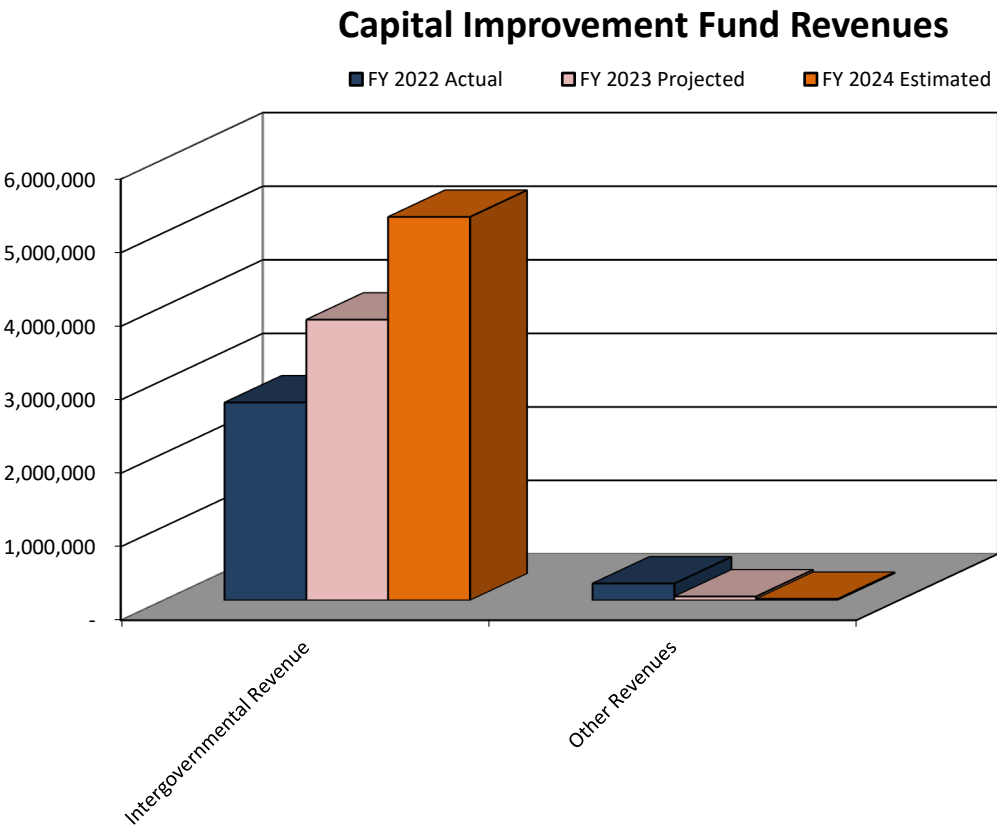


Other Agency Reimbursement

As per Administrative policy, the City shares with other agencies or third parties the costs associated with completion of projects. FY 2024 revenue is estimated at \$4,415,945 and involves the following projects and other participating agencies:

New Ballas Improvements Phase I	\$816,000
Craig Road Improvements	\$80,000
ADA Improvements	\$20,000
Lindbergh-Old Olive Intersection Improvements	\$1,809,410
Olive Median Enhancement Stock	\$20,000
Olive Blvd TDD Closeout Excess Funds	\$340,000
ARPA Funds	<u>\$1,670,535</u>
	<u>\$4,755,945</u>

Fiscal Year	Other Agency Reimbursement
2014	81,361
2015	465,735
2016	537,672
2017	662,851
2018	611,433
2019	363,426
2020	437,297
2021	198,490
2022	498,694
2023 Proj.	3,296,179
2024 Budget	4,755,945



FY 2022 Actual, FY 2023 Projected & FY 2024 Estimated

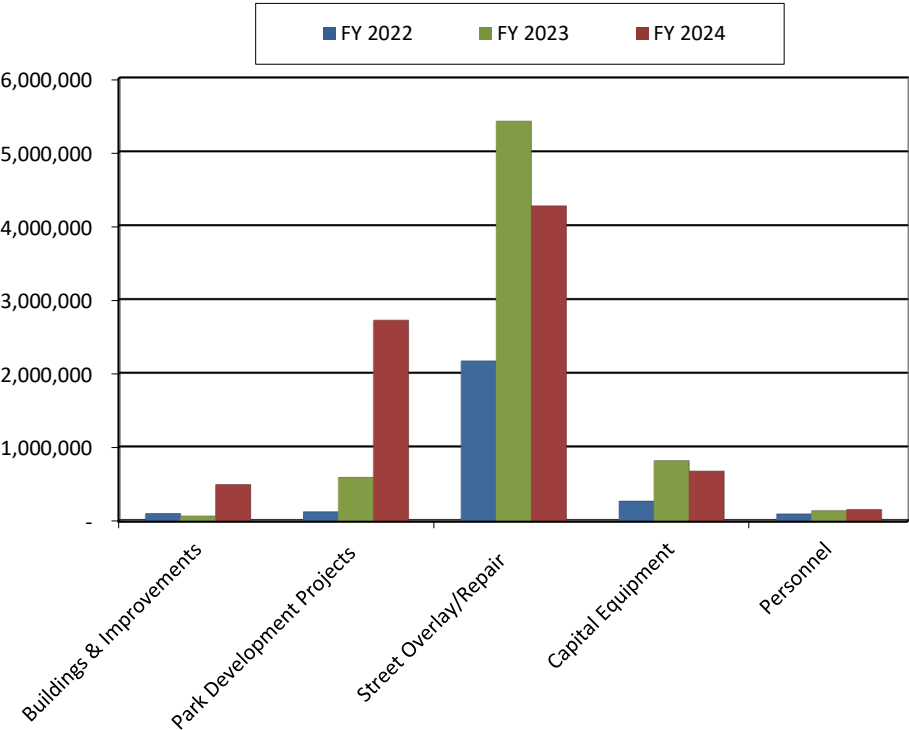
	FY 2022 Actual	FY 2023 Projected	FY 2024 Estimated
Intergovernmental Revenue	2,694,347	3,820,256	5,556,260
Other Revenues	228,793	51,813	18,997
Total Revenue Sources	<u>\$ 2,923,140</u>	<u>\$ 3,872,069</u>	<u>\$ 5,575,257</u>



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Capital Improvement Fund Expenditures



FY 2022 Actual, FY 2023 Projected & FY 2024 Estimated

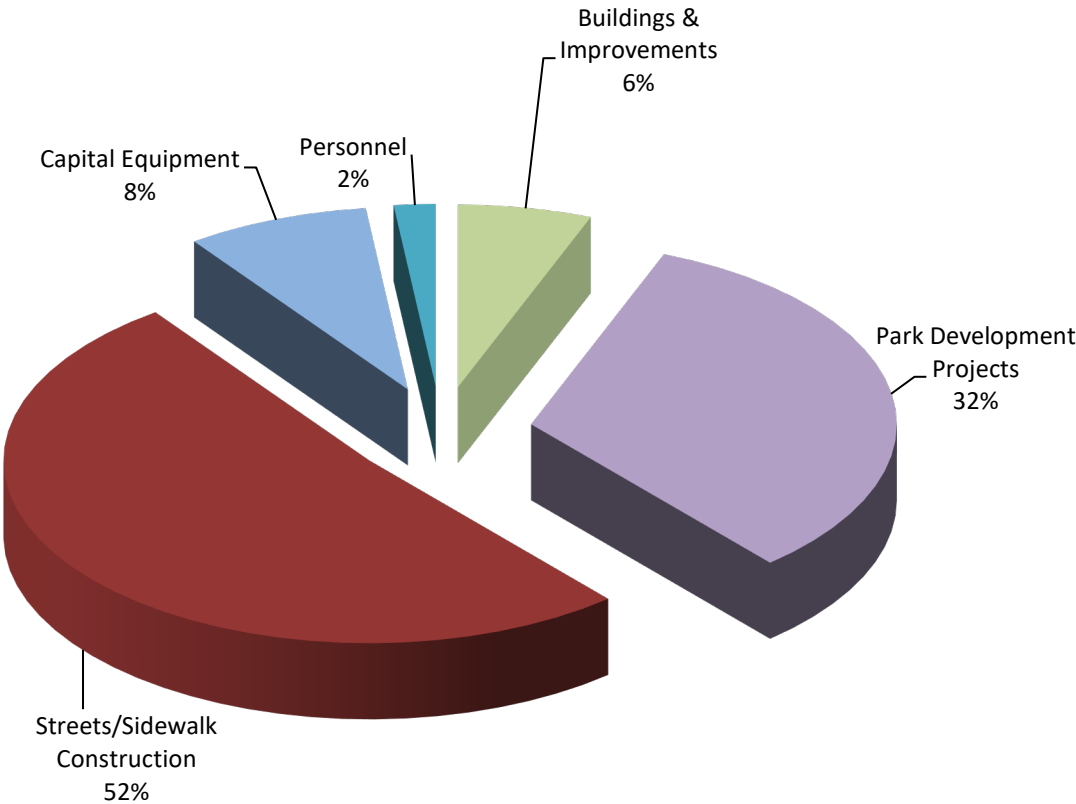
	FY 2022 Actual	FY 2023 Projected	FY 2024 Estimated
Buildings & Improvements	99,705	63,970	492,500
Park Development Projects	123,483	589,629	2,723,000
Street Overlay/Repair	2,171,189	5,417,441	4,496,500
Capital Equipment	267,982	816,182	674,000
Personnel	93,634	138,542	153,104
Total Expenditures	\$ 2,755,995	\$ 7,025,764	\$ 8,539,104



CAPITAL IMPROVEMENT FUND
SUMMARY OF APPROPRIATIONS FOR FISCAL YEAR 2024

Category	Capital Expenditures
Buildings & Improvements	492,500
Park Development Projects	2,723,000
Streets/Sidewalk Construction	4,496,500
Capital Equipment	674,000
Personnel	153,104
Total	8,539,104

Summary of Expenditures





**CAPITAL IMPROVEMENTS FUND
SUMMARY OF CAPITAL OUTLAYS BY ACTIVITY**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024	% of Total CIP
CAPITAL OUTLAY:						
5101 Salaries, Permanent Empl.	68,573	69,953	100,143	109,075	115,010	1.35%
5103 Overtime	-	-	100	100	100	0.00%
5109 Provision for Salary Adj.	1,027	-	8,751	2,301	7,905	0.09%
5230 Hospital & Medical Insurance	5,976	6,264	10,025	6,683	7,017	0.08%
5231 Self-insured Medical Benefits	550	600	600	650	900	0.01%
5233 Dental Insurance	267	250	359	359	238	0.00%
5234 Group Life Insurance	230	235	372	393	473	0.01%
5235 Accidental Death & Dismem.	25	25	40	49	55	0.00%
5236 Disability Insurance	192	196	313	217	326	0.00%
5240 Social Security Contribution	5,283	5,312	7,562	7,562	8,371	0.10%
5241 Pension Contribution	5,322	5,430	8,525	5,919	6,629	0.08%
5243 Worker's Compensation	4,738	5,370	5,041	5,234	6,080	0.07%
9501 Government Facilities	2,862	99,705	482,522	63,970	492,500	5.77%
9506 Parks and Recreational Facilities	254,338	123,483	330,833	589,629	2,723,000	31.89%
9509 Stormwater Projects	287,721	-	-	-	-	0.00%
9510 Streets and Sidewalks	2,008,793	2,171,189	3,811,171	5,417,441	4,496,500	52.66%
9516 Capital Equipment	18,433	267,982	839,255	816,182	674,000	7.89%
TOTAL CAPITAL OUTLAYS	2,664,330	2,755,995	5,605,612	7,025,764	8,539,104	100%



**CAPITAL IMPROVEMENTS FUND
ESTIMATED FY 2024 CAPITAL OUTLAY PROJECTS**

9501 Buildings & Improvements

Demo 1030 N. Lindbergh Blvd Building	40,000
EV Charging Stations at Police Station & Government Center (Grant Match)	112,500
Government Center Renovations	30,000
Salt Dome Roof Repairs	60,000
Government Center Roof Repairs	250,000
Total Account 9501	492,500

9506 Park Development Projects

Temporary Portable Ice Rink Refrigerant System	120,000
Accessibility Improvements (CDBG)	20,000
Dielmann Recreation Complex Roof Drainage	93,000
Ice Arena Flooring Replacement	200,000
Ice Arena Refrigerant Switchover (ARPA)	2,200,000
Golf Course Perimeter Fencing Replacement	40,000
Dielmann Structural Repairs	20,000
Golf Course Maintenance Building Replacement	30,000
Total Account 9506	2,723,000

9510 Street & Sidewalk Improvements

Streets & Sidewalks Maintenance Program	1,421,000
Streets Reconstruction/Rehabilitation	300,000
New Ballas Median Plantings	50,000
Olive-270 Overpass Painting	80,000
First Bank Utility Burial	225,000
Olive Median Enhancement Stock	20,000
Fernview Sidewalk (Grant Match)	50,000
Fernview Sidewalk Phase 2 (Grant Match)	25,000
N New Ballas Road Improvements - Phase 2 (STP Grant)	150,000
Lindbergh-Old Olive Intersection (State Cost-Share; STP Grant Match)	2,045,500
Olive-Lindbergh Interchange Enhancements	30,000
Craig Road Improvements (STP Grant)	100,000
Total Account 9510	4,496,500

9516 Capital Equipment

2 Ton Chipper	140,000
Bucket Truck	165,000
Golf Course Capital Equipment	55,000
Leaf Vacuum	99,800
2 Ton Dump Truck	137,600
1 Ton Dump Truck	76,600
Total Account 9516	674,000

Administration

Project Manager	153,104
Total Account 9516	153,104

TOTAL CAPITAL IMPROVEMENTS FUND**\$ 8,539,104**

C

CAPITAL IMPROVEMENT PROGRAM

FISCAL YEARS 2024–2028



CAPITAL FUND

PARKS AND STORMWATER FUND

BUILDING PROJECT BOND FUND

Adopted by the City Council of the City of Creve Coeur through Resolution XXX on April 10, 2023.



EXECUTIVE SUMMARY

The Capital Improvement Program (CIP) is the City's long-range plan for improvements to infrastructure, parks, and other community facilities. The CIP is a tool to assess the long-term capital needs, values, and desires of the City and to establish funding of high-priority projects in a timely and cost-effective manner. This plan is a living document and is subject to amendment by the City Council.

The CIP is intended to ensure that policy makers are responsible to the Creve Coeur community with respect to the expenditure of City funds for capital improvements.

CIP Goals

The following are goals of the CIP:

- Provide a plan for the improvement or replacement of deteriorating infrastructure
- Improve operational or functional aspects of existing infrastructure
- Add new facilities and improve the community's infrastructure to enhance the quality of life in Creve Coeur
- Provide for the planned replacement of major equipment required for the City's operations

CIP Criteria

To be considered a capital improvement, projects or equipment must have a useful life of at least five years and have a minimum cost of \$20,000.

A special set of criteria has been identified to assist in assessing and prioritizing CIP projects. Proposed projects reflect the goals of the Comprehensive Plan through their demonstration of these criteria:

- *Availability of Outside Funding*: higher priority is given to projects that are eligible for and are likely to be considered for grant funding or shared-cost programs, which would reduce the City's investment.
- *Beautification*: aesthetic improvements to natural habitats or frequently traveled or visited areas within the City for public enjoyment, such as the use of public art on public lands
- *Community Demand*: projects that have received a level of demonstrated resident support or demand, including support of City departments, boards, committees, and commissions.
- *Condition of Existing Facility*: improvements that replace or maintain the City's infrastructure, facilities, or equipment so that it remains in a serviceable, safe, and efficient condition.
- *Coordination (projects, regulations, City-adopted plans)*: projects that fit within planned coordination between multiple projects or agencies to reduce costs or minimize disruption to services, meet state or federal law requirements, or projects that are identified in other City-adopted plans.
- *Economic Growth*: projects focused on maintaining housing values and attracting businesses, residents, or visitors to the City. Projects supporting private development must include return on investment ratios or a fully documented cost/benefit analysis.
- *Operating Efficiency*: equipment or facilities improvements to streamline work processes or benefit from technological advancements. Projects that reduce the cost of operations will receive priority, but those that will increase the cost of operations must identify trade-offs to support those additional costs.



- **Protection & Conservation:** improvements to the City's park system or historical landmarks that allow these facilities to be enjoyed by future generations or projects that reduce the City's environmental impact.
- **Public Safety:** improvements that focus on preserving and protecting the general public from harm and reducing the City's risk exposure.

Relationship between the CIP and the Creve Coeur 2030 Comprehensive Plan

According to the Creve Coeur 2030 Comprehensive Plan:

Within the Creve Coeur 2030 Comprehensive Plan Update, many projects are identified or implied, as specific projects or as conceptual ideas. These projects and others, resulting from recommendations of the Comprehensive Plan, should be developed and incorporated in the City's annual CIP review process. Further detail and refinement of identified and conceptual projects, facilities, or infrastructure improvement needs will be required as the implementation of the Comprehensive Plan occurs.

Development and Adoption of the CIP

According to the City Charter, a draft of the five-year CIP shall be proposed by the City Administrator to the City Council no later than the second regular meeting in February of each year. Prior to the submittal of the draft CIP to the City Council, public input is obtained through the City newsletter, website, and the City's boards, committees, and commissions.

Before the City Council's adoption of the CIP, and as required by City Charter, the CIP is submitted to the Finance Committee for recommendations and comments. The Planning & Zoning Commission also reviews the plan emphasizing the location, extent, and character of the proposed projects before City Council review, approval, and adoption. A public hearing is held each spring (typically in April) by the City Council prior to adoption.

The CIP includes a description of each proposed project and equipment with details regarding justification, cost estimate, operating and maintenance budget impact, and funding sources.

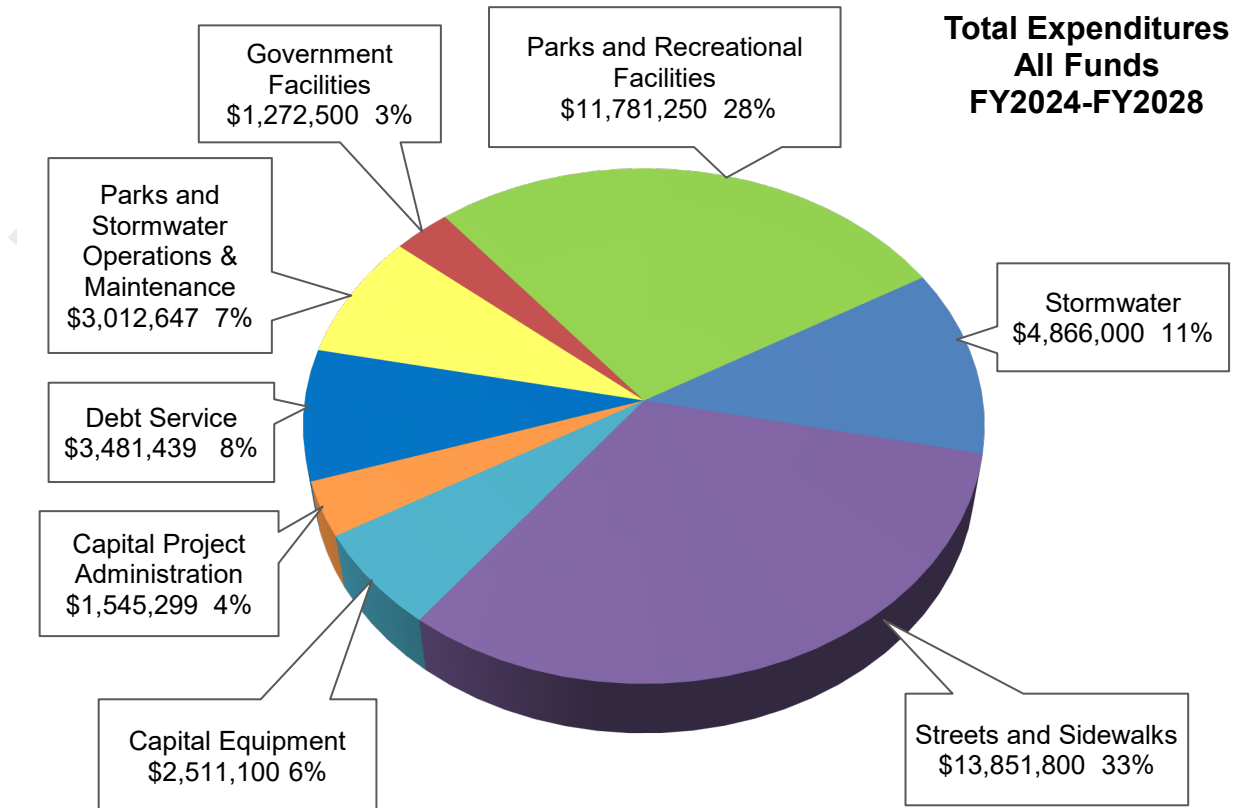
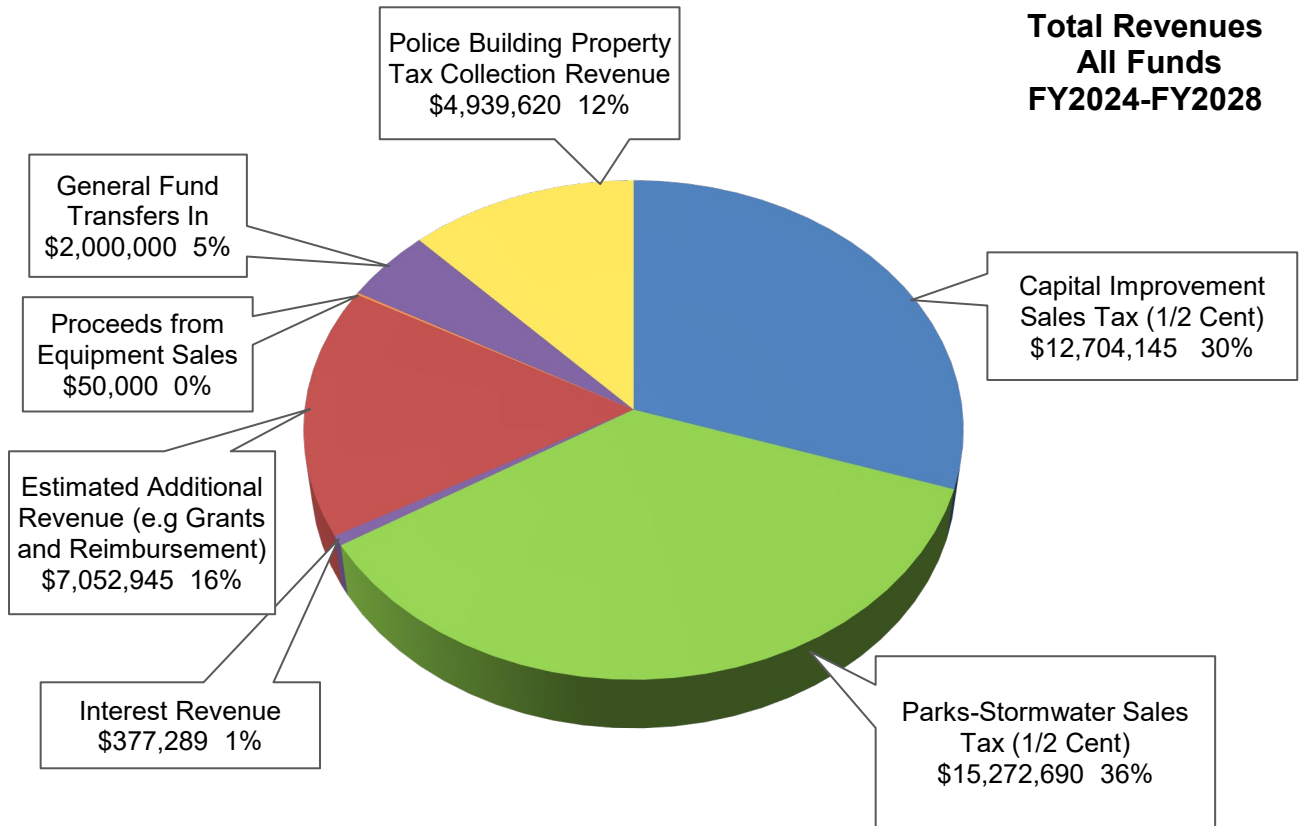


Funds in the CIP

There will be three funds that contribute to the FY2024-FY2028 CIP. These funds are:

1. Capital Fund. This fund is financed by a half-cent capital improvement sales tax, which is supplemented by annual transfers from the General Fund and project-specific grants.
 - Total Capital Fund revenues: \$20.8 million
 - Total Capital Fund expenses: \$21.8 million
2. Parks and Stormwater Fund. In November 2020, voters in Creve Coeur approved a half-cent sales tax that is dedicated to finance operations, maintenance, and capital improvements for the City's parks and stormwater infrastructure. This fund will be supplemented by grants and other outside funding related to parks and stormwater.
 - Total Parks-Stormwater Fund revenues: \$16.5 million
 - Total Parks-Stormwater Fund expenses: \$17.0 million
3. Building Project Bond Fund. In November 2016, voters in Creve Coeur approved a bond measure to build a new police station and to make security and accessibility improvements to the Creve Coeur Government Center. The police station was completed in 2020, so the majority of this fund's project-related expenses is complete. Most of the activity in the FY2024-FY2028 CIP is related to the fund's debt service.
 - Total Building Project Bond Fund revenues: \$5.2 million
 - Total Building Project Bond Fund expenses: \$3.6 million

Combined, these three funds have a projected revenue of \$42.40 million and projected expenses of \$42.32 million for the FY2024-FY2028 CIP. The charts below break down these revenues and expenses into the general categories that are found in the CIP.





More detail is provided for each of the three funds in the sections that follow. Each fund is briefly described, and the revenues and expenses for each fund are summarized for the duration of the FY2024-FY2028 CIP. Project-specific summaries and financial projections are included for each line item that appears in the five-year CIP. Projects that are expected to be completed in FY2023 are not included in this report.

Appendix

This report is one of several documents that forms the CIP. Appendices to this report include:

- Appendix A: FY2024-FY2028 CIP Spreadsheets
- Appendix B: FY2019-FY2028 CIP 10-Year Summary
- Appendix C: Community Comments and Requests

The latest version of these documents can be found on the City's website at:

<http://www.creve-coeur.org/95/Capital-Improvement-Program>

Questions and Comments

If you have any questions or comments about the CIP, please contact Mark Perkins, City Administrator, at mperkins@crevecoeurmo.gov or (314) 872-2511.



CAPITAL FUND

The City's Capital Fund has served as the primary mechanism for funding capital projects in the CIP for many years. The Capital Fund finances investments into the City's government facilities, parks and recreational facilities, stormwater infrastructure, streets and sidewalks, capital equipment, and project administration.

Capital Fund Revenues

The City's Capital Fund has three main funding sources: a half-cent capital improvement sales tax, grants and other outside funding, and transfers from the General Fund. Together, these funding sources are projected to generate \$20.77 million over the FY2024-FY2028 CIP.

Half-Cent Capital Improvement Sales Tax. Projected sales tax revenues are approximately \$12.70 million for the FY2024-FY2028 CIP, which averages out to approximately \$2.54 million per year in the plan.

Sales tax revenue projections have improved significantly since the uncertainty and economic downturn associated with the COVID-19 pandemic forced the City to reduce its revenue estimates. Sales tax revenues for FY2023 are projected to increase by ten (10) percent. The FY2024-FY2028 CIP include an estimated 2% increase in FY2024 & FY2025 and a 1% increase in projected sales tax each year going forward from FY2026, which will return sales tax revenues to the FY2020 level by FY2025.

Grants and Outside Funding. Federal grants for roadway projects and accessibility improvements will provide approximately \$5.98 million over the FY2024-FY2028 CIP.

Staff will seek additional grant funding during for this period, but applications for that funding are either in the evaluation process or not yet available. For projects that anticipate grant funding that has not yet been awarded, the City's matching funds are shown as the project costs in the fiscal years when the phases of the project are planned to occur. The full cost of the project and the associated grant funding will be programmed into the CIP upon notification of award of the grant.

Transfers from the General Fund. The total transfer from the General Fund to the Capital Fund over the proposed FY2024-FY2028 CIP is \$2.00 million.

A transfer from the General Fund to the Capital Fund is proposed for each fiscal year in the proposed CIP. The General Fund transfers to the Capital Fund of \$400,000 will be made in most years and are appropriately based on the transportation-oriented revenue sources of the General Fund which include the county road and bridge tax revenues

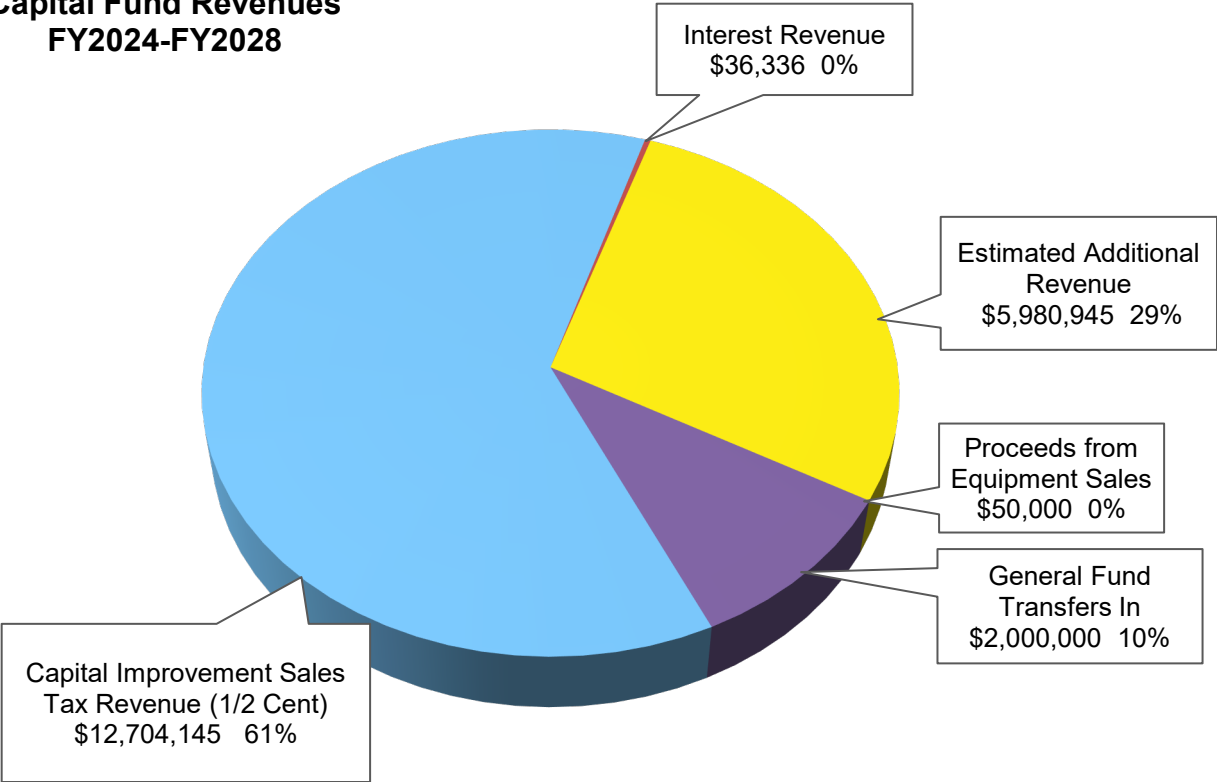
The City has set aside \$2.0 million in the General Fund, directed towards future Government Center.

Capital Fund Expenses

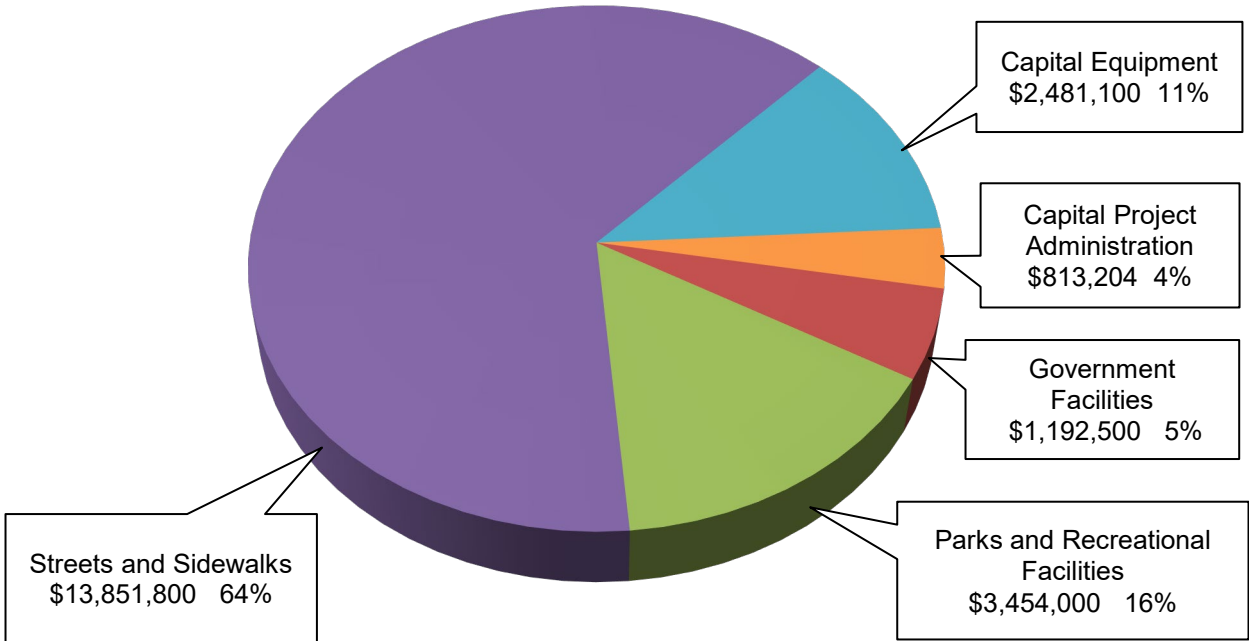
Capital expenditures from the Capital Fund are projected to be approximately \$21.79 million over the proposed FY2024-FY2028 CIP, with a maximum annual expense of \$8.31 million in FY2024. Details about these expenses can be found in the project summary sheets that follow.



**Capital Fund Revenues
FY2024-FY2028**



**Capital Fund Expenditures
FY2024-FY2028**





9501 GOVERNMENT FACILITIES – 02

CAPITAL FUND

GOVERNMENT CENTER RENOVATIONS

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$98,128	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$0

Project Description:

Proposed projects in FY2024 will focus on needed repairs and renovations that will make the Government Center more inviting to residence and staff. Project will likely include improvements to the Multipurpose Room (such as new flooring); painting offices and common areas; and updating lighting to be more energy efficient with the help of an Ameren grant.

Existing Conditions:

The Creve Coeur Government Center has inadequate space for staff, meetings, archives, and storage. Renovations are also needed to make the Government Center more accommodating, helpful, and useful for both residents and staff. For example, the former Police Department and other areas of the Government Center will require extensive renovations before departments can be moved to more accessible locations.

Justification: *Operating Efficiency; Condition of Existing Facility*

The proposed projects for FY2024 will include lighting efficiencies that will help to lower energy cost and provide a well lit environment for various meetings and work areas.

Operating Budget Impact:

The proposed renovations will improve energy efficiency and replace aging systems that need frequent and costly maintenance.

Comments:

The City has set aside \$2.0 million in the General Fund, directed towards future Government Center facility needs.



9501 GOVERNMENT FACILITIES – 02

GOVERNMENT CENTER RENOVATIONS**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 98,128
Land Acquisition	\$ 0
Construction	\$ 150,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 248,128

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 248,128
Total Funding	\$
City's Contribution	\$ 248,128



9501 GOVERNMENT FACILITIES - 04

CAPITAL FUND

SALT DOME ROOF REPAIRS (INSURANCE CLAIM)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$60,000	\$0	\$0	\$0	\$0	\$0

Project Description:

The Salt Domes are located at the Public Works Facility. The shingle roofing material and metal roof vents were damaged by a hailstorm and need to be replaced. Without replacement, the roof may not be able to provide adequate protection to the City's road-salt supply.

Existing Conditions:

The existing Salt Dome roofing and metal vents are damaged. Many of the asphalt shingles are missing or damaged, and the metal vents are dented.

Justification: *Operating Efficiency; Condition of Existing Facility*

Safely storing the City's road-salt is important in ensuring the Public Works staff has the materials they need to quickly clear roads of ice and snow.

Operating Budget Impact:

Insurance will likely cover the cost of replacing the metal vents, but it is unclear if insurance will pay for the replacement of the shingle roofing.

Comments:

None



9501 GOVERNMENT FACILITIES – 04

SALT DOME ROOF REPAIRS (INSURANCE CLAIM)**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 60,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 60,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ TBD
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 60,000
Total Funding	\$ (TBD)
City's Contribution	\$ 60,000



9501 GOVERNMENT FACILITIES - 06

CAPITAL FUND

GOVERNMENT CENTER ROOF REPAIRS (INSURANCE CLAIM)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$5,653	\$250,000	\$0	\$0	\$0	\$0	\$0

Project Description:

At the Government Center, the existing shingle roofing material and metal roof vents were damaged by a hailstorm and the building is experiencing several roof leaks. This project proposes placement of a single-ply roofing membrane (Thermoplastic Polyolefin). The placement of the single-ply roofing membrane will help mitigate water leaks and structural effects to the building until a more permanent solution is determined for the Government Center.

Existing Conditions:

The existing Government Center has a shingled roof that was initially installed in the 1990s and was subsequently layered over by a three (3) ply roof installed in 2008. In 2021, the roof was damage from a hailstorm, which resulted water infiltration at multiple locations throughout the building.

Justification: *Operating Efficiency; Condition of Existing Facility*

The proposed projects for FY2024 are necessary to keep the leaking roof from potentially creating new damage that could be costly to repair.

Operating Budget Impact:

Insurance will likely cover the cost of installing the single-ply roofing membrane.

Comments:

None



9501 GOVERNMENT FACILITIES – 06

GOVERNMENT CENTER ROOF REPAIRS (INSURANCE CLAIM)**CAPITAL FUND****CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 255,653
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 255,653

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ TBD
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 255,653
Total Funding	\$ (TBD)
City's Contribution	\$ 255,653



9501 GOVERNMENT FACILITIES - 07

CAPITAL FUND

DEMO OF 1030 NORTH LINDBERGH BLVD BUILDING

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$40,000	\$0	\$0	\$0	\$0	\$0

Project Description:

The City owns the site at 1030 North Lindbergh Boulevard. The site has a house near the roadway on the western side of the lot, and the eastern side of the site is used to store leaf piles, wood from chippers, and Public Works equipment. The house is currently not used by City staff. This project would demo the home and replace it with visually-appealing, low-maintenance vegetation; a gate; and fencing. Modifications will be made to the water and electric service. Future construction projects will possibly include a butler building to house construction equipment to better protect these capital investments from weather and public risk.

Existing Conditions:

The home requires repairs, and the heater needs to be replaced. The home is aging, and additional repairs beyond what is now known will likely be needed in the near future.

Justification: *Operating Efficiency; Condition of Existing Facility; Beautification*

Rather than pay the cost to maintain a structure that is not in use, City staff recommends deconstructing the home. After the structure is removed, trees and bushes will be planted, and the vegetation will shield drivers from viewing the leaf piles and equipment. A fence will be installed to keep the area safe.

Operating Budget Impact:

Removing the existing, aging structure will save the City from future maintenance and repair costs.

Comments:

None



9501 GOVERNMENT FACILITIES – 07

DEMO OF 1030 NORTH LINDBERGH BLVD BUILDING**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 40,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 40,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 40,000
Total Funding	\$
City's Contribution	\$ 40,000



9501 GOVERNMENT FACILITIES - 09

CAPITAL FUND

**EV CHARGING STATIONS AT THE POLICE DEPARTMENT
AND GOVERNMENT CENTER**

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$112,500	\$0	\$0	\$0	\$0	\$0

Project Description:

The automotive market is rapidly moving towards electric vehicles (EVs). An August 8, 2022 article in *Car and Driver* states that EV registration increased by 60 percent in the first quarter of 2022 while overall new car registration dropped by 18 percent. IHS Markit estimates that by 2035, 45 to 50 percent of all passenger car sales will be EVs. Similarly, Police Departments are increasingly seeking to add EVs to fleets. Installing EV charging stations at the Police Department and Government Center would be the City's first step towards accommodating residents' changing vehicle preferences and adapting to market trends. The charging ports at the Government Center would be available for residents to use (for a fee) and, in the future, used to charge Public Works fleet EVs. The stations at the Police Department would allow the Police force to take advantage of fast accelerating vehicles that will also reduce fuel costs. This project is eligible for rebates under an Ameren Missouri program that covers up to half the cost of EV charging station equipment and installation.

Existing Conditions:

The City does not have public EV charging stations or stations available for City-owned fleet vehicles. Before the City can add EVs to the Police Department and Public Works fleets, EV chargers need to be installed.

Justification: *Availability of Outside Funding, Coordination, Operating Efficiency, Protection & Conservation*
EVs offer many benefits including:

- Savings on fuel costs as compared to gas-powered vehicles. Savings increase when vehicles are charged during off-peak hours.
- With fewer moving parts, electric motors have lower maintenance needs, and the cost of ownership of EVs is often less than the total cost of ownership of gas-powered vehicles.
- Quick acceleration, an important performance measure for Police Department vehicles.
- Zero tailpipe (greenhouse gasses) emissions.

Operating Budget Impact:

As more EVs are added to City fleets, maintenance and fuel costs should decrease.

Comments:

None



9501 GOVERNMENT FACILITIES – 04

CAPITAL FUND

**EV CHARGING STATIONS AT THE POLICE DEPARTMENT
AND GOVERNMENT CENTER**

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 225,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 225,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 112,500
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 112,500

Summary	Amount
Total Expenditures	\$ 225,000
Total Funding	\$ (112,500)
City's Contribution	\$ 112,500



9506 PARKS AND RECREATIONAL FACILITIES - 14

CAPITAL FUND

**ICE ARENA REFRIGERANT SWITCHOVER
(MUNICIPAL & ARPA GRANT)**

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$254,450	\$1,110,000	\$1,100,000	\$0	\$0	\$0	\$0

Project Description:

The Ice Arena's refrigerant system is nearly 20-years old and past its useful life. The system uses the refrigerant, R-22, which is a source of hydrofluorocarbons and, therefore, no longer produced. This project will replace the existing system with a more reliable, environmentally-friendly equipment.

Existing Conditions:

The existing system is past its useful life and requires R-22, a refrigerant that is not EPA-approved.

Justification: *Availability of Outside Funding; Condition of Ex. Facility; Protection & Conservation*

This project directly affects operational efficiency. As of January 1, 2020, the U.S. no longer allows the production or import of R-22 refrigerant, any repair or system failure could result in the City being unable to recharge to maintain cooling. In 2022, the City applied for and received a Municipal Park Grant of \$525,000 for the project. These funds, as well as, American Rescue Plan Act (ARPA) funds will be utilized to cover the cost of the project.

Operating Budget Impact:

The improvements brought by these projects typically replace old or failing systems that require significant maintenance. These improvements should reduce operating costs.

Comments

The City received both a planning grant and construction grant from the Municipal Park Grant Commission to assist with design and construction costs associated with this project.



9506 PARKS AND RECREATIONAL FACILITIES - 14

CAPITAL FUND

**ICE ARENA REFRIGERANT SWITCHOVER
(MUNICIPAL & ARPA GRANT)**

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 254,450
Land Acquisition	\$ 0
Construction	\$ 2,200,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 2,454,450

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 531,400
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 1,904,985
Total Funding	\$ 2,436,385

Summary	Amount
Total Expenditures	\$ 2,454,450
Total Funding	\$ (2,436,385)
City's Contribution	\$ 18,065



9506 PARKS AND RECREATIONAL FACILITIES - 17

CAPITAL FUND

DIELMANN RECREATION COMPLEX ROOF DRAINAGE

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$42,355	\$93,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project includes the design and construction of improved drainage systems. The system will capture stormwater from a portion of the Dielmann Recreation Complex roof and then convey the water through new stormwater pipes that will be installed in the east parking area. Flows will discharge into an existing stormwater manhole.

Existing Conditions:

Much of the roof above the Ice Arena and warming room at the Dielmann Recreation Complex drains towards the administrative offices. The gutters near the administrative offices are not capable of handling typical flows from most rain events. As a result, stormwater spills down the side of the building and onto the ground outside of the offices where the ground is slightly sloped toward the building. This has caused several leaks and water entering the structure during moderate and heavy storms.

Justification: *Condition of Existing Facility*

Controlling the roof drainage and surface drainage near the offices will help prevent future leaks into the building.

Operating Budget Impact:

Correcting drainage issues could prevent damage to the offices and office equipment.

Comments

None



9506 PARKS AND RECREATIONAL FACILITIES - 17

DIELMANN RECREATION COMPLEX ROOF DRAINAGE**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 42,355
Land Acquisition	\$ 0
Construction	\$ 93,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 135,355

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 135,355
Total Funding	\$ 0
City's Contribution	\$ 135,355



9506 PARKS AND RECREATIONAL FACILITIES - 18

CAPITAL FUND

ICE ARENA FLOORING REPLACEMENT

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$200,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will replace the rubberized flooring that is around the ice rink, in the player's locker rooms, and in the referee's changing room.

Existing Conditions:

Most of the flooring is the original to the 2003 major renovation project and is near the end of its useful life. Some smaller, high-traffic areas have been replaced including the areas beneath the player's benches and near the public entrance gate leading onto the ice rink.

Justification: *Public Safety; Condition of Existing Facility*

The project will focus on preserving and protecting the public from harm when using the ice rink for public skating, special events, or ice rentals and will reduce the City's risk exposure. The project will update the aging flooring and aesthetically match the rest of the facility.

Operating Budget Impact:

To warranty the installation, the rink's ice will need to be taken out to allow the concrete floor temperature to rise to the manufacturer's recommendation. The ice rink will be closed to the public for approximately six weeks. The Ice Arena will schedule the replacement of the flooring to coincide with a shutdown of the ice in order to limit the construction impact on ice users and possible revenue losses. After the floor is installed, there will be minimal upkeep involved.

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 18

ICE ARENA FLOORING REPLACEMENT**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 200,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 200,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 200,000
Total Funding	\$ 0
City's Contribution	\$ 200,000



9506 PARKS AND RECREATIONAL FACILITIES - 25

CAPITAL FUND

GOLF COURSE PERIMETER FENCING REPLACEMENT

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$40,000	\$0	\$70,000	\$0	\$0	\$0

Project Description:

The existing perimeter fence that runs east-west along the southern border of the Golf Course is at the end of its useful life and in need of replacement. City staff propose replacing the perimeter fence in two phases. In phase one (FY2024), approximately 450 linear feet (LF) of existing fencing would be replaced with new 6-foot-tall black vinyl chain link fencing. In the second phase (FY2026), approximately 885 LF of existing fencing would be replaced with the same 6-foot black vinyl chain link fencing.

Existing Conditions:

The existing fencing is at the end of its useful life and looks unsightly. Neighbors south of the Golf Course have requested that the City replace the fencing.

Justification: *Condition of Existing Facility, Beatification*

Replacing the fencing will improve the appearance of the south side of the course and maintain a clear boundary between the public Golf Course and private property.

Operating Budget Impact:

None

Comments

None



9506 PARKS AND RECREATIONAL FACILITIES - 25

GOLF COURSE PERIMETER FENCING REPLACEMENT**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 110,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 110,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 110,000
Total Funding	\$ 0
City's Contribution	\$ 110,000



9506 PARKS AND RECREATIONAL FACILITIES - 27

CAPITAL FUND

DIELMANN STRUCTURAL REPAIRS

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$3,600	\$20,000	\$0	\$0	\$0	\$0	\$0

Project Description:

A structural evaluation of the Dielmann Recreation Center was conducted in FY2023. The intent of the study was to identify if the structure had any structural deficiencies or needed structural updates. The evaluation found no major structural issues and concluded that the structure, overall, is in good condition for its age and use. Minor issues were identified, and this project proposes to repair the problems listed in the evaluation report.

Existing Conditions:

Minor issues identified in the structural evaluation include: a crack in the header beam for a maintenance door located on the northeast wall of the ice rink; damaged drywall in the ceiling of the basement garage; exterior joints and cracks in need of tuckpointing; and damaged railings. The evaluation also recommended plumbing, mechanical, and electrical consultants visit the site to identify any potential issues with these systems.

Justification: *Condition of Existing Facility, Public Safety*

The Dielmann Recreation Center is a popular destination for many residents. The proposed repair work would help extend the safe, useful life of the building.

Operating Budget Impact:

None

Comments

None

**9506 PARKS AND RECREATIONAL FACILITIES - 27**
DIELMANN STRUCTURAL REPAIRS**CAPITAL FUND**
CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 23,600
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 23,600

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 23,600
Total Funding	\$ 0
City's Contribution	\$ 23,600



9506 PARKS AND RECREATIONAL FACILITIES - 28

CAPITAL FUND

ACCESSIBILITY IMPROVEMENTS (CDBG)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0**	\$20,000	\$0**	\$0**	\$0**	\$0**	\$0

** Accessibility Improvements in Prior Years or FY2025 -2028 will fall under 9501 Government Facilities.

Project Description:

The City of Creve Coeur is typically eligible for \$20,000 each year for accessibility improvements through the Community Development Block Grant (CDBG) program. In FY2024, the City proposed a project to improve accessibility at the Dielmann Recreation Center with features like automatic opening devices for doors. For the FY2025 to FY2028 grants, several locations for accessibility improvements are being considered including: the access ramp at the Tappmeyer House in Millennium Park; the accessibility sidewalk at the Lake School House at Lake School Park; and bus stops along Ballas Road. These projects fall under 9501 Government Facilities and are shown in that section.

Existing Conditions:

Projects are designed to improve facilities that are out-of-compliance with the current Americans with Disabilities Act (ADA) regulations.

Justification: *Public Safety; Coordination; Availability of Outside Funding*

Each project seeks to improve ADA compliance through accessibility improvements to government facilities and along public pedestrian routes. The focus of these projects is to provide public safety and upgrade existing facilities.

Operating Budget Impact:

None. Projects that are undertaken as part of this program are relatively small in scope, and the City typically is 100% reimbursed for the project costs through the CDBG federal grant.

Comments:

The City is designating this funding with the anticipation of receiving grant funding in the amount of \$20,000 from the CDBG Commission. This annual grant is available to municipalities to address accessibility projects. Scheduling of this project is subject to a successful grant application and availability of grant funding.

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 28

ACCESSIBILITY IMPROVEMENTS (CDBG)**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 20,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 20,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 20,000
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 20,000

Summary	Amount
Total Expenditures	\$ 20,000
Total Funding	\$ (20,000)
City's Contribution	\$ 0



9506 PARKS AND RECREATIONAL FACILITIES - 31

CAPITAL FUND

TEMPORARY PORTABLE ICE RINK REFRIGERANT SYSTEM

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$120,000	\$0	\$0	\$0	\$0	\$0

Project Description:

The Ice Arena's refrigerant system will be switched over to a new more dependable and efficient system in FY2024. To avoid an interruption in service provided to the current long term user base and to continue to provide revenue generation for the building operation, a temporary portable refrigerant system will be installed while the main refrigerant system is switched over.

Existing Conditions:

The existing system is past its useful life and requires R-22, a refrigerant that is not EPA-approved.

Justification: *Condition of Ex. Facility; Community Demand;*

The City was successful in receiving Municipal Park Grand Funding and support from the community and City Counsel to move forward with the refrigerant switch over project. During the period of replacement, the permanent system will be out of service. This project directly affects operational efficiency, as the ice rink will need to stay open during the replacement to continue to support long term contract users of the facility.

Operating Budget Impact:

The improvements brought by these projects typically replace old or failing systems that require significant maintenance. These improvements should reduce operating costs.

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 31

CAPITAL FUND

TEMPORARY PORTABLE ICE RINK REFRIGERANT SYSTEM

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 120,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 120,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 120,000
Total Funding	\$ 0
City's Contribution	\$ 120,000



9506 PARKS AND RECREATIONAL FACILITIES - 32

CAPITAL FUND

GOLF COURSE MAINTENANCE BUILDING REPLACEMENT

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$30,000	\$0	\$0	\$0	\$0	\$0

Project Description:

The project will look to develop preliminary design of replacement golf course maintenance building in FY2024. The existing facility is over 70 years old and has been added on to over the years to accommodate the needs of the golf course staff to maintain the high quality course that is currently enjoyed by residents and visitors. City intends to apply for the Municipal Park Grant to partially fund this design project.

Existing Conditions:

The existing golf maintenance facility is showing its age with numerous leaks and structural issues. Due to the piece meal construction over the years, the current storage is inadequate for golf course irrigation parts, fertilizers, etc. There is not ample room is available to properly store or work on capital equipment (such as mowers, aerators, tractors, etc), and staff is in need of facility where they can eat and clean up that is way from hazardous work areas.

Justification: *Condition of Ex. Facility; Availability of Outside Funding; Operating Efficiency*

The City will seek Municipal Park Grand Funding to supplement the cost associated with this stage of the design project. A new golf maintenance facility will provide a structure that is design to adequately and safely meet the operation needs to support golf course operations.

Operating Budget Impact:

The improvements brought by this project will replace old and failing structure that require significant maintenance. Additionally, improve structure will provide protection to the capital equipment that is utilized by the golf course. These improvements should reduce operating costs.

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 32

GOLF COURSE MAINTENANCE BUILDING REPLACEMENT**CAPITAL FUND****CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 30,000
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 30,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ (TBD)
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ (TBD)

Summary	Amount
Total Expenditures	\$ 30,000
Total Funding	\$ (TBD)
City's Contribution	\$ 30,000



9510 STREETS AND SIDEWALKS - 01

CAPITAL FUND

STREET AND SIDEWALK MAINTENANCE PROGRAM

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$1,899,992	\$1,421,000	\$1,442,300	\$1,463,900	\$1,485,900	\$1,508,200	\$0

Project Description:

The project includes concrete pavement replacement, asphalt pavement resurfacing, asphalt pavement maintenance, microsurfacing, roadway striping, and sidewalk replacement for the annual maintenance of the City's roadway and sidewalk networks.

Existing Conditions:

While the majority of the City's pavement network is in good condition, annual and on-going evaluation of pavement and sidewalk conditions find aging and failing pavement and sidewalks that need to be addressed.

Justification: *Public Safety; Condition of Existing Facility; Coordination; Community Demand*

The City's street and sidewalk network form the City's largest asset that serves all of the City's residents and visitors. Annual maintenance of streets and sidewalks is required to preserve their functionality and to limit future repair costs. The City uses a pavement management system to track pavement conditions, and the City aims to evaluate the condition of each street on a four-year rotation. The pavement condition data assists with the prioritization of pavement repairs and maintenance and helps the City preserve its existing infrastructure as efficiently as possible. Federal regulations require that sidewalks meet accessibility standards so that all users have an opportunity to travel safely. The City's sidewalk maintenance program follows the federal regulations and supports the City's Pedestrian Plan.

Operating Budget Impact:

Pavement and sidewalk maintenance programs will improve and preserve the infrastructure and will result in a reduction in the number of pothole repairs and other on-going maintenance needs.

Comments:

Approximately 10% of the annual street and sidewalk improvements is typically directed toward accessibility improvements to the City's sidewalk network in support of the accessibility transition plan. Larger projects, such as grant-funded improvements, are stand-alone projects that are described in separate project sheets.



9510 STREETS AND SIDEWALKS - 01

STREET AND SIDEWALK MAINTENANCE PROGRAM**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 30,000
Land Acquisition	\$ 0
Construction	\$ 1,869,992
Equipment	\$ 0
Other	\$ 0
Total Expenditures (FY2024)	\$ 1,899,992

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
American Rescue Plan Act (ARPA)	\$ 1,489,485
Total Funding	\$ 1,489,485

Summary	Amount
Total Expenditures	\$ 1,899,992
Total Funding	\$ 1,489,485
City's Contribution (FY2024)	\$ 410,507



9510 STREETS AND SIDEWALKS - 02

CAPITAL FUND

STREET RECONSTRUCTION / REHABILITATION

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$482,085	\$300,000	\$0	\$300,000	\$0	\$300,000	TBD

Project Description:

The City plans to fully or substantially replace sections of failed residential roadways through this project. The various needs of the pavement network are evaluated each year to determine which streets need to be reconstructed. The City plans to replace the pavement on Conway Gardens Court in FY2024, but later projects will be determined by future reviews of pavement conditions.

Existing Conditions:

Residential streets that are considered for reconstruction have reached the end of their useful lives and are generally in too poor of condition to gain long-term benefits from the City's typical pavement maintenance programs. Most of the streets that have been included in this program were older concrete streets that were overlaid with asphalt decades ago.

Justification: *Public Safety; Condition of Existing Facility; Community Demand*

All of the City's streets will eventually reach the end of their useful lives, fail at a structural level, and require reconstruction. This program provides the City with a tool to address some of its residential streets that are in poor or failing condition that typical maintenance programs can no longer improve.

Operating Budget Impact:

Streets with failing pavement typically require frequent maintenance in the form of pothole patching and emergency pavement repairs, which City staff often performs to address the issues as quickly as possible. Allocating funds for reconstruction also allows for more of the maintenance budget to be used for maintaining and preserving streets that are in better condition, which means more streets and sidewalks will be addressed, reducing the number of calls for City staff to make repairs.

Comments:

The City has invested more than \$2 million into street reconstruction projects during the past ten years



9510 STREETS AND SIDEWALKS - 02

STREET RECONSTRUCTION / REHABILITATION**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 900,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures (FY2024-FY2028)	\$ 900,000

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
Outside Funding Source ()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 900,000
Total Funding	\$ 0
City's Contribution (FY2024-FY2028)	\$ 900,000



9510 STREETS AND SIDEWALKS - 04

CAPITAL FUND

FERNVIEW SIDEWALK CONCEPT PLAN**PHASE 1 – OLIVE TO GALAGHER (DESIGN & GRANT MATCH)**

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$64,166	\$50,000	\$60,000	\$160,000	\$0	\$0	\$0

Project Description:

The City developed a concept plan to add a sidewalk along Fernview Drive (between Olive Boulevard and Gallagher Road) and along the side streets to connect with the existing sidewalk networks on each side of Fernview. The result of this project would be a unified collection of subdivision sidewalks that are currently not connected. Funding in FY2024 and FY2025 represents the City's matching funding for design, easement acquisition, and construction for a federal Transportation Alternatives Program (TAP) grant, the application for which could become available in FY2024.

Existing Conditions:

Fernview Drive is a collector roadway that serves several of the residential subdivisions in Ward 4. Sidewalks were constructed throughout most of the subdivisions to the east and west of Fernview, but not along or adjacent to Fernview itself. The result is a series of sidewalks without connections to each other or to Olive Boulevard.

Justification: *Community Demand; Public Safety; Availability of Outside Funding*

Increasing the walkability of Creve Coeur is a common request from residents and a goal outlined in the City's Strategic Plan. Creating a sidewalk along Fernview that connects to the adjacent existing sidewalks will make progress toward this goal.

Operating Budget Impact:

None

Comments:

The City's anticipated portion of a grant-funded project are included in FY2024 and FY2025. The actual cost and schedule for the project will be incorporated into future capital improvement program plans if the City successfully obtains a federal grant for the project.



9510 STREETS AND SIDEWALKS - 04

CAPITAL FUND

FERNVIEW SIDEWALK CONCEPT PLAN**PHASE 1 – OLIVE TO GALAGHER (DESIGN & GRANT MATCH)**

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 64,166
Land Acquisition	\$ 50,000
Construction (Grant Match)	\$ 220,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 334,166

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ TBD
State Cost-Share Program	\$ 0
Outside Funding Source:()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 334,166
Total Funding	\$ (TBD)
City's Contribution	\$ 334,166



9510 STREETS AND SIDEWALKS - 05

CAPITAL FUND

NEW BALLAS MEDIAN PLANTINGS

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$8,800	\$50,000	\$0	\$0	\$0	\$0	\$0

Project Description:

The City maintains several medians on New Ballas Road between Olive and Conway Road. These medians are along a highly traveled arterial road in the City and lead to the City Government Center, Police Station and medical centers. Project would involve the removal of invasive tree species with native trees and plants.

Existing Conditions:

The trees planted along New Ballas median are bradford pear trees, which are an invasive species of tree and require more maintenance for the Public Work staff.

Justification: *Beautification*

Removal of the bradford pear trees and replacement with mostly native tree and plant species will improve the appearance of the median and surrounding roadway. The removal of these trees will also help to reduce their ability to over take and crowd out native trees and plants, which are beneficial to native wildlife.

Operating Budget Impact:

Public works will initially see a reduction in operating cost to maintain the medians.

Comments:

None



9510 STREETS AND SIDEWALKS - 05

NEW BALLAS MEDIAN PLANTINGS**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 58,800
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 58,800

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
Outside Funding Source ()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 58,800
Total Funding	\$ 0
City's Contribution	\$ 58,800



9510 STREETS AND SIDEWALKS - 12

CAPITAL FUND

**LINDBERGH-OLD OLIVE INTERSECTION
(STATE COST-SHARE/STP GRANT)**

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$571,758	\$2,045,500	\$0	\$0	\$0	\$0	\$0

Project Description:

This project involves the partial reconstruction of the intersection of Lindbergh Boulevard and Old Olive Street Road to add a traffic signal that will provide full access in all directions. This signal will allow for a pedestrian/bicycle crossing across Lindbergh and will connect the two halves of Old Olive, both of which are critical steps toward implementation of the Old Olive Great Street plan and the 39 North Master Plan. The City will use federal Surface Transportation Program (STP) grant funding and State Cost-Share Program funding to finance approximately 83% of the project.

Existing Conditions:

The existing intersection of Lindbergh Boulevard and Old Olive Street Road allows only right-in, right-out access for Old Olive on both sides of Lindbergh. A concrete barrier along the Lindbergh median prohibits any east-west vehicular or pedestrian crossing of this intersection.

Justification: *Public Safety; Availability of Outside Funding; Coordination; Beautification*

The proposed improvements to this intersection are supported by the Comprehensive Plan Creve Coeur 2030, the 39 North Master Plan, and the Old Olive Street Road Great Street Plan. These improvements provide the best chance for a pedestrian or bicycle crossing of Lindbergh Boulevard in that area.

Operating Budget Impact:

The City will most likely need to take over the maintenance of Old Olive Street Road from the Missouri Department of Transportation in return for the funding for this project. The ongoing maintenance cost for Old Olive Street Road could be significant.

Comments:

Conceptual plans for this intersection were developed as part of the Old Olive Street Road great street plan, which was completed through a partnership of St. Louis County, the St. Louis Economic Development Partnership, and the City of Creve Coeur. Funding in "prior years" includes concept development and design costs in FY2019-FY2021 to prepare for the grant applications and to design the project. Additional funding for the project may be available through the Governor's Transportation and MODOT Cost Share Program.



9510 STREETS AND SIDEWALKS - 12

CAPITAL FUND

**LINDBERGH-OLD OLIVE INTERSECTION
(STATE COST-SHARE/STP GRANT)**

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 201,758
Land Acquisition	\$ 370,000
Construction	\$ 1,870,500
Equipment	\$ 0
Other (Construction Inspections)	\$ 175,000
Total Expenditures	\$ 2,617,258

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 1,164,200
Federal Transportation Alternative Program Grant	\$ TBD
State Cost-Share Program	\$ 925,050
Outside Funding Source	\$ 0
Total Funding	\$ 2,089,250

Summary	Amount
Total Expenditures	\$ 2,617,258
Total Funding	\$ (TBD)
City's Contribution	\$ 528,008



9510 STREETS AND SIDEWALKS - 13

CAPITAL FUND

OLIVE-LINDBERGH INTERCHANGE ENHANCEMENTS

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$30,000	\$0	\$0	\$0	\$0	TBD

Project Description:

The City has partnered with the St. Louis Economic Development Partnership (SLEDP) and the Missouri Department of Transportation (MoDOT) to add decorative elements to the planned reconfiguration of the interchange of Olive Boulevard at Lindbergh Boulevard. The enhancements include black powder coat and illuminated street name signs to two new traffic signals on Olive and decorative median, pedestrian-scale lighting, and bridge treatments along Olive over Lindbergh. The project is managed by SLEDP and was completed in spring 2022. The funding identified in FY2024 is for the design of landscaping for the Olive-Lindbergh interchange.

Existing Conditions:

The existing cloverleaf interchange is outdated and was reconfigured to a more compact, pedestrian-friendly design. In FY2024, the design for landscaping will be created and then executed.

Justification: *Coordination; Condition of Existing Facility; Beautification*

The Olive-Lindbergh interchange serves as one of the main entry points to the City and is located in the middle of the emerging 39 North District. Visual improvements in this area promote the City and encourage growth.

Operating Budget Impact:

The City will be responsible to maintain the signal and bridge enhancements and landscaping. The costs associated with the bridge and signal enhancements is expected to be minimal for the foreseeable future. Landscape maintenance costs could be limited if native grasses and other low-maintenance plants are used in the landscaping design and will be evaluated during landscaping design and selection.

Comments:

The cost to construct the landscaping at this interchange will not be known until the design is complete.



9510 STREETS AND SIDEWALKS - 13

OLIVE-LINDBERGH INTERCHANGE ENHANCEMENTS**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 30,000
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 0
Other (Construction Inspections)	\$ 0
Total Expenditures	\$ 30,000

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
Outside Funding Source ()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 30,000
Total Funding	\$ 0
City's Contribution	\$ 30,000



9510 STREETS AND SIDEWALKS - 15

CAPITAL FUND

OLIVE MEDIAN ENHANCEMENT STOCK

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$59,105	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$0

Project Description:

The median on Olive Boulevard has concrete, decorative planters. If the planters are hit during a traffic accident, often the entire median planter needs to be replaced. The construction and delivery for concrete planters takes months. Rather than wait months at a time for replacement planters, the City maintains a supply. Additionally, the City pays a lower cost per unit by buying several planters at one time. The cost of the planters is reimbursed later through insurance.

Existing Conditions:

Olive Boulevard is one of the City's busiest streets, and median enhancements with well-maintained vegetation can have a traffic calming effect while promoting the City as a place that takes pride in making public-facing spaces aesthetically pleasing.

Justification: *Condition of Existing Facility; Operating Efficiency; Beautification*

In most years, the concrete decorative planters have needed to be replaced several times. By buying ahead and in bulk, the City pays less per unit and has planters ready to be installed when needed.

Operating Budget Impact:

The cost per unit is lower when the City buys median enhancements in bulk.

Comments:

None



9510 STREETS AND SIDEWALKS - 15

OLIVE MEDIAN ENHANCEMENT STOCK**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 20,000
Equipment	\$ 0
Other (Construction Inspections)	\$ 0
Total Expenditures (FY2024)	\$ 20,000

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
Outside Funding Source:(Insurance)	\$ 20,000
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 20,000
Total Funding	\$ (20,000)
City's Contribution (FY2024)	\$ 0



9510 STREETS AND SIDEWALKS - 16

CAPITAL FUND

CRAIG ROAD IMPROVEMENTS (STP GRANT)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$225,600	\$100,000	\$1,300,000	\$0	\$0	\$0	\$0

Project Description:

The project involves improvements to the intersection layout, resurfacing pavement, and reconstructing and expanding sidewalks along Craig Road and Olde Cabin Road between Old Ballas Road and Office Parkway. The City has been awarded a federal Surface Transportation Program (STP) grant for this project. The grant will reimburse the City for approximately 60% of the total cost of the project.

Existing Conditions:

The pavement of Craig Road is currently in fair condition, but sections of the pavement have failed. The traffic flow along Craig is hampered by non-standard intersections with Olde Cabin Road and Office Parkway, and the sidewalks along Craig Road are generally inadequate and have poor accessibility at the intersections.

Justification: *Public Safety; Condition of Existing Facility; Availability of Outside Funding; Resident Request*

Portions of Craig Road are in poor condition, and the City has provided increasing attention to pavement repairs and pothole patching. Improvements to the intersections along Craig Road are recommended to improve traffic flow and safety and to provide safe and accessible sidewalk crossings at these intersections.

Operating Budget Impact:

The pavement and sidewalks of Craig Road are in increasing need of maintenance. Roadway resurfacing and sidewalk reconstruction will reduce future maintenance costs.

Comments:

Funding in "Prior Years" was for a conceptual design plan for this project, which the City used to evaluate its options and to support its application for grant funding.



9510 STREETS AND SIDEWALKS - 16

CRAIG ROAD IMPROVEMENTS (STP GRANT)**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 225,600
Land Acquisition	\$ 100,000
Construction	\$ 1,300,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 1,625,600

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 960,000
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
Outside Funding Source	\$ 0
Total Funding	\$ 960,000

Summary	Amount
Total Expenditures	\$ 1,625,600
Total Funding	\$ (960,000)
City's Contribution	\$ 665,600



9510 STREETS AND SIDEWALKS - 17

CAPITAL FUND

NEW BALLAS IMPROVEMENTS**PHASE 2 – S NEW BALLAS (DESIGN AND GRANT MATCH)**

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$150,000	\$20,000	\$250,000	\$0	\$0	\$0

Project Description:

The project includes pavement resurfacing, concrete curb and sidewalk replacement, and accessibility improvements along New Ballas Road from Conway Road to Ladue Road. The project will also include a pedestrian connection to the bus stop near Mercy Hospital along the east side of New Ballas. Staff applied for a federal grant for this project in early 2023. The grant match for Phase 2 includes 100% of the design costs and 20% of the estimated land acquisition and construction costs. The full project cost will be included in the appropriate fiscal years if the City is successful in obtaining a grant.

Existing Conditions:

The asphalt pavement is generally in good condition, but many of the concrete sidewalks, curbs, and entrances are in poor condition. Although areas of the sidewalk and curbing were replaced in FY2019, areas still fall short of the current accessibility standards. South New Ballas Road was found to have an average pavement condition index (PCI) of 47 in 2023, which indicates that the pavement is generally in “marginal” condition and that is currently an appropriate candidate for pavement preservation. The pavement will be 20 years old at the time of the anticipated construction for this project, the pavement joints are cracking, and the overall pavement condition is expected to continue to decline such that repairs and resurfacing are necessary.

Justification: *Public Safety; Condition of Existing Facility; Availability of Outside Funding*

New Ballas Road is the City's largest street and one of two City-maintained streets classified as a minor arterial. Preservation of this street's pavement is a high priority, both for the traveling public and to control future costs. The deteriorating pavement joints, sidewalks, and curbs require a significant investment to correct, and grant assistance for the work will make affording these improvements much more manageable.

Operating Budget Impact:

This project will eliminate pavement patching needs and sidewalk issues that require staff attention.

Comments:

This project is the second of what is expected to be four phases of work along New Ballas Road.



9510 STREETS AND SIDEWALKS - 17

CAPITAL FUND

NEW BALLAS IMPROVEMENTS**PHASE 2 – S NEW BALLAS (DESIGN AND GRANT MATCH)**

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 150,000
Land Acquisition	\$ 20,000
Construction	\$ 250,000
Equipment	\$ 0
Other ()	\$ 0
Total Expenditures	\$ 420,000

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ TBD
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
Outside Funding Source ()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 420,000
Total Funding	\$ (TBD)
City's Contribution	\$ 420,000



9510 STREETS AND SIDEWALKS - 21

CAPITAL FUND

OLIVE-270 OVERPASS CLEANING & PAINTING

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$80,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will involve nighttime cleaning and/or repainting of the exterior (i.e., facing Interstate 270) faces of the Olive Boulevard bridge over Interstate 270. Although the bridge is owned by the State of Missouri, the City of Creve Coeur is responsible for the maintenance of the decorative elements that the City added to the bridge. Among those elements are the decorative bridge faces, which have begun to show some wear. Access to these bridge faces will need to be from Interstate 270, so a significant portion of this project will be traffic control to close several lanes of the highway during each night of work.

Existing Conditions:

What appear to be water stains or peeling paint are evident in several locations along both faces of the Olive overpass. The white stains detract from the tan and beige tones of the bridge face.

Justification: *Beautification; Condition of Existing Facility*

The decorative elements of the Olive overpass promote awareness to drivers that they are in Creve Coeur. The decorative elements also promote the City as a beautiful, well-maintained place to work, shop, and live. Stains or peeling paint detract from the positive image of the City as a desirable destination.

Operating Budget Impact:

None

Comments:

None



9510 STREETS AND SIDEWALKS - 21

OLIVE 270 OVERPASS CLEANING & PAINTING**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering (FY2023)	\$ 0
Land Acquisition	\$ 0
Construction	\$ 80,000
Equipment	\$ 0
Other ()	\$ 0
Total Expenditures	\$ 80,000

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ 0
State Cost-Share Program	\$ 0
Outside Funding Source:()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 80,000
Total Funding	\$ 0
City's Contribution	\$ 80,000



9510 STREETS AND SIDEWALKS - 22

CAPITAL FUND

OLD OLIVE SIDEWALK EXTENSION (DESIGN)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$25,000	\$60,000	\$0	\$0	\$0	\$0

Project Description:

This project will involve installing a new concrete sidewalk on Old Olive Street Road (west), near Laverne Collins Park. Constructing this sidewalk will connect two sections of sidewalk to create a continuous pedestrian path along the west side of Old Olive from Olive Blvd to north of King Henry Court.

Existing Conditions:

No sidewalk currently exists at this site, but pedestrians commonly walk through the grass.

Justification: *Community Demand; Public Safety; Resident Request*

Completion of this sidewalk will provide a safer, more suitable pedestrian route for those wishing to walk along the west side of Old Olive Street Road.

Operating Budget Impact:

No significant maintenance is anticipated in the near future.

Comments:

The proposed project site is in MoDOT right-of-way. Staff has reached out to the MoDOT Area Engineer asking what requirements MoDOT would have for the project. Staff anticipates that engineered design plans will be required, and has included those costs in FY2024.



9510 STREETS AND SIDEWALKS - 22

OLD OLIVE SIDEWALK EXTENSION (DESIGN)**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 25,000
Land Acquisition	\$ 0
Construction	\$ 60,000
Equipment	\$ 0
Other ()	\$ 0
Total Expenditures	\$ 85,000

Funding Type	Amount
Federal Surface Transportation Program Grant	\$ 0
Federal Transportation Alternative Program Grant	\$ TBD
State Cost-Share Program	\$ 0
Outside Funding Source:	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 85,000
Total Funding	\$ (TBD)
City's Contribution	\$ 85,000



9516 CAPITAL EQUIPMENT - 01

CAPITAL FUND

PUBLIC WORKS CAPITAL EQUIPMENT

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$408,355	\$619,000*	\$401,800	\$398,800	\$408,500	\$428,000	TBD

Project Description:

This project is dedicated to replacing older equipment used by the Department of Public Works. Equipment replacement is based on a scheduled rotation that helps limit the financial impact on any one year. The focus will be on replacing equipment that will be about ten years old.

Existing Conditions:

Some Public Works equipment has reached the end of useful and dependable life. Significant maintenance costs can be expected if this equipment is kept in service.

Justification: *Public Safety; Operating Efficiency; Condition of Existing Facility*

Replacement of the equipment noted above is necessary to provide services to the residents and repair the City's infrastructure. Without replacement, it will not only have an effect on public safety, it will also affect the City's operating efficiency due to down time for equipment repairs.

Operating Budget Impact:

Replacement of older equipment helps reduce the overall annual maintenance costs of the Public Works fleet. Using older equipment can result in significant increases in repair bills and increased equipment downtime, which reduce staff's ability to operate efficiently to provide services to the residents.

Comments:

Capital equipment includes equipment costing more than \$20,000 and having a useful life of at least five years. Public Works staff plans to sell the replaced equipment at auction after the new replacement vehicle arrives. The amount of revenue from the auctioned equipment helps to offset the cost of new equipment.

* FY2024 Estimated Annual Cost reflects the \$140,000 purchase of a vehicle in FY2023 which it is anticipated will not be received and paid for till FY2024 due to manufacturer backlog in filling vehicle orders. This cost is not reflected in the following summary.



9516 CAPITAL EQUIPMENT - 01

PUBLIC WORKS CAPITAL EQUIPMENT**CAPITAL FUND
CONTINUED****FY2024 FLEET REPLACEMENT PROJECTIONS**

<u>Equipment to be Purchased</u>	<u>Estimated Cost</u>	<u>Equipment for Trade/Auction</u>
Two-ton Dump Truck with Plow	\$ 137,600.00	2010 Two-ton Dump Truck
One-ton Dump Truck	\$ 76,600.00	2013 One-ton Dump Truck
Bucket Truck	\$ 165,000.00	1996 Bucket Truck
Leaf Vacuum (25 CY; Diesel Powered)	\$ 99,800.00	2013 Leaf Vacuum (Diesel Powered)
FY2023 Two-ton Chipper Truck	\$ 140,000.00	2012 Two-ton Chipper Truck
	<u>\$ 619,000.00</u>	

FY2025 FLEET REPLACEMENT PROJECTIONS

<u>Equipment to be Purchased</u>	<u>Estimated Cost</u>	<u>Equipment for Trade/Auction</u>
Two-ton Dump Truck with Plow	\$ 144,400.00	2011 Two-ton Dump Truck
Skid Steer	\$ 100,600.00	2012 Skid Steer
Leaf Vacuum (25 CY; Diesel Powered)	\$ 104,800.00	2013 Leaf Vacuum (Diesel Powered)
Electric Pickup Truck (PW Engineering)	\$ 52,000.00	2008 Colorado - Project Manager Truck
	<u>\$ 401,800.00</u>	

FY2026 FLEET REPLACEMENT PROJECTIONS

<u>Equipment to be Purchased</u>	<u>Estimated Cost</u>	<u>Equipment for Trade/Auction</u>
Two-ton Dump Truck with Plow	\$ 143,200.00	2011 Two-ton Dump Truck
One-ton Dump Truck	\$ 84,500.00	2013 One-ton Dump Truck
3/4-ton Pickup Truck (Asphalt flat bed)	\$ 66,300.00	2013 3/4-ton Pickup Truck
Leaf Vacuum (25 CY; Diesel Powered)	\$ 104,800.00	2014 Leaf Vacuum (Diesel Powered)
	<u>\$ 398,800.00</u>	

FY2027 FLEET REPLACEMENT PROJECTIONS

<u>Equipment to be Purchased</u>	<u>Estimated Cost</u>	<u>Equipment for Trade/Auction</u>
Two-ton Dump Truck with Plow	\$ 150,300.00	2012 Two-ton Dump Truck
One-ton Dump Truck	\$ 88,700.00	2015 One-ton Dump Truck
Electric Pickup Truck (PW Engineering)	\$ 54,000.00	2006 3/4-ton Project Manager Truck
Leaf Vacuum (25 CY; Diesel Powered)	\$ 115,500.00	2015 Leaf Vacuum (Diesel Powered)
	<u>\$ 408,500.00</u>	

FY2028 FLEET REPLACEMENT PROJECTIONS

<u>Equipment to be Purchased</u>	<u>Estimated Cost</u>	<u>Equipment for Trade/Auction</u>
Two-ton Chipper Truck	\$ 160,000.00	2015 Two-ton Dump Truck
Back Hoe	\$ 150,000.00	2008 John Deere 410J
3/4-ton Pickup Truck (Service Body)	\$ 70,000.00	2015 3/4-ton Pickup (Sign Truck)
Tractor & Flail Mower	\$ 48,000.00	1994 John Deere 5200 & Flail Mower
	<u>\$ 428,000.00</u>	



9516 CAPITAL EQUIPMENT - 01

PUBLIC WORKS CAPITAL EQUIPMENT**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 2,256,100
Other	\$ 0
Total Expenditures (FY2024–FY2028)	\$ 2,256,100

Funding Type	Amount
Outside Funding Source ()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 2,256,100
Total Funding	\$ 0
City's Contribution (FY2024–FY2028)	\$ 2,256,100



9516 CAPITAL EQUIPMENT - 02

GOLF COURSE CAPITAL EQUIPMENT**CAPITAL FUND
CONTINUED**

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$55,000	\$65,000	\$0	\$65,000	\$40,000	TBD

Project Description:

The following major equipment purchases are planned at the Creve Coeur Golf Course as replacements for older equipment:

• FY2024 – Greens Mower	\$ 55,000
• FY2025 – Rough Mower	\$ 65,000
• FY2027 – Fairway Mower	\$ 65,000
• FY2028 – Compact Tractor	\$ 40,000
	\$ 225,000

These vehicles are used to maintain the fairways, rough, and greens at the golf course. The equipment that will be replaced will range in age from 14-25 years old at the time of replacement.

Existing Conditions:

The golf course staff uses a small fleet of equipment to maintain the golf course. Some of the existing equipment has begun to wear out with age, resulting in limited use, declining performance, and/or increased repair costs. Certain equipment, like the turf vehicles, are used for a variety of tasks. Other equipment, like the rough mower, has no back-up for its function.

Justification: *Condition of Existing Equipment; Operating Efficiency; Coordination*

Properly functioning and reliable equipment is needed for the effective maintenance of the golf course. The 2015 *Analysis of Golf Course Existing Conditions for Needs Assessment* report found that all of the equipment that is proposed for replacement has exceeded its useful life. The report recommended that all of this equipment be replaced by 2019.

Operating Budget Impact:

New equipment will be expected to require less maintenance than the current equipment, which should result in lower operating costs.

Comments:

None



9516 CAPITAL EQUIPMENT - 02

GOLF COURSE CAPITAL EQUIPMENT**CAPITAL FUND
CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 225,000
Other ()	\$ 0
Total Expenditures (FY2024–FY2028)	\$ 225,000

Funding Type	Amount
Outside Funding Source ()	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 225,000
Total Funding	\$ 0
City's Contribution (FY2024–FY2028)	\$ 225,000



CAPITAL PROJECT ADMINISTRATION - 01

CAPITAL FUND

PROJECT MANAGEMENT

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$138,542	\$153,104	\$157,700	\$162,500	\$167,400	\$172,500	TBD

Project Description:

This line item includes the costs associated with the full-time salary and benefits for two engineers to help oversee the design and construction of projects outlined in the Capital Improvement Program: One engineer will be 100% funded through the Capital Fund; the second engineer will be 50% funded through the Capital Fund and 50% funded through the Parks and Stormwater Fund.

Existing Conditions:

Engineering staff assists the Director of Public Works with monitoring construction activity, preparing contract documents, performing design surveys, and the overall management of the Capital Improvement Program.

Justification: *Operating Efficiency*

The responsible and effective administration of the City's capital improvement projects, and grant-related projects in particular requires expertise and significant staff time. Projects often have similar schedules, and multiple projects can require immediate attention at the same time. The City's Public Works Administrative staff is too small to consistently accommodate the demands of these projects while also meeting the expectations for the various other services provided by the Department of Public Works.

Operating Budget Impact:

Annual costs for this position include salary and benefits plus ongoing employee training, city equipment, cell phone, and general supplies, which are anticipated to be approximately \$1,000 per year.

Comments:

None

**CAPITAL PROJECT ADMINISTRATION - 01**
PROJECT MANAGEMENT**CAPITAL FUND**
CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 813,204
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 813,204

Funding Type	Amount
Outside Funding Source	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 813,204
Total Funding	\$ 0
City's Contribution	\$ 813,204



PARKS AND STORMWATER FUND

In November 2020, Creve Coeur voters approved a half-cent sales tax, the revenue from which is dedicated to the operations, maintenance, and improvements needed for the City’s parks, recreation, and stormwater infrastructure. Most of the City’s projected investments into parks and stormwater are proposed to be financed through this fund.

Parks and Stormwater Fund Revenues

The City’s Parks and Stormwater Fund has two main funding sources: a half-cent parks and stormwater sales tax and reimbursement from grants and other outside funding. Together, these funding sources are projected to generate approximately \$16.47 million over the FY2024-FY2028 CIP.

Half-Cent Parks and Stormwater Sales Tax. The projected sales tax revenues are approximately \$15.27 million for the FY2024-FY2028 CIP, which averages out to approximately \$3.05 million per year in the plan.

Grants and Outside Funding. There are two primary outside funding sources for parks and stormwater improvements: the Municipal Park Grant and MSD OMCI reimbursement program.

- *Municipal Park Grant.* The City can seek Municipal Park Grant to supplement up to \$525,000 for parks improvements about every other year. This funding source will be shared with the Capital Fund.
- *MSD OMCI Reimbursement.* The Metropolitan St. Louis Sewer District (MSD) offers a reimbursement program for stormwater-related operations, maintenance, and construction improvements (OMCI) expenses in the Deer Creek watershed, which is generally the area in Creve Coeur east of Interstate 270 and south of Olive Boulevard. The City plans to seek approximately \$1.07 million in reimbursement from this program over the five-year CIP.

Parks and Stormwater Fund Expenses

Parks and Stormwater expenditures from the Parks and Stormwater Fund are projected to be approximately \$16.97 million over the proposed FY2024-FY2028 CIP, with a maximum annual expense of \$4.28 million in FY2024. Details about these expenses can be found in the project summary sheets that follow.

This sales tax revenue does not have a designated division of how it will be spent, but the City Council can decide to set the allocation amounts or to evaluate the division of funds through each CIP process. The proposed five-year CIP includes the following allocation of the sales tax revenue:

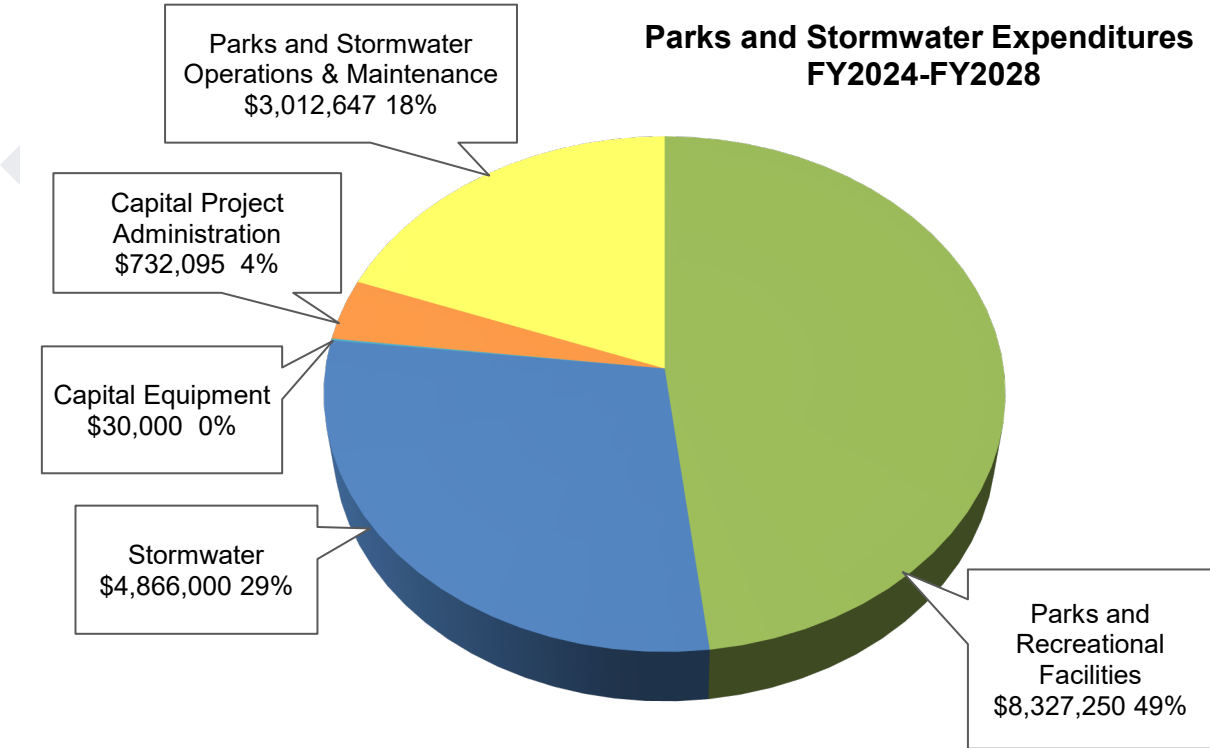
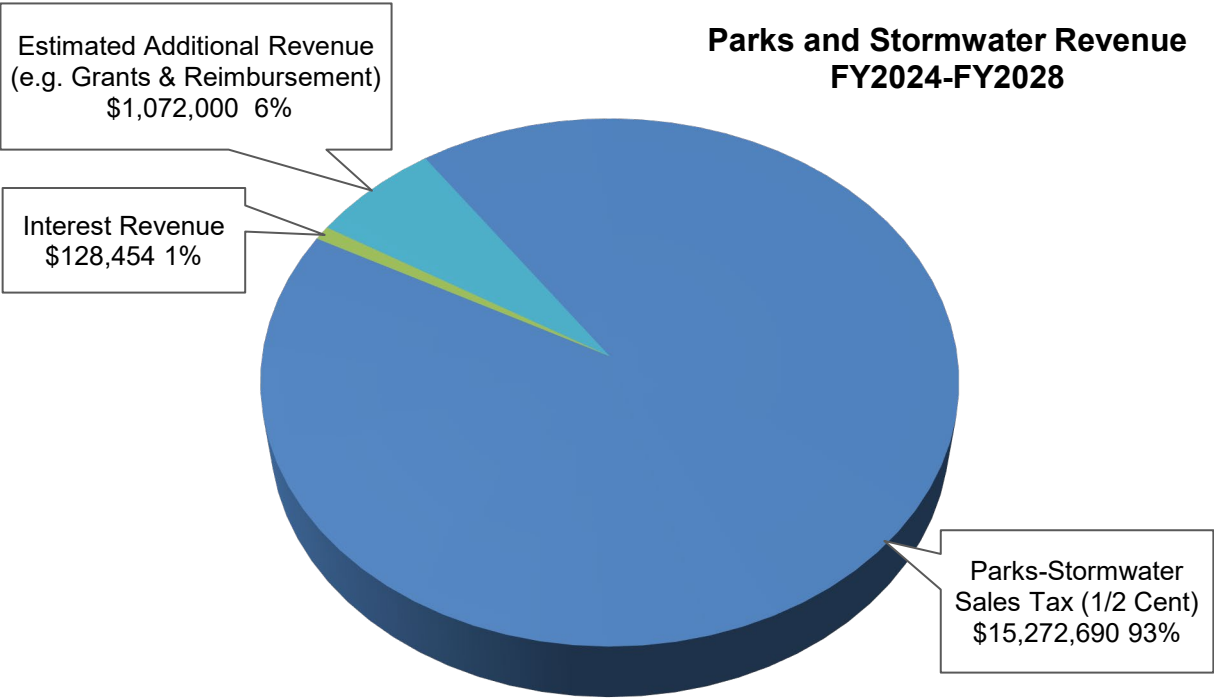
- | | |
|---|-----|
| • Parks Projects | 49% |
| • Stormwater Projects | 29% |
| • Capital Project Administration | 4% |
| • Parks and Stormwater Operations & Maintenance | 18% |

Funding for parks is proposed to be the greatest portion due a backlog of deferred parks maintenance, the improvements envisioned through the Parks and Recreation Master Plan, and the initial stormwater focus on smaller projects and the development of a Stormwater Management Plan.

At this time, the proposed CIP does not include investment into the Dielmann Recreation Complex or the Creve Coeur Golf Course though the Parks-Stormwater Tax Fund. Projects involving this property are included in the Capital Fund.



Summaries of the projected revenues and expenses for the Parks and Stormwater Fund are included below, and details about the projects and other expenses that are proposed to be financed through this fund can be found in the project summary sheets that follow.





9506 PARKS AND RECREATIONAL FACILITIES - 03

PARKS AND STORMWATER FUND

HISTORIC BUILDING REHABILITATION AND PRESERVATION

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$25,000	\$100,000	\$25,000	\$25,000	\$25,000	\$25,000	TBD

Project Description:

This project sets aside annual funding for repairs and improvements to the Lake School House at Lake School Park and to the Tappmeyer House at Millennium Park. In FY2024, the focus will be on repairing the front porch and stabilizing the structural support, cleaning up the basement, and repainting at Lake School. Future funding years could be combined to allow for a larger project, such the installation of rear ADA ramp into the Tappmeyer House and eventual painting.

Existing Conditions:

The front porch of the Lake School House needs to be stabilized to correct its sagging roof, some of the wood on the front of the building needs to be replaced, and a support column in the school's basement needs to be upgraded and/or replaced. The accessible lift and other aspects of the Tappmeyer House need regular maintenance and will eventually require replacement.

Justification: *Condition of Existing Facility; Protection and Conservation*

Like any of the City's buildings and facilities, the Lake School House and Tappmeyer House will need regular routine maintenance and improvements to remain structurally sound and attractive.

Operating Budget Impact:

Improvements to the locally historic buildings will help reduce the maintenance needs and costs for these buildings.

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 03

PARKS AND STORMWATER FUND

HISTORIC BUILDING REHABILITATION AND PRESERVATION CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 200,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures (FY2024-FY2028)	\$ 200,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 200,000
Total Funding	\$ 0
City's Contribution (FY2024-FY2028)	\$ 200,000



9506 PARKS AND RECREATIONAL FACILITIES - 05

PARKS AND STORMWATER FUND

PARK RESTROOM RENOVATIONS

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$50,088	\$120,000	\$60,000	\$60,000	\$0	\$0	TBD

Project Description:

This project involves further investigation into and design of renovations for the parks' seasonal restroom facilities to allow these restrooms to remain open for the entire year.

Existing Conditions:

The restroom facilities at Conway Park, Lake School Park, Malcolm Terrace Park, and Venable Park were constructed about 20 years ago and are substantially similar buildings based upon a common design. That design includes cinder block walls and an open-air roof meant for warm-weather, seasonal operation. The buildings do not have temperature controls, insulation, or buried water service lines.

Justification: *Community Demand; Coordination*

One of the primary user requests in the Parks and Recreation Master Plan was to offer year-round restroom facilities in the parks.

Operating Budget Impact:

Having the restrooms open for more or all of the year will generate more utility costs than the City currently pays. However, the main impact to the operating budget will be the need to staff the daily cleaning of the restrooms between the months of October and April when the restrooms are currently closed. The City will need to evaluate whether the restrooms can be cleaned effectively with the current staffing levels during labor-intensive operations, such as fall leaf collection and winter snow removal.

Comments:

Renovation or replacement of the restrooms at Lake School Park, Malcolm Terrace Park, and Venable Park will be evaluated based upon the FY2023 design and may be planned for future years, likely to be completed in conjunction with other improvements in these parks.

**9506 PARKS AND RECREATIONAL FACILITIES - 05**
PARK RESTROOM RENOVATIONS**PARKS AND STORMWATER FUND**
CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 50,088
Land Acquisition	\$ 0
Construction	\$ 240,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 290,088

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 290,088
Total Funding	\$ 0
City's Contribution	\$ 290,088



9509506 PARKS AND RECREATIONAL FACILITIES – 10

PARKS AND STORMWATER FUND

PARK FURNITURE REPLACEMENT

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$0

Project Description:

This project involves the regular replacement of park furniture that is at the end of its useful life. Replacement will involve benches, trash receptacles, and picnic tables.

Existing Conditions:

The City offers dozens of benches, trash receptacles, and picnic tables. Park furniture is exposed to the elements year-round and over time, paint fades, materials degrade, and the furniture becomes unsightly and perhaps even unsafe. Further, the style of the furniture is inconsistent with in a particular park.

Justification: *Condition of Existing Facility; Operating Efficiency; Beautification*

Sharp edges and other hazards can develop on park furniture that is detreating with age and wear from the elements. Replacing park furniture that is past its useful life keeps the City's parks safer and makes them more inviting, enjoyable, and beautiful.

Operating Budget Impact:

Replacing park furniture decreases the amount of time and effort Parks staff needs to expend on repairs. New furniture will be expected to be virtually maintenance free for the next 5-10 years.

Comments:

None

**9506 PARKS AND RECREATIONAL FACILITIES - 10**
PARK FURNITURE REPLACEMENT**PARKS AND STORMWATER FUND**
CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 100,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures (FY2024-FY2028)	\$ 100,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 100,000
Total Funding	\$ 0
City's Contribution (FY2024-FY2028)	\$ 100,000



9506 PARKS AND RECREATIONAL FACILITIES - 14

PARKS AND STORMWATER FUND

MILLENNIUM PARK IMPROVEMENTS – PHASE 1

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$128,531	\$2,300,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project involves a site design for the west half of Millennium Park and the replacement of the playgrounds, splash pad, and connecting walkways in this section of the park. The new playground will be larger than the existing two playgrounds, and the new splash pad will offer additional features from what is in place today. Both the playground and the splash pad will be partially shaded by fabric shades that will be constructed as part of this project. All of the benches in throughout the park will be replaced through this project

Existing Conditions:

The playground and splash pad at Millennium Park have served the City well, but both are about 20 years old and are wearing out. The playground equipment has begun to fail, and some elements have been removed or replaced in recent years. Although the larger safety surface continues to provide the required fall protection for the playground, this surface is beyond its recommended lifespan.

Justification: *Community Demand; Condition of Existing Facility; Coordination, Beautification*

These improvements to Millennium Park are the first phase of the implementation of the City's Parks and Recreation Master Plan and of the Millennium Park Master Plan. The playground and splash pad were selected as the first phase of improvements due to their popularity as the central features of Millennium Park and due to their age and deteriorated condition.

Operating Budget Impact:

New parks features are expected to require much less maintenance than the existing features.

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 14

PARKS AND STORMWATER FUND

MILLENNIUM PARK IMPROVEMENTS – PHASE 1

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 128,531
Land Acquisition	\$ 0
Construction	\$ 1,700,000
Equipment	\$ 600,000
Other	\$ 0
Total Expenditures	\$ 2,428,531

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 2,428,531
Total Funding	\$ 0
City's Contribution	\$ 2,428,531



9506 PARKS AND RECREATIONAL FACILITIES - 17

PARKS AND STORMWATER FUND

VENABLE PARK IMPROVEMENTS

PHASE 1: TRAIL, BRIDGE, TENNIS COURTS, & SPLASH PAD

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$125,000	\$2,000,000	\$0	\$0	\$0	\$0

Project Description:

The exact scope of this project has not yet been determined, but it could include elements from the Parks and Recreation Master Plan, such as the renovation of the restroom building for year-long operation, replacement of the tennis courts, replacement of pavilion, improved parking, a memorial to Dr. H. Phillip Venable, new furniture, the addition of a splash pad, and improved accessibility.

Existing Conditions:

Several of the facilities at Venable Memorial Park are aging and require updates or replacement. The asphalt tennis courts have been overlaid multiple times and can no longer be reliably repaired, and facilities like the pavilion, asphalt paths, and connector bridge have not been updated in the past ten years.

Justification: *Community Demand; Condition of Existing Facility; Coordination*

The project will coordinate with the recommendations of the Parks and Recreation Master Plan and the preliminary planning efforts for Venable Park. The tennis courts were selected as the first phase of improvements due to their popularity as the central features of Venable Park and due to their age and deteriorated condition. Additionally, bridge access to the park was singled out due to its age and deteriorated condition.

Operating Budget Impact:

New facilities are expected to require less annual maintenance and fewer funds than the existing equipment.

Comments:

In FY2023, the City plans to work with a national design firm to begin planning out improvements to Dr. H. Phillip Venable Memorial Park that are consistent with the Parks and Recreation Master Plan.



9506 PARKS AND RECREATIONAL FACILITIES - 17

PARKS AND STORMWATER FUND

VENABLE PARK IMPROVEMENTS**PHASE 1: TRAIL, BRIDGE, TENNIS COURTS, & SPLASH PAD****CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 125,000
Land Acquisition	\$ 0
Construction	\$ 2,000,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 2,125,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 2,125,000
Total Funding	\$ 0
City's Contribution	\$ 2,125,000



9506 PARKS AND RECREATIONAL FACILITIES - 23

PARKS AND STORMWATER FUND

39N GREENWAY CONNECTION TO CENTENNIAL TRAIL

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$33,750	\$0	\$0	\$0	\$0	\$0

Project Description:

The Great Rivers Greenway (GRG) is the public agency connecting the St. Louis region with greenways. The concept calls for a 600 mile network of greenways connecting St. Louis City, St. Louis County and St. Charles County. The next phase of this trail network is the Centennial Trail plan, which will connect Forest Park and Creve Coeur Lake Park, coming from Warson Park in Olivette to the east, working its way through our light industrial / 39 North district before moving into unincorporated St Louis County.

Existing Conditions:

GRG plans to move forward with preliminary design identified in the 39 North Greenway Plan in 2023 with construction projected for 2025-2027. However, segments that would allow better connectivity and access to the Centennial Trail for Creve Coeur businesses, institutions and residents are not included in the trail plan. As a result, a collaborative approach between the City of Creve Coeur, other stakeholders and GRG could enable these connections to be made.

Justification: *Community Demand; Coordination; Economic Growth; Protection & Conservation*

The GRG with willing to fund (subject to approval of their board) up to 50% of the cost in developing a preliminary design, estimated at \$300,000. In addition, the Donald Danforth Plant Science Center, St. Louis Economic Development Partnership, the City of Olivette and Bayer Global are willing to partner with the City in funding the remainder of the design cost. The project will further support one of the goals set out in the City's Strategic Plan to establish more options for pedestrians and provide expansion of the parks trail network. A robust trail network will attract more business to the community and make Creve Coeur a desirable place to live.

Operating Budget Impact:

None

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 23

PARKS AND STORMWATER FUND

39N GREENWAY CONNECTION TO CENTENNIAL TRAIL**CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 33,750
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 33,750

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 33,750
Total Funding	\$ 0
City's Contribution	\$ 33,750



9506 PARKS AND RECREATIONAL FACILITIES - 24

PARKS AND STORMWATER FUND

VENERABLE PARK MEMORIAL (HDR FOUNDATION GRANT)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$11,500	\$288,500	\$0	\$0	\$0	\$0	\$0

Project Description:

This project involves creating a lasting memorial to honor Dr. Venable. The goal is to have commemorative artwork that will engage visitors in the Venable's story. Through design elements, signage and future programming, this project will help inform visitors about the life and character of Dr. Venable as well as educate generations to come on what he faced in Creve Coeur. The memorial will be woven into the park master plan so it will be part of the overall aesthetics of the park.

Existing Conditions:

The park does not currently have a memorial to honor Dr. Venable or tell of his story.

Justification: *Community Demand; Coordination; Economic Growth; Protection & Conservation*

Community demand for this project has existed for quite some time. In 2019, Dr. Venable's story was brought to light to the Mayor and City Council.

Operating Budget Impact:

None

Comments:

None



9506 PARKS AND RECREATIONAL FACILITIES - 24

PARKS AND STORMWATER FUND

VENERABLE PARK MEMORIAL (HDR FOUNDATION GRANT)

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 11,500
Land Acquisition	\$ 0
Construction	\$ 288,500
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 300,000

Funding Type	Amount
Community Development Block Grant (CDBG)	\$ 0
Municipal Park Grant	\$ 0
Outside Funding Source	\$ 0
American Rescue Plan Act (ARPA)	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 300,000
Total Funding	\$ 0
City's Contribution	\$ 300,000



9509 STORMWATER - 01

PARKS AND STORMWATER FUND

WATERSHED MANAGEMENT PLAN

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$448,026	\$50,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will create an in-depth study of stormwater behavior and needs throughout Creve Coeur and provide a sound, clear, and prioritized basis for the City’s stormwater management program. The Watershed Management Plan will include a review of existing studies and resident concerns plus investigations of the creeks and stormwater infrastructure. From the Watershed Management Plan will come a prioritized, coordinated list of defined stormwater projects that will be listed as line items. in future Capital Improvement Plans.

Existing Conditions:

The last City-wide watershed study was completed in the 1990’s and was updated with additional project reviews in 2012. The study is outdated and does not provide a comprehensive list of issues and improvements that could guide a stormwater program.

Justification: *Community Demand; Condition of Existing Facility; Coordination; Operating Efficiency; Protection & Conservation*

In previous years, the City’s capital improvement budget allowed for a small stormwater program that could only fund small or emergency projects. With the residents’ approval of the parks and stormwater sales tax, the City is now able to have a planned, proactive stormwater program that will be logically and efficiently guided by the comprehensive Watershed Management Plan. A completed Watershed Management Plan will also help qualify the City for grants and other funding opportunities.

Operating Budget Impact:

None

Comments:

None



9509 STORMWATER - 01

WATERSHED MANAGEMENT PLAN

PARKS AND STORMWATER FUND

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 448,026
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 0
Other	\$ 50,000
Total Expenditures (FY2024-FY2028)	\$ 498,026

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ 0
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 498,026
Total Funding	\$ 0
City's Contribution (FY2024-FY2028)	\$ 498,026



9509 STORMWATER - 04

PARKS AND STORMWATER FUND

HIBLER ROADSIDE DRAINAGE

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$70,673	\$339,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will re-establish and improve roadside drainage along Hibler Road east of Falaise Drive to west towards Mason Road. Improvements will include new and improved roadside drainage swales, removing and replacing curb and gutter, and adding inlets and stormwater conveyance. Design will be completed in FY2023, and construction is planned for FY2024.

Existing Conditions:

Sections of Hibler Road do not have curbing and use roadside swales and the adjacent grades to carry stormwater runoff. City staff have received reports of ponding and large volumes of sheet flow during warmer weather and icy conditions during freezing temperatures. Staff has also observed that the street has insufficient drainage to safely convey stormwater.

Justification: *Community Demand; Condition of Existing Facility; Operating Efficiency; Public Safety*

This project aims to address residents' concerns about flooding and safety by improving stormwater management along Hibler Road.

Operating Budget Impact:

Addressing this concern through capital improvements will eliminate the need for City staff to attempt to address the situation through maintenance operations.

Comments:

None



9509 STORMWATER - 04

HIBLER ROADSIDE DRAINAGE**PARKS AND STORMWATER FUND****CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering (FY2023)	\$ 70,673
Land Acquisition	\$ 0
Construction	\$ 339,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 409,673

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ 0
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 409,673
Total Funding	\$ 0
City's Contribution	\$ 409,673



9509 STORMWATER - 05

PARKS AND STORMWATER FUND

**ALDEN LANE DRAIN REPLACEMENT
(DEER CREEK OMCI)**

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$39,533	\$67,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will replace a small storm drain system that serves a section of Alden Lane. The project will also repair a sinkhole that has formed near one of the failing inlets. Design will be completed in FY2023, and construction will take place in FY2024.

Existing Conditions:

The drain system includes two small inlets – one on each side of Alden Lane – that carry stormwater from the street and the north side of Alden Lane to a small creek on the south side of the street. The drains are not standard and easily clog with mulch and leaf debris. The clogged drains cause roadway flooding. An apparent failure of the drainage pipe has also created a large hole near the roadway. This hole is a potential hazard and has been filled with rock as a temporary safety measure. In addition to the hole near the existing inlet, the project will also repair a sinkhole that has formed in the road west of the drain system.

Justification: *Community Demand; Condition of Existing Facility; Operating Efficiency*

Replacing the existing stormwater inlets and pipes will improve the capacity and performance of this small stormwater system and help prevent the hole that formed near the creek from reappearing. The new drains will have larger openings that will make them much less likely to clog.

Operating Budget Impact:

Replacing non-standard drains will eliminate the need for staff to monitor the inlets for clogs during typical rain storms, and replacing the pipes will eliminate the need for staff to monitor the area to see if the hole has formed again.

Comments:

This project is located within the Deer Creek watershed, and the City will be eligible for reimbursement of design and construction costs through MSD's Operations, Maintenance, and Construction Improvements (OMCI) reimbursement program.



9509 STORMWATER - 05

**ALDEN LANE DRAIN REPLACEMENT
(DEER CREEK OMCI)**

PARKS AND STORMWATER FUND

CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering (FY2023)	\$ 39,533
Land Acquisition	\$ 0
Construction	\$ 67,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 106,533

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ 67,000
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 106,533
Total Funding	\$ 67,000
City's Contribution	\$ 39,533



9509 STORMWATER - 06

PARKS AND STORMWATER FUND

**BALLAS CULVERT EROSION REHABILITATION
(DEER CREEK OMCI)**

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$89,887	\$380,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will replace a failing road culvert and stabilize a section of the creek east of South New Ballas Road that flows behind the homes on Tarrytown Drive towards the City line. Design will be completed in FY2023, and construction is planned for FY2024.

Existing Conditions:

A stormwater culvert runs beneath South New Ballas Road just south of Tarrytown Drive, and water flows from west to east through this culvert. Replacing the culvert is necessary to keep one of the busiest roads in Creve Coeur from failing. In addition to the failing culvert, significant erosion has been observed downstream (east) of the culvert. Residents have voiced concerns about erosion, poor drainage, and flooding.

Justification: *Community Demand; Condition of Existing Facility; Operating Efficiency*

Improvements to address erosion downstream of the culvert will help prevent the situation worsening and potentially impacting South New Ballas Road, the most heavily traveled section of road that the City maintains. Addressing the creek downstream as part of this project should be less expensive and less intrusive to the neighboring properties than if the two projects were completed independently.

Operating Budget Impact:

None

Comments:

This project is located within the Deer Creek watershed, and the City will be eligible for reimbursement of design and construction costs through MSD's Operations, Maintenance, and Construction Improvements (OMCI) reimbursement program



9509 STORMWATER - 06

PARKS AND STORMWATER FUND

**BALLAS CULVERT EROSION REHABILITATION
(DEER CREEK OMCI)****CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering (FY2022 & FY2023)	\$ 89,887
Land Acquisition	\$ 0
Construction	\$ 380,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 469,887

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ 285,000
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 469,887
Total Funding	\$ 285,000
City's Contribution	\$ 184,887



9509 STORMWATER - 07

PARKS AND STORMWATER FUND

GOLF COURSE POND AERATION (DEER CREEK OMCI)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$13,000	\$64,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will add an aeration system in the Creve Coeur Golf Course's southernmost pond. Installing the aerator was originally intended to be part of the 2017 dam stabilization project. At that time, it was discovered that the existing electrical power feed needed to be upgraded to accommodate the aerator, and due to cost restraints the City was forced to remove this item from the scope of the dam project.

Existing Conditions:

A small electrical supply is located on the west side of the pond, slightly north of the #5 green. This electric supply currently powers the fountain in the pond. To add an aerator, the electrical needs to be upgraded. The 2017 dam project removed the built-up silt from the pond, which made the pond deeper, and the pond now has significant algae growth. An aerator will help circulate the water and control algae growth in the pond while reducing the possibility of odors from organic materials.

Justification: *Condition of Existing Facility; Beautification; Availability of Outside Funding*

The aerator will help the City extend its 2017 investment into the pond. Less algae will help make the pond water clearer and more aesthetically pleasing to golfers, enhancing their enjoyment of the course.

Operating Budget Impact:

The cost for the electricity for the aerator is expected to be negligible compared to the overall electricity needs of the Golf Course.

Comments:

This project is located within the Deer Creek watershed, and the City will be eligible for reimbursement of design and construction costs through MSD's Operations, Maintenance, and Construction Improvements (OMCI) reimbursement program.



9509 STORMWATER - 07

PARKS AND STORMWATER FUND

GOLF COURSE POND AERATION (DEER CREEK OMCI)**CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering (FY2023)	\$ 13,000
Land Acquisition	\$ 0
Construction	\$ 64,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 77,000

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ 64,000
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ 64,000

Summary	Amount
Total Expenditures	\$ 77,000
Total Funding	\$ 64,000
City's Contribution	\$ 13,000



9509 STORMWATER - 08

PARKS AND STORMWATER FUND

HIBLER WOODS DRAIN REPLACEMENT

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$30,000	\$0	\$0	\$0	\$0	\$0

Project Description:

This project will replace the failing trench drain that extends across Hibler Woods Drive. Both the metal grates and the supporting concrete shelf that supports the grates are deteriorating. Additionally, the grade of the asphalt approach is higher than the grate, which causes unsmooth and potentially unsafe driving conditions. When replacing the failing structure, the asphalt road before and after the drain will be milled and overlaid to create a smooth transition and even slope for a smoother, safer driving experience.

Existing Conditions:

A resident in the Mason Forest Subdivision reported that one of the grates of this trench drain was broken in 2020, and City staff welded a repair for this grate as a temporary measure. As has been the case with several other trench drains in Creve Coeur, roadway trench drains are considered part of the street and are not maintained by MSD.

Justification: *Condition of Existing Facility; Public Safety*

The trench drain will need to be replaced to provide a stable, structurally sound structure for vehicle and pedestrian traffic.

Operating Budget Impact:

Replacement of the drain should eliminate the need for additional repairs to the drain for at least ten years.

Comments:

None



9509 STORMWATER - 08

HIBLER WOODS DRAIN REPLACEMENT

PARKS AND STORMWATER FUND
CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 30,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 30,000

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ 0
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 30,000
Total Funding	\$ 0
City's Contribution	\$ 30,000



9509 STORMWATER - 09

PARKS AND STORMWATER FUND

STORMWATER CONCEPTUAL PLANS (DESIGN)

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$150,000	\$0	\$0	\$0	\$0	\$0

Project Description:

The Stormwater Committee identified seven stormwater concerns that will be evaluated before the completion of the Watershed Management Plan. This evaluation will help the City understand the scope, cost, and public support for each potential project. Projects that score high enough on the risk registry and cost/benefit analysis will move into preliminary design and possibly construction in FY2024. Projects that do not move forward to design at this time will be incorporated into the Watershed Management Plan.

The following are the sites the Stormwater Committee recommended for evaluation:

1. **Magna Carta at Runnymede and Templar** – Storm drain improvements
2. **13105 D'Artagnan Ct** – Stream bank erosion along the creek corridor
3. **Ferntop Lane** – Storm channel erosion
4. **Deer Creek in Malcolm Terrace Park** – Creek bank erosion & a possible bridge project
5. **Cuiseaux Court** – Subdivision drainage
6. **Beaver Drive** – Corrugated metal road culvert is past it's useful life
7. **Broadview Farm** – Road drainage and ponding at various locations in the subdivision

Existing Conditions:

Some of the issues that potential projects will work to solve include: stream bank erosion, insufficient or failing stormwater infrastructure, and yard ponding. Many of the above listed sites are within the City's right of way or parks, which reduces the likelihood that easements will be required.

Justification: *Condition of Existing Facility; Community Demand, Protection & Conservation*

The Stormwater Committee has recommended that the City pursue the design and construction of stormwater improvements before the Watershed Management Plan is completed.

Operating Budget Impact:

None

Comments

None



9509 STORMWATER - 09

PARKS AND STORMWATER FUND

STORMWATER CONCEPTUAL PLANS (DESIGN)**CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 150,000
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 150,000

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ TBD
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ TBD

Summary	Amount
Total Expenditures	\$ 150,000
Total Funding	\$ TBD
City's Contribution	\$ 150,000



9509 STORMWATER - 11

PARKS AND STORMWATER FUND

**LAKE DREDGING – CONWAY PARK & GOLF COURSE
(DESIGN & CONSTRUCTION)**

Estimated Annual Costs						
Prior Years	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$40,000	\$450,000	\$200,000	\$0	\$0	TBD

Project Description:

The lakes at Conway Park and the Golf Courses have received a large volume of sediment, and the depth of the lakes and water quality has greatly decreased. In the design phase, the depth of sediment will be measured, and then the amount of dredging required and the dredging methodology can be determined. The dredging itself will span two years. FY2025 will focus on Conway Park Lake, and in FY2026 the Golf Course lakes will be dredged. A forebay will be added to lake near green 9 to help keep suspended solids from flowing into the other lakes.

Existing Conditions:

Golfers have reported that the lakes at the Golf Course have a strong, unpleasant odor. Dredging the lakes will remove the organic material that is causing the odors. Currently, each of the lakes has a decreased storage capacity and are less effective at stormwater management.

Justification: *Community Demand; Condition of Existing Facility, Protection & Conservation, Beautification*

Dredging the lakes will improve stormwater management performance. Dredging Conway Lake to a suitable depth may make it possible to stock the lake with fish. After the lakes are dredged, fountains and aeration systems can be installed, which will help improve water quality and prevent odors.

Operating Budget Impact:

For the forebay to be effective, deposited sediment will need to be regularly removed. This regular maintenance will help prolong the amount of time until the lakes will need to be dredged again. Delaying the cost of another full dredging effort will be cost-effective in the long-term.

Comments:

None



9509 STORMWATER - 11

PARKS AND STORMWATER FUND

**LAKE DREDGING – CONWAY PARK & GOLF COURSE
(DESIGN & CONSTRUCTION)****CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 40,000
Land Acquisition	\$ 0
Construction	\$ 650,000
Equipment	\$ 0
Other	\$ 0
Total Expenditures	\$ 690,000

Funding Type	Amount
MSD Operation Maintenance Construction Improvement (OMCI) District	\$ TBD
DNR Section 319 Grant	\$ 0
Outside Funding	\$ 0
Total Funding	\$ TBD

Summary	Amount
Total Expenditures	\$ 690,000
Total Funding	\$ TBD
City's Contribution	\$ 690,000



9516 CAPITAL EQUIPMENT - 01

PARKS AND STORMWATER FUND

PARKS CAPITAL EQUIPMENT

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$0	\$30,000	\$0	\$0	\$0	\$0	\$0

Project Description:

The Department of Public Works proposes to purchase tractor for operation of the flail mower and various other needs required to maintain the park nature trails and surrounding grounds.

Existing Conditions:

Currently the flail mower is only available to be used with current skid steers are not needed for road work or other associate work. The tractor will be a new addition to the department and will greatly assist in nature trail and park ground maintenance.

Justification: *Condition of Existing Equipment; Operating Efficiency*

The City prides itself on the appearance of its parks, and green spaces of the parks are significant passive amenities. New tractor is needed to adequately and efficiently service these areas.

Operating Budget Impact:**Comments:**

None



9516 CAPITAL EQUIPMENT - 01

PARKS CAPITAL EQUIPMENT**PARKS AND STORMWATER FUND****CONTINUED**

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 0
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 30,000
Other	\$ 0
Total Expenditures	\$ 30,000

Funding Type	Amount
Outside Funding	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 30,000
Total Funding	\$ 0
City's Contribution	\$ 30,000



CAPITAL PROJECT ADMINISTRATION - 01
PROJECT MANAGEMENT

PARKS AND STORMWATER FUND

Estimated Annual Costs						
Prior Year	FY2024	FY2025	FY2026	FY2027	FY2028	Future
\$132,035	\$137,795	\$142,000	\$146,300	\$150,700	\$155,300	TBD

Project Description:

This line item includes the costs associated with the full-time salary and benefits for two Public Works staff members to help oversee the design and construction of projects outlined in the Capital Improvement Program. A project manager will be 100% funded through the Parks and Stormwater Fund, and a civil engineer will be 50% funded through the Capital Fund and 50% funded through the Parks and Stormwater Fund.

Existing Conditions:

The City's Department of Public Works manages the implementation of most of the Capital Improvement Program, and the Public Works staff needs the capacity to responsibly manage the additional projects and programs made possible by the parks and stormwater sales tax.

Justification: *Operating Efficiency*

The responsible and effective administration of the City's capital improvement projects requires significant staff time. Projects often have similar schedules, and multiple projects often require immediate attention at the same time. The project management and engineering staff provided for in this item will be critical for the parks and stormwater projects to be able to be completed successfully and on time.

Operating Budget Impact:

Annual costs for each position include salary and benefits plus ongoing employee training, city equipment, cell phone, and general supplies, which are anticipated to be approximately \$1,000 per employee per year.

Comments:

None

**CAPITAL PROJECT ADMINISTRATION - 01**
PROJECT MANAGEMENT**PARKS AND STORMWATER FUND**
CONTINUED

Expenditure Type	Amount
Planning, Design, and Engineering	\$ 732,095
Land Acquisition	\$ 0
Construction	\$ 0
Equipment	\$ 0
Other	\$ 0
Total Expenditures (FY2024-FY2028)	\$ 732,095

Funding Type	Amount
Outside Funding	\$ 0
Total Funding	\$ 0

Summary	Amount
Total Expenditures	\$ 732,095
Total Funding	\$ 0
City's Contribution (FY2024-FY2028)	\$ 732,095



BUILDING PROJECT BOND FUND

In November 2016, Creve Coeur voters approved a ballot measure that authorized the issuance of general obligation bonds of \$10.69 million for the purpose of constructing, furnishing, and equipping a new police station on the existing Government Center property and making safety, security, and accessibility renovations to the existing Government Center.

Building Project Bond Fund Expenses

The expenses for the police building project began in FY2018 and continued through FY2020. This project was completed slightly below budget.

Now that the police building project is complete, the remaining balance of this fund will be allocated to safety, security, and accessibility improvements to the Creve Coeur Government Center and the Police Station. Planning and design for the renovation of the Government Center are identified as a project in the Capital Fund. Renovations of the Government Center are planned for each year FY2024 through FY2028. Future Capital Improvement Programs will program the contribution from the Building Project Bond Fund for the Government Center project.

Debt Service

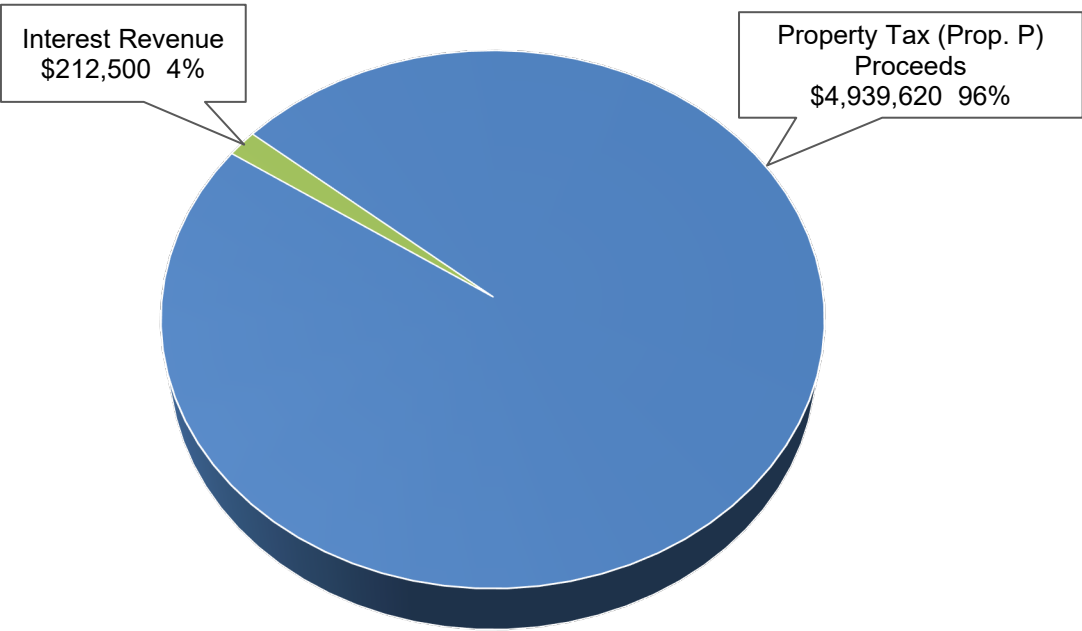
Most of the remaining revenues and expenses for the Building Project Bond Fund involve the debt service for the bonds. The debt service for the Building Project Bond Fund will be paid through a 20-year real estate and personal property tax levy, which is anticipated to sunset in 2037.

The property tax that funds the debt service was increase by approximately 24% in FY2023 and is proposed to increase through the five-year capital plan.

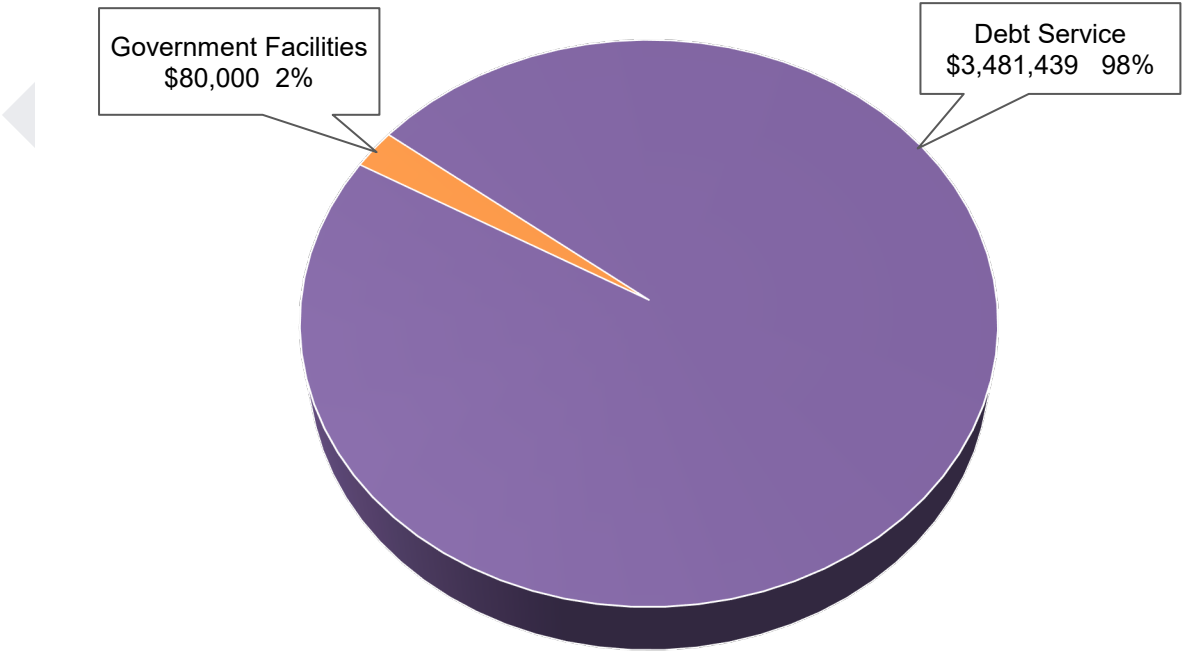
Summaries of the projected revenues and expenses for the Building Project Bond Fund are included on the next page, and details about the two projects that are proposed to be financed through this fund can be found in the project summary sheets that follow.



**Building Project Bond Fund Revenues
FY2024-FY2028**



**Building Project Bond Fund Expenses
FY2024-FY2028**



**FY 2024 Capital Fund Projects****Accessibility Improvements (CDBG)*

FY 2024 Capital Expenses: \$20,000

Operating Budget Impact: None

Funding has been designated from a Community Development Block Grant (CDBG) for accessibility improvements to several bus stops along New Ballas Road. Projects in this program are relatively small in scope and do not impact operating budget.

Government Center Renovations

FY 2024 Capital Expenses: \$30,000

Operating Budget Impact: Decrease

The project involves reviewing the existing concept-level renovation plans for the Creve Coeur Government Center and an evaluation of the City's options to renovate or rebuild the Government Center. The proposed renovations will improve energy efficiency and replace aging systems that need frequent and costly maintenance.

Salt Dome Roof Repairs

FY 2024 Capital Expenses: \$60,000

Operating Budget Impact: Decrease

The project involves the replacement of roofing and roof vents on the existing salt dome. The new roof will provide protection to the building structure and protect the salt in the structure, thus reducing future operating cost.

Government Center Roof Repairs

FY 2024 Capital Expenses: \$250,000

Operating Budget Impact: None

The Government Center roof repair project proposes placement of a single-ply roofing membrane (Thermoplastic Polyolefin). The placement of the single-ply roofing membrane will help mitigate water leaks and structural effects to the building until a more permanent solution is determined for the Government Center.

Demo of 1030 N Lindbergh Blvd. Building

FY 2024 Capital Expenses: \$40,000

Operating Budget Impact: Decrease

This project would demo the home and replace it with visually-appealing, low-maintenance vegetation; a gate; and fencing. Removing the existing, aging structure will save the City from future maintenance and repair costs.

EV Charging Stations at the Police Station & Government Center

FY 2024 Capital Expenses: \$112,500

Operating Budget Impact: None

The project will involve the design, planning and construction of electronic Vehicle (EV) charging stations at the Police Station and Government Center. This project is eligible for rebates under an Ameren Missouri program that covers up to half the cost of EV charging station equipment and installation.

Ice Arena Refrigerant Switchover

FY 2024 Capital Expenses: \$2,200,000

Operating Budget Impact: Decrease

This project involves removal and replacement of the old R-22 refrigerant system. Newer systems equipment will be more reliable, environmentally friendly and more efficient. This project will be partially funded by a \$525,000 municipal park grant and by American Rescue Plan Act (ARPA) funds. The system equipment is expected to require little or no maintenance for several years.

**FY 2024 Capital Fund Projects (Continued)****Dielmann Recreation Complex Roof Drainage*

FY 2024 Capital Expenses: \$93,000

Operating Budget Impact: None

This project involves the design and construction of improvement drainage systems to capture stormwater and carry it away from the building. Following construction, costs of repairing stormwater damage and repairs may be reduced.

Ice Arena Floor Replacement

FY 2024 Capital Expenses: \$200,000

Operating Budget Impact: Decrease

This project will replace the rubberized flooring that is around the ice rink, in the player's locker rooms, and in the referee's changing room. After the floor is installed, there will be minimal upkeep involved, and lower the impact on the operating budget.

Golf Course Perimeter Fencing Replacement

FY 2024 Capital Expenses: \$40,000

Operating Budget Impact: None

This project will involve the replacement of the existing perimeter fence that runs east-west along the southern border of the Golf Course. Project will be completed in two phases with the eastern section occurring first. The project has no impact on the operating budget.

Dielmann Structural Repairs

FY 2024 Capital Expenses: \$20,000

Operating Budget Impact: None

The project consists of repairs to the interior and exterior building found during the building structural evaluation conducted in FY2023. Minor issues identified in the structural evaluation include: a crack in the header beam for a maintenance door located on the northeast wall of the ice rink; damaged drywall in the ceiling of the basement garage; exterior joints and cracks in need of tuckpointing; and damaged railings. Repairs made to the structure should result in decreased maintenance cost and improvement of the structure.

Temporary Portable Ice Rink Refrigerant System

FY 2024 Capital Expenses: \$120,000

Operating Budget Impact: Decrease

This project involves the temporary installation of a portable ice rink refrigerant system at the Dielmann Recreational facility to allow the continuation of ice sports during the replacement of the refrigerant system. The system equipment is expected to require little or no maintenance during the replacement process.

Golf Course Maintenance Building Replacement

FY 2024 Capital Expenses: \$30,000

Operating Budget Impact: None

The project involves developing conceptual design documentation for the eventual replacement of the existing maintenance building. Partial funding for this project will be pursued through the Municipal Park Grant program.



FY 2024 Capital Fund Projects (Continued)*

Street and Sidewalk Maintenance Program

FY 2024 Capital Expenses: \$1,421,000 Operating Budget Impact: Decrease

The annual pavement and sidewalk maintenance programs improve and preserve the City's infrastructure, and that helps to eliminate the need for the City's staff to patch potholes and other repairs necessary to maintain certain areas and avoid accelerated deterioration. However, the cost to repair all of the deficiencies in the City's streets and sidewalks exceeds the capital and operating budgets set aside for these improvements, so the need for maintenance through the operating budget is never fully eliminated.

Street Reconstruction/Rehabilitation

FY 2024 Capital Expenses: \$300,000 Operating Budget Impact: None

The City plans to fully or substantially replace sections of failed residential roadways through this project. The various needs of the pavement network are evaluated each year to determine which streets need to be reconstructed. The City plans to replace the pavement on Conway Gardens Court in FY2024. Allocation of funds for reconstruction allows for more maintenance budget and staff time to preserve streets and sidewalks that are in better condition.

Fernview Sidewalk Concept Plan – Phase 1

FY 2024 Capital Expenses: \$50,000 Operating Budget Impact: None

The City developed a concept plan to add a sidewalk along Fernview Drive (between Olive Boulevard and Gallagher Road) and along the side streets to connect with the existing sidewalk networks on each side of Fernview. This project will involve the design portion with construction to follow once matching funding is secured through a federal Transportation Alternative Program (TAP) grant.

New Ballas Median Plantings

FY 2024 Capital Expenses: \$50,000 Operating Budget Impact: Decrease

This project will involve the removal of invasive tree species from the median along New Ballas and replace with native trees and plants. Landscape maintenance costs could be limited with native and other low-maintenance plants.

Lindbergh-Old Olive Intersection Reconstruction

FY 2024 Capital Expenses: \$2,045,500 Operating Budget Impact: None

This project involves adding a traffic signal at the intersection of Lindbergh Boulevard and Old Olive Street Road, which is considered the critical first step toward enacting the Great Streets plan and new connectivity envisioned for Old Olive. The City has secured federal grants that will fund up to 84% of the costs for this project. The FY 2024 phase begins the construction portion of the project. The City will assume maintenance responsibility for Old Olive (currently a state-maintained roadway), which is expected to carry significant operating costs in the future for pavement and sidewalk maintenance, lighting, landscaping, and snow plowing.

**FY 2024 Capital Fund Projects (Continued)****Olive-Lindbergh Interchange Enhancements*

FY 2024 Capital Expenses: \$30,000

Operating Budget Impact: Increase

The project calls for enhancements that include black powder coat and illuminated street name signs to two new traffic signals on Olive and decorative median, pedestrian-scale lighting, and bridge treatments along Olive over Lindbergh. The City will be responsible to maintain the signal and bridge enhancements and landscaping. The costs associated with the bridge and signal enhancements is expected to be minimal for the foreseeable future. Landscape maintenance costs could be limited if native grasses and other low-maintenance plants are used in the landscaping design and will be evaluated during landscaping design and selection.

Olive Median Enhancement Stock

FY 2024 Capital Expenses: \$20,000

Operating Budget Impact: Decrease

The median on Olive Boulevard has concrete, decorative planters. If the planters are hit during a traffic accident, often the entire median planter needs to be replaced. The construction and delivery for concrete planters takes months. Rather than wait months at a time for replacement planters, the City maintains a supply. Additionally, the City pays a lower cost per unit by buying several planters at one time.

Craig Road Improvements

FY 2024 Capital Expenses: \$100,000

Operating Budget Impact: Decrease

The project involves improvements to the intersection layout, resurfaced pavement, and reconstructed and expanded sidewalks along Craig Road and Olde Cabin Road between Old Ballas Road and Olive Boulevard. A grant will reimburse the City approximately 70% of the total cost of the project. The pavement and sidewalks of Craig Road are in increasing need of maintenance. Road resurfacing and sidewalk reconstruction would reduce future maintenance costs.

N Ballas Road Improvements - Phase 2

FY 2024 Capital Expenses: \$150,000

Operating Budget Impact: Decrease

The project includes pavement resurfacing, concrete curb and sidewalk replacement, and accessibility improvements along New Ballas Road from Conway Road to Ladue Road. The project will also include a pedestrian connection to the bus stop near Mercy Hospital along the east side of New Ballas. The City will seek a federal grant for reimbursement on this project. The pavement and sidewalks of N Ballas Road are in increasing need of maintenance. Road resurfacing and sidewalk reconstruction would reduce future maintenance costs.

Olive-270 Overpass Cleaning & Painting

FY 2024 Capital Expenses: \$80,000

Operating Budget Impact: None

This project will involve nighttime cleaning and/or repainting of the exterior (i.e., facing Interstate 270) faces of the Olive Boulevard bridge over Interstate 270. The project has no impact on the operating budget.

**FY 2024 Capital Fund Projects (Continued)****Old Olive Sidewalk Extension*

FY 2024 Capital Expenses: \$25,000

Operating Budget Impact: None

This project will involve installing a new concrete sidewalk on Old Olive Street Road (west), near Laverne Collins Park. Constructing this sidewalk will connect two sections of sidewalk to create a continuous pedestrian path along the west side of Old Olive from Olive Blvd to north of King Henry Court. No significant maintenance is anticipated in the near future.

Public Works Capital Equipment

FY 2024 Capital Expenses: \$619,000

Operating Budget Impact: Decrease

Equipment replacement is based on a scheduled rotation that helps limit the financial impact on any one year. The new vehicles are expected to require minimal repairs in their first few years of use, reducing repair bills and improving operating efficiency due to less down time for equipment repairs.

Golf Course Capital Equipment

FY 2024 Capital Expenses: \$55,000

Operating Budget Impact: Decrease

Equipment to be replaced is a greens mower for the golf course. The new mower is expected to require minimal repairs in its first years of operation, reducing repair bills and improving operating efficiency due to less down time for repairs.

Capital Project Administration - Project Manager

FY 2024 Capital Expenses: \$153,104

Operating Budget Impact: Small Increase

This item includes costs associated with the salary and benefits for two civil engineers in the Department of Public Works to serve as project managers to oversee the implementation of the Capital Improvement Program. One position added in 2023 will be split between the Parks & Stormwater Fund and the Capital Improvement Fund. Annual costs for each position included ongoing employee training, city equipment, cell phone, and general supplies estimated to be approximately \$1,000 per employee.

**Parks-Stormwater Tax Fund Projects****Historic Building Rehabilitation and Preservation*

FY 2024 Capital Expenses: \$100,000

Operating Budget Impact: Decrease

This project involves repairs and improvements to stabilize and correct a sagging roof, painting, and replace wood on the front and in the basement of Lake School House at Lake School Park. It will also entail several repairs and improvements at the Tappmeyer House to address railing issues, water drainage, chimney tuck point and minor exterior problems. Improvements to these local historic buildings will help minimize more costly maintenance needs in the future if repairs are postponed further.

Park Restroom Renovations

FY 2024 Capital Expenses: \$120,000

Operating Budget Impact: Increase

The FY 2024 phase of the project involves construction work costs associated with renovations needed to have an open year-round restroom at Conway Park and Malcolm Terrace Park. A year-round restroom at the parks will generate additional utility cost and staff labor to provide daily cleaning between the months of October and April, which will impact the operating budget in FY 2024.

Park Furniture Replacement

FY 2024 Capital Expenses: \$20,000

Operating Budget Impact: Decrease

This project involves the regular replacement of park furniture that is at the end of its useful life. Replacement will involve benches, trash receptacles, and picnic tables. Replacing park furniture decreases the amount of time and effort Parks staff needs to expend on repairs. New furniture will be expected to be virtually maintenance free for the next 5-10 years.

Millennium Park Improvements – Phase 1

FY 2024 Capital Expenses: \$2,300,000

Operating Budget Impact: Decrease

The FY 2024 phase of this project involves the replacement of the playgrounds, splash pad, and connecting walkways for the west half of Millennium Park. New equipment, playgrounds and surfaces will require less maintenance than the existing features, thereby decreasing operating budget.

Venable Park Improvements - Phase 1

FY 2024 Capital Expenses: \$125,000

Operating Budget Impact: None

The exact scope of this project has not yet been determined, but it could include replacement of the tennis courts and pavilion, improved parking, a memorial to Dr. H. Phillip Venable, new furniture, the addition of a splash pad, and improved accessibility. The project design has no impact on the operating budget; however, following construction completion, new structures will require less annual maintenance, which will have a reduction in the operational budget.

39N Greenway Connection to Centennial Trail

FY 2024 Capital Expenses: \$33,750

Operating Budget Impact: None

This project involves providing funding contribution in conjunction with the Donald Danforth Plant Science Center, St. Louis Economic Development Partnership, the City of Olivette and Bayer Global for the design of the next phase of the trail plan that will connect the St Louis region with greenways. The project has no impact on the operating budget.

**Parks-Stormwater Tax Fund Projects* (Continued...)***Venable Park Memorial*

FY 2024 Capital Expenses: \$288,500

Operating Budget Impact: None

This project involves creating a lasting memorial to honor Dr. Venable. The memorial will be woven into the park master plan so it will be part of the overall aesthetics of the park. An HDR Foundation Grant and private donation will fund approximately 50% of the project. The memorial will not impact the operating budget..

Watershed Management Plan

FY 2024 Capital Expenses: \$ 50,000

Operating Budget Impact: None

The residents' approval of a parks and stormwater sales tax will provide the City with the funding needed to develop a robust watershed management program. The watershed management plan will identify stormwater issues throughout Creve Coeur and will help guide the City's stormwater program. This study will not impact the operating budget.

Hibler Roadside Drainage

FY 2024 Capital Expenses: \$339,000

Operating Budget Impact: None

This project will re-establish and improve roadside drainage along Hibler Road east of Falaise Drive to west towards Mason Road. Improvements will include new and improved roadside drainage swales, removing and replacing curb and gutter, and adding inlets and stormwater conveyance. This project will not impact the City's operating budget.

Alden Lane Drain Replacement

FY 2024 Capital Expenses: \$67,000

Operating Budget Impact: None

A storm drain that serves a section of Alden Lane has collapsed and needs to be replaced. The construction phase costs of this project are eligible for reimbursement through MSD's Operations, Maintenance, and Construction Improvement (OMCI) program for the Deer Creek watershed. This project will not impact the City's operating budget.

Ballas Culvert Erosion Rehabilitation

FY 2024 Capital Expenses: \$380,000

Operating Budget Impact: None

This project will stabilize a roadway culvert and a section of the creek east of South New Ballas Road that flows behind the homes on Tarrytown Drive towards the City line. Most or all of the cost of this project is eligible for reimbursement through MSD's Operations, Maintenance, and Construction Improvement (OMCI) program for the Deer Creek watershed. This project will not impact the City's operating budget.

Golf Course Pond Aeration

FY 2024 Capital Expenses: \$64,000

Operating Budget Impact: None

This project will add an aeration system that was recommended as part of the FY 2017 dam stabilization project. Most or all of the cost of this project is eligible for reimbursement through MSD's Operations, Maintenance, and Construction Improvement (OMCI) program for the Deer Creek watershed. This project will not impact the City's operating budget.



Parks-Stormwater Tax Fund Projects* (Continued...)

Hibler Woods Drain Replacement
FY 2024 Capital Expenses: \$30,000 Operating Budget Impact: None
This project will replace a roadway trench drain that is at risk of failing.

Stormwater Concept Plans
FY 2024 Capital Expenses: \$150,000 Operating Budget Impact: None
This project involves investigation of seven stormwater concerns that were identified by the Stormwater Committee. Projects that have a high enough cost-to-benefit ratio and risk score will move into the design phase. The conceptual plans will not impact the operating budget.

Lake Dredging - Conway Park and Golf Course
FY 2024 Capital Expenses: \$40,000 Operating Budget Impact: None
This project includes only the design phase. In this phase, the depth of sediment will be measured, and then the amount of dredging required and the dredging methodology can be determined. The dredging itself will span two years. A forebay will be added to the lake near the Golf Course green 9 to help limit the amount of suspended solids flowing into the other lakes. The design phase will have no operational impact, but future construction should result in better water quality and reduced maintenance costs.

Parks Capital Equipment
FY 2024 Capital Expenses: \$30,000 Operating Budget Impact: None
Equipment to be purchased is a tractor for operating the flail mower to be used at the various parks. The equipment will assist in maintaining nature trails and will improve staff's ability to provide adequate and efficient park services.

Capital Project Administration - Project Manager
FY 2024 Capital Expenses: \$137,795 Operating Budget Impact: Small Increase
This item includes costs associated with the salary and benefits for two civil engineers in the Department of Public Works to serve as project managers to oversee the implementation of the Capital Improvement Program. One position added in 2023 will be split between the Parks & Stormwater Fund and the Capital Improvement Fund. Annual costs for each position included ongoing employee training, city equipment, cell phone, and general supplies estimated to be approximately \$1,000 per employee.

Building Project Bond Fund Projects*

Police Parking Lot Security Fence
FY 2024 Capital Expenses: \$80,000 Operating Budget Impact: None
Project involves the Installation of a security fence around the rear parking lot of the Police station and to install automatic gates, to restrict access into the rear of the building and police vehicles. This project will have minimal impact on operational budget.

**Complete project descriptions are listed in the Capital Improvement Program Fiscal Years 2024-2028 in the budget document.*

CAPITAL FUND

9501 GOVERNMENT FACILITIES		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Accessibility Improvements (CDBG)		-	-	20,000	20,000	-	20,000	20,000	20,000	20,000
02 Government Center Renovations		250,000	56,949	400,000	38,317	30,000	30,000	30,000	30,000	30,000
03 Government Center Parking Lot Repairs		25,000	9,930	-	-	-	-	-	-	-
04 Salt Dome Roof Repairs (Insurance Claim)		60,000	-	-	-	60,000	-	-	-	-
05 Police Department Repair (Insurance Claim)		-	32,826	-	-	-	-	-	-	-
06 Government Center Roof Repairs (Insurance Claim)		-	-	-	5,653	250,000	-	-	-	-
07 Demo of 1030 N Lindbergh Blvd Building		-	-	-	-	40,000	-	500,000	-	-
08 Roofing for Public Works Garage		-	-	-	-	112,500	-	-	-	-
09 EV Charging Stations at the Police Station and Government Center (Grant Match)		-	-	-	-	-	-	-	-	-
Subtotal (Government Facilities)		335,000	99,705	420,000	63,970	492,500	50,000	550,000	50,000	50,000
% of Total Capital Fund Outlay		7%	4%	8%	1%	6%	1%	13%	2%	2%

9506 PARKS AND RECREATIONAL FACILITIES		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
02 Park or Dielmann Complex Improvements (Grant Match)		-	-	30,500	-	-	30,500	-	30,500	-
14 Ice Arena Refrigerant Switchover (Municipal & ARPA Grant)		20,000	20,000	100,000	234,450	2,200,000	-	-	-	-
15 Malcolm Terrace Parking Lot Improvements (CDBG Grant)		-	35	-	-	-	-	-	-	-
16 Dielmann Recreation Complex HVAC Replacement - Phase 2		110,000	-	110,000	110,000	-	-	-	-	-
17 Dielmann Recreation Complex Roof Drainage		50,000	-	30,000	42,355	93,000	-	-	-	-
18 Ice Arena Flooring Replacement		-	-	-	-	200,000	-	-	-	-
20 Park Preliminary Design - Millennium Park (Park Planning Grant)		-	7,000	-	-	-	-	-	-	-
21 Ice Arena Dehumidification System Repair (ARPA)		-	45,729	-	75,000	-	-	-	-	-
22 Ice Arena Evaluation		-	30,960	-	-	-	-	-	-	-
23 Dielmann Complex Concessions Area Renovation (Planning & Design)		-	-	30,000	20,000	-	-	-	-	-
24 Dielmann Recreation Complex Fire Alarm Repair (Insurance Claim)		-	19,760	-	4,834	-	-	-	-	-
25 Golf Course Perimeter Fencing Replacement		-	-	-	-	40,000	-	70,000	-	-
26 Golf Course Maintenance Bridge		-	-	-	-	-	-	-	-	200,000
27 Dielmann Structural Repairs		-	-	-	3,600	20,000	-	400,000	-	-
28 Accessibility Improvements (CDBG)		-	-	-	-	20,000	-	-	-	-
29 Roofing for Ice Arena (Insurance Claim)		-	-	-	-	-	-	-	-	-
30 Dielmann Compressor Repairs (ARPA)		-	-	-	99,390	120,000	-	-	-	-
31 Temporary Portable Ice Rink Refrigerant System		-	-	-	-	30,000	-	-	-	-
32 Golf Course Maintenance Building Replacement		-	-	-	-	-	-	-	-	-
Subtotal (Parks and Recreational Facilities)		180,000	123,484	300,500	589,629	2,723,000	30,500	470,000	30,500	200,000
% of Total Capital Fund Outlay		4%	4%	6%	8%	33%	1%	11%	1%	7%

9510 STREETS AND SIDEWALKS		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Street and Sidewalk Maintenance Program		-	1,395,564	1,400,000	1,899,992	1,421,000	1,442,300	1,483,900	1,485,900	1,508,200
02 Street Reconstruction/Rehabilitation		-	-	300,000	482,085	300,000	-	300,000	-	300,000
04 Fernview Sidewalk Concept Plan - Phase 1 Olive to Gallagher (Design & Grant Match)		35,000	34,765	-	1,534	50,000	60,000	160,000	-	-
05 New Ballas Median Plantings		-	8,800	-	-	50,000	-	-	-	-
06 Signal Enhancement Projects		180,000	272,843	-	-	-	-	-	-	-
07 Emerson Road Improvement Project (STP Grant)		-	23,353	-	-	-	-	-	-	-
09 Mosley Road Improvement Project (STP Grant)		1,340,000	203,199	-	1,124,563	-	-	-	-	-
10 N Ballas Road Improvements - Phase 1 - Olive to Craig (STP Grant)		180,000	108,796	1,136,600	1,136,600	-	-	100,000	-	-
11 N Ballas Sidewalk - Phase 3 (TAP Grant)		-	5,472	210,000	-	-	-	-	-	-
12 Lindbergh-Old Olive Intersection (State Cost-Share; STP Grant)		25,000	70,615	460,000	460,000	2,045,500	-	-	-	-
13 Olive-Lindbergh Interchange Enhancements		30,000	-	-	-	30,000	-	-	-	-
14 Pavement Condition Ratings Update		45,000	24,785	-	27,962	-	20,000	20,000	20,000	20,000
15 Olive Median Enhancement Stock		75,000	22,957	150,000	59,105	100,000	1,300,000	250,000	-	-
16 Craig Road Improvements (STP Grant)		-	-	-	225,600	150,000	-	-	-	-
17 N Ballas Road Improvements - Phase 2 S. New Ballas (Design & Grant Match)		-	-	-	-	-	-	20,000	-	-
18 N Ballas Road Improvements - Phase 3 - Ladue to Magna C (Design & Grant Match)		-	-	-	-	-	-	250,000	-	-
19 N Ballas Road Improvements - Phase 4 - Magna C to Olive (Design & Grant Match)		-	-	-	-	-	150,000	20,000	250,000	-
20 Ladue Road Improvements - Phase 1 (Design & Grant Match)		-	-	-	-	-	-	125,000	150,000	-
21 Olive-270 Overpass Cleaning & Painting		-	-	-	-	80,000	-	-	-	-
22 Old Olive Sidewalk Extension (Design)		-	-	-	-	25,000	60,000	-	-	-

23 Fernview Sidewalk - Phase 2 Gallagher to LeHavre (Design & Grant Match)									
Subtotal (Streets and Sidewalks)		3,285,000	2,171,189	3,656,600	5,417,441	4,271,500	3,052,300	2,518,900	80,000
% of Total Capital Fund Outlay		71%	79%	73%	77%	51%	81%	61%	
9516 CAPITAL EQUIPMENT									
FY2022 BUDGETED		532,690	186,035	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
FY2022 ACTUAL		186,035		FY2023 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
01 Public Works Capital Equipment **		532,690	186,035	331,000	228,620	619,000	401,800	398,800	408,500
02 Golf Course Capital Equipment		25,000	23,486	-	-	55,000	65,000	-	65,000
03 Police Department Capital Equipment		42,000	-	42,000	41,530	-	-	-	-
04 Phone System Replacement		52,000	42,434	-	-	-	-	-	-
05 Public Works Facility Gasoline System Replacement		-	-	-	-	-	-	-	-
06 Permitting Software		70,000	-	70,000	156,649	-	-	-	-
07 Meeting Management Software		-	-	20,000	13,128	-	-	-	-
08 Active Net Software		-	16,027	-	-	-	-	-	-
09 Capital Equipment Back Order		-	-	-	376,255	-	-	-	-
Subtotal (Capital Equipment)		721,690	267,982	463,000	816,182	674,000	466,800	398,800	473,500
% of Total Capital Fund Outlay		16%	10%	9%	12%	8%	12%	10%	16%
CAPITAL PROJECT ADMINISTRATION									
FY2022 BUDGETED		93,082	93,634	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
FY2022 ACTUAL		93,634		FY2023 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
01 Project Management		93,082	93,634	145,258	138,542	153,104	157,700	162,500	167,400
Subtotal (Administration)		93,082	93,634	145,258	138,542	153,104	157,700	162,500	167,400
% of Total Capital Fund Outlay		2%	3%	3%	2%	2%	4%	4%	6%
TOTAL CAPITAL FUND OUTLAY									
FY2022 BUDGETED		4,614,772	2,755,994	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
FY2022 ACTUAL		2,755,994		FY2023 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
9514 DEBT SERVICE		-	-	-	-	-	-	-	-
N/A		-	-	-	-	-	-	-	-
Subtotal		0%	0%	0%	0%	0%	0%	0%	0%
% of Total Year End Figures									
TOTAL YEAR END FIGURES									
FY2022 BUDGETED		4,614,772	2,755,994	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
FY2022 ACTUAL		2,755,994		FY2023 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
(Capital Outlay & Debt Service)		4,614,772	2,755,994	4,985,358	7,025,764	8,314,104	3,757,300	4,100,200	2,652,300
CAPITAL FUND REVENUES									
FY2022 BUDGETED		2,062,368	2,052,949	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
FY2022 ACTUAL		1,911,932	2,195,653	FY2023 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
Beginning Fund Balance (estimated Cash Basis as of July 1)		2,062,368	2,052,949	2,620,094	2,620,094	1,764,724	756,412	500,768	280,221
Estimated Capital Improvement Sales Tax Revenue (Half-Cent Sales Tax)		1,911,932	2,195,653	2,206,608	2,422,402	2,470,850	2,520,267	2,545,470	2,570,924
Estimated Interest Revenue		4,000	6,166	2,150	28,468	8,997	6,389	4,183	7,949
Estimated Additional Revenue (Grants, Reimbursement, and Other)		839,000	718,220	1,448,346	3,302,524	4,415,945	565,000	920,000	40,000
Proceeds from Equipment Sales		10,000	3,100	10,000	17,000	10,000	10,000	10,000	10,000
General Fund Transfers In		650,000	400,000	800,000	400,000	400,000	400,000	400,000	400,000
Total Revenues & General Fund Transfers In - Capital Fund									
3,414,932		3,323,139	6,170,394	4,467,104	7,025,764	7,305,792	3,501,656	3,879,663	3,028,874
Total Anticipated Year End Expenditures									
4,614,772		2,755,994	7,025,764	4,985,358	7,025,764	8,314,104	3,757,300	4,100,200	2,652,300
Ending Fund Balance (Cash Basis) - Capital Fund									
862,528		2,620,094	1,764,724	2,101,840	1,764,724	756,412	500,768	280,221	656,795
ESTIMATED ADDITIONAL REVENUE									
FY2022 BUDGETED		-	-	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
FY2022 ACTUAL		-	-	FY2023 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED
ADA Improvements (Community Development Block Grant)		-	177,802	20,000	20,000	20,000	20,000	20,000	20,000
Insurance Proceeds - Public Works Gate		-	444,000	-	6,345	-	-	-	-
Emerson Road Improvement Project (STP Grant)		-	-	-	-	-	-	-	-
Mosley Road Improvements - North Phase (STP Grant)		676,000	54,694	705,306	680,014	-	-	-	-

** Current projections show that some vehicles may take up to two years between ordering and delivery. Payment for equipment occurs upon delivery, so the actual amounts shown may misleadingly suggest that no equipment was ordered.

New Ballas Improvements - Phase 1 (STP Grant)	144,000	-	144,000	144,000	816,000	-	-	-	-
Park Path Improvements (Municipal Park Grant)	-	-	-	-	-	-	-	-	-
Lindbergh-Old Olive Intersection (State Cost-Share Program)	15,000	-	95,200	50,000	875,050	-	-	-	-
Lindbergh-Old Olive Intersection (STP Grant)	-	-	229,840	229,840	934,360	-	-	-	-
New Ballas Sidewalk - Phase 3 (TAP Grant)	4,000	-	4,000	4,000	-	-	-	-	-
Signal Enhancement Reimbursement (MoDOT)	-	-	-	-	-	-	-	-	-
Signal Enhancement Reimbursement (MoDOT)	-	-	-	-	-	-	-	-	-
Ice Arena Refrigerant Switchover (Municipal Park Grant)	-	-	-	-	-	525,000	-	-	-
Millennium Park Preliminary Design (Municipal Park Planning Grant)	-	-	-	-	-	-	-	-	-
Craig Road Improvements (STP Grant)	-	-	-	-	80,000	-	880,000	-	-
Olive TDD Closeout	-	-	250,000	250,000	-	-	-	-	-
Misc.	-	41,724	-	-	-	-	-	-	-
Olive Median Enhancement Stock (Insurance Proceeds)	-	-	-	20,000	20,000	20,000	20,000	20,000	20,000
Ice Arena Refrigerant Switchover (ARPA)	-	-	-	234,450	1,670,535	-	-	-	-
Ice Arena Dehumidification System Repair (ARPA)	-	-	-	75,000	-	-	-	-	-
Dielmann Compressor Repairs (ARPA)	-	-	-	99,390	-	-	-	-	-
Street and Sidewalk Maintenance Program (ARPA)	-	-	-	1,489,485	-	-	-	-	-
Subtotal	839,000	718,220	1,448,346	3,302,524	4,415,945	565,000	920,000	40,000	40,000

PARKS AND STORMWATER FUND

9501 GOVERNMENT FACILITIES		FY2020 BUDGETED	FY2020 ACTUAL	FY2021 BUDGETED	FY2021 ACTUAL	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Subtotal (Government Facilities)		N/A	N/A	-	N/A	-	0%	0%	0%	0%	0%	0%	0%	0%
% of Total Parks-Stormwater Tax Fund Outlay														
9506 PARKS AND RECREATIONAL FACILITIES		FY2020 BUDGETED	FY2020 ACTUAL	FY2021 BUDGETED	FY2021 ACTUAL	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Park Preliminary Designs		-	-	-	-	50,000	-	-	-	-	-	-	-	-
02 Implementation of Park Master Plan		-	-	-	-	500,000	-	-	25,000	100,000	25,000	25,000	25,000	25,000
03 Historic Building Rehabilitation and Preservation		-	-	-	-	25,000	-	75,000	65,012	-	-	-	-	-
04 Conway Park Cabins Relocation		-	-	-	-	-	-	40,000	-	120,000	60,000	60,000	-	-
05 Park Restroom Renovations		-	-	-	-	110,000	26,588	-	-	-	-	-	-	-
06 Park Path Improvements (Municipal Park Grant)		-	-	-	-	680,000	481,532	-	163,952	-	-	-	-	-
07 Malcolm Terrace Parking Lot Improvements (COBG Grant)		-	-	-	-	50,000	74,584	-	-	-	-	-	-	-
08 Park Identification Signage Master Plan		-	-	-	-	20,000	-	-	-	-	20,000	-	-	-
09 Park Parking Lot Sealing		-	-	-	-	80,000	15,570	-	-	20,000	-	-	25,000	-
10 Park Furniture Replacement		-	-	-	-	80,000	-	-	-	20,000	20,000	20,000	20,000	20,000
11 Malcolm Terrace Park Trail Improvements		-	-	-	-	150,000	66,170	-	22,044	-	-	25,000	-	-
12 Repair and Replace Conveyer and Loading at Millman Park		-	-	-	-	75,000	115,170	-	-	-	-	-	-	-
13 Repair and Replace Conveyer at Millman Park		-	-	-	-	20,000	-	-	-	2,300,000	-	-	-	-
14 Millennium Park Improvements - Phase 1		-	-	-	-	66,901	-	1,590,000	61,630	-	-	100,000	850,000	-
15 Millennium Park Improvements - Phase 2 - Trails & Ridgemoor Forest Connection		-	-	-	-	-	-	100,000	-	125,000	2,000,000	-	-	-
17 Venable Park Improvements - Phase 1 - Trail Bridge, Tennis Courts & Splash pad		-	-	-	-	-	-	-	131,270	-	-	125,000	-	-
19 Playground Safety Surface Replacement (Venable 2023 & Conway 2026)		-	-	-	-	-	-	-	39,100	-	-	-	-	-
20 Lake School Park - Phase 1 - Master Plan, Grading & Playground		-	-	-	-	-	-	-	-	-	75,000	350,000	70,000	400,000
21 Millennium Park - Phase 3 - Park Entrance & Parking Lot Improvements		-	-	-	-	-	-	-	-	33,750	-	-	-	1,000,000
22 Lake School Park - Phase 2 - Tennis Court Complex		-	-	-	-	-	-	-	11,500	288,500	-	-	-	-
23 33N Greenway Connection to Centennial Trail		-	-	-	-	-	-	1,830,000	543,008	2,987,250	2,200,000	705,000	990,000	1,445,000
24 Venable Park Memorial (HDR Foundation Grant)		-	-	-	-	1,810,000	846,524	73%	35%	70%	63%	40%	50%	60%
Subtotal (Parks and Recreational Facilities)		N/A	N/A	-	N/A	-	92%	73%	35%	70%	63%	40%	50%	60%
% of Total Parks and Stormwater Fund Outlay														
9509 STORMWATER		FY2020 BUDGETED	FY2020 ACTUAL	FY2021 BUDGETED	FY2021 ACTUAL	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Watershed Management Plan		-	-	-	-	15,000	-	200,000	448,026	50,000	-	-	-	-
02 Implementation of the Watershed Management Plan		-	-	-	-	-	-	-	-	-	500,000	500,000	600,000	600,000
03 Stormwater Improvements (Deer Creek - Deer Creek OMC)		-	-	-	-	-	-	-	-	-	224,000	224,000	224,000	-
04 Hbler Roadside Drainage		-	-	-	-	50,000	-	25,000	70,673	339,000	-	-	-	-
05 Alden Lane Drain Replacement (Deer Creek OMC)		-	-	-	-	35,000	9,700	20,000	39,533	67,000	-	-	-	-
06 Ballis Culvert Erosion Rehabilitation (Deer Creek OMC)		-	-	-	-	75,000	4,940	50,000	84,947	380,000	-	-	-	-
07 Golf Course Pond Aeration (Deer Creek OMC)		-	-	-	-	25,000	-	25,000	13,000	64,000	-	-	-	-
08 Hbler Woods Drain Replacement		-	-	-	-	-	-	20,000	-	30,000	-	-	-	-
09 Stormwater Concept Plans (Design)		-	-	-	-	-	-	175,000	-	150,000	-	-	-	-
10 Middlebrook Stormwater Restoration - Tree Plantings		-	-	-	-	-	-	-	-	-	450,000	200,000	-	-
11 Lake Dredging - Conway Park & Golf Course (Design & Construction)		-	-	-	-	-	13,400	-	-	40,000	-	-	-	-
12 Millennium Park Detention Emergency Repair		-	-	-	-	-	-	-	241,200	-	-	-	-	-
Subtotal (Stormwater)		-	-	-	-	200,000	25,040	515,000	897,379	1,120,000	1,174,000	824,000	824,000	824,000
% of Total Parks and Stormwater Fund Outlay		N/A	N/A	-	N/A	9%	3%	21%	57%	26%	33%	52%	42%	34%
9510 STREETS AND SIDEWALKS		FY2020 BUDGETED	FY2020 ACTUAL	FY2021 BUDGETED	FY2021 ACTUAL	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Subtotal (Streets and Sidewalks)		-	-	-	-	-	-	-	-	-	-	-	-	-
% Total Parks-Stormwater Tax Fund Outlay														
9516 CAPITAL EQUIPMENT		FY2020 BUDGETED	FY2020 ACTUAL	FY2021 BUDGETED	FY2021 ACTUAL	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Parks Capital Equipment		-	-	-	-	-	-	30,000	-	30,000	-	-	-	-
Subtotal (Capital Equipment)		-	-	-	-	-	-	30,000	-	30,000	-	-	-	-
% of Total Parks and Stormwater Fund Outlay		N/A	N/A	-	N/A	0%	0%	1%	0%	1%	0%	0%	0%	0%
CAPITAL PROJECT ADMINISTRATION		FY2020 BUDGETED	FY2020 ACTUAL	FY2021 BUDGETED	FY2021 ACTUAL	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Project Management		-	-	-	-	-	-	120,896	132,035	137,795	142,000	146,300	150,700	155,300
Subtotal (Administration)		-	-	-	-	-	-	120,896	132,035	137,795	142,000	146,300	150,700	155,300
% of Total Parks and Stormwater Fund Outlay		N/A	N/A	-	N/A	5%	5%	5%	8%	3%	4%	8%	8%	6%
CAPITAL OUTLAY SUMMARY		FY2020 BUDGETED	FY2020 ACTUAL	FY2021 BUDGETED	FY2021 ACTUAL	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED

Total Parks-Stormwater Tax Fund Outlay																											
FY2020 BUDGETED		FY2020 ACTUAL		FY2021 BUDGETED		FY2021 ACTUAL		FY2022 BUDGETED		FY2022 ACTUAL		FY2023 BUDGETED		FY2023 PROJECTED		FY2024 PROJECTED		FY2025 PROJECTED		FY2026 PROJECTED		FY2027 PROJECTED		FY2028 PROJECTED			
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N/A		N/A		N/A		N/A		85%		71%		84%		76%		88%		86%		75%		76%		80%			
-		-		-		-		-		-		-		-		-		-		-		-		-			
OPERATIONS AND MAINTENANCE																											
Transfer Out - General Fund (Parks and Stormwater Operations and Maintenance)																											
-		-		-		-		380,000		380,000		492,198		492,198		582,434		594,082		605,964		612,023		618,144			
N/A		N/A		N/A		N/A		15%		29%		16%		24%		12%		14%		25%		24%		20%			
Subtotal % of Total Annual Expenses																											
9514 DEBT SERVICE																											
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N/A		N/A		N/A		N/A		0%		0%		0%		0%		0%		0%		0%		0%		0%			
Subtotal % of Total Annual Expenses																											
TOTAL ANNUAL EXPENSES																											
-		-		-		-		2,494,364		1,296,566		2,988,094		2,064,620		4,857,479		4,110,082		2,381,264		2,576,723		3,042,444			
PARKS AND STORMWATER FUND REVENUES																											
-		-		-		-		485,907		485,907		2,988,692		2,988,692		4,106,102		2,644,083		1,803,728		2,731,010		3,500,368			
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BUILDING PROJECT BOND FUND (PROP P)

BUILDING PROJECT BOND FUND REVENUES		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Beginning Fund Balance (estimated Cash Basis as of July 1)		1,125,799	1,125,799	1,123,984	1,123,984	1,156,879	1,109,879	1,142,879	1,175,879	1,208,879
Estimated Bond Proceeds		-	-	-	-	-	-	-	-	-
Estimated Interest Revenue		2,000	3,185	2,000	32,895	33,000	33,000	33,000	33,000	33,000
Reimbursement from Smoke Evacuation System Settlement		-	-	-	-	-	-	-	-	-
Transfers In		-	-	-	-	-	-	-	-	-
Total Revenues & Transfers In		2,000	3,185	2,000	32,895	33,000	33,000	33,000	33,000	33,000
9501 BUILDING DESIGN AND CONSTRUCTION		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Police Building Professional Services		-	5,000	-	-	-	-	-	-	-
02 Police Building Site Work and Building Construction		-	-	-	-	-	-	-	-	-
03 Government Center Accessibility & Security Improvements		-	-	-	-	-	-	-	-	-
04 Government Center Electrical Switchgear Replacement		-	-	-	-	-	-	-	-	-
05 Government Center Renovations		50,000	-	-	-	80,000	-	-	-	-
06 Police Parking Lot Security Fence		-	-	-	-	-	-	-	-	-
Transfers Out		-	-	-	-	-	-	-	-	-
Total Anticipated Year End Expenditures & Transfers		50,000	5,000	-	-	80,000	-	-	-	-
Ending Fund Balance (Cash Basis) - Building Project Bond Fund		1,077,799	1,123,984	1,125,984	1,156,879	1,109,879	1,142,879	1,175,879	1,208,879	1,241,879

9514 DEBT SERVICE		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
DEBT SERVICE (PROP P) REVENUES										
Beginning Fund Balance (estimated Cash Basis as of July 1)										
Estimated Property Tax Collection Revenue		752,787	752,787	817,964	817,964	429,691	707,883	985,675	1,292,105	1,599,898
Estimated Interest Revenue		657,232	779,721	657,232	910,000	964,600	964,600	993,538	993,538	1,023,344
Estimated Interest Revenue		750	2,082	750	9,400	9,500	9,500	9,500	9,500	9,500
Total Anticipated Revenues		657,982	781,803	657,982	919,400	974,100	974,100	1,003,038	1,003,038	1,032,844
DEBT SERVICE (PROP P) EXPENSES										
Estimated Expenditures		320	320	320	599,001	320	320	320	320	320
Estimated Interest Expenses		261,306	261,306	247,656	238,672	215,588	205,988	191,288	179,925	167,050
Estimated Principal Expenses		455,000	455,000	470,000	470,000	480,000	490,000	505,000	515,000	530,000
Total Anticipated Expenditures		716,626	716,626	717,976	1,307,673	695,908	696,308	696,608	695,245	697,370
Ending Cash Balance - Debt Service		694,143	817,964	757,970	429,691	707,883	985,675	1,292,105	1,599,898	1,935,372

9501 GOVERNMENT FACILITIES ACCOUNT SUMMARY

CAPITAL FUND		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Accessibility Improvements (CDBG)		-	-	20,000	20,000	-	20,000	20,000	20,000	20,000
02 Government Center Renovations		250,000	56,949	400,000	38,317	30,000	30,000	30,000	30,000	30,000
03 Government Center Parking Lot Repairs		25,000	9,930	-	-	-	-	-	-	-
04 Salt Dome Roof Repairs (Insurance Claim)		60,000	-	-	-	60,000	-	-	-	-
05 Police Department Repair (Insurance Claim)		-	32,826	-	-	-	-	-	-	-
06 Government Center Roof Repairs (Insurance Claim)		-	-	-	5,653	250,000	-	-	-	-
07 Demo of 1030 N Lindbergh Blvd Building		-	-	-	-	40,000	-	500,000	-	-
08 Roofing for Public Works Garage		-	-	-	-	112,500	-	-	-	-
09 EV Charging Stations at the Police Station and Government Center (Grant Match)		-	-	-	-	-	-	-	-	-
Subtotal - Government Facilities Expenses - Capital Fund		335,000	99,705	420,000	63,970	492,500	50,000	550,000	50,000	50,000
PARKS AND STORMWATER FUND		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
		-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-
Subtotal - Government Facilities Expenses - Parks and Stormwater Fund		-	-	-	-	-	-	-	-	-
BUILDING PROJECT BOND FUND		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Police Building Professional Services		-	5,000	-	-	-	-	-	-	-
02 Police Building Site Work and Building Construction		-	-	-	-	-	-	-	-	-
03 Government Center Accessibility & Security Improvements		-	-	-	-	-	-	-	-	-
04 Government Center Electrical Switchgear Replacement		-	-	-	-	-	-	-	-	-
05 Government Center Renovations		50,000	-	-	-	-	-	-	-	-
06 Police Parking Lot Security Fence		-	-	-	-	80,000	-	-	-	-
Transfers Out		-	-	-	-	-	-	-	-	-
Subtotal - Government Facilities Expenses - Building Project Bond Fund		50,000	5,000	-	-	80,000	-	-	-	-
TOTAL CAPITAL EXPENSES (ALL FUNDS)		FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
GOVERNMENT FACILITIES		385,000	104,705	420,000	63,970	572,500	50,000	550,000	50,000	50,000
Total Capital Expenses - Government Facilities		\$	\$	\$	\$	\$	\$	\$	\$	\$

9506 PARKS AND RECREATIONAL FACILITIES ACCOUNT SUMMARY

CAPITAL FUND	FY2022 ACTUAL	FY2022 PROJECTED	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
02 Park or Dielmann Complex Improvements (Grant Match)	-	-	30,500	-	-	30,500	-	30,500	-
14 Ice Arena Refrigerant Switchover (Municipal & ARPA Grant)	20,000	20,000	100,000	234,450	2,200,000	-	-	-	-
15 Malcolm Terrace Parking Lot Improvements (CDBG Grant)	-	35	-	-	-	-	-	-	-
16 Dielmann Recreation Complex HVAC Replacement - Phase 2	110,000	-	110,000	110,000	-	-	-	-	-
17 Dielmann Recreation Complex Roof Drainage	50,000	-	30,000	42,355	93,000	-	-	-	-
18 Ice Arena Flooring Replacement	-	-	-	-	200,000	-	-	-	-
20 Park Preliminary Design - Millennium Park (Park Planning Grant)	-	7,000	-	-	-	-	-	-	-
21 Ice Arena Dehumidification System Repair (ARPA)	-	45,729	-	75,000	-	-	-	-	-
22 Ice Arena Evaluation	-	30,960	-	-	-	-	-	-	-
23 Dielmann Complex Concessions Area Renovation (Planning & Design)	-	-	30,000	20,000	-	-	-	-	-
24 Dielmann Recreation Complex Fire Alarm Repair (Insurance Claim)	-	19,760	-	4,834	-	-	70,000	-	-
25 Golf Course Perimeter Fencing Replacement	-	-	-	-	40,000	-	-	-	-
26 Golf Course Maintenance Bridge	-	-	-	-	-	-	-	-	-
27 Dielmann Structural Repairs	-	-	-	3,600	20,000	-	-	-	200,000
28 Accessibility Improvements (CDBG)	-	-	-	-	20,000	-	-	-	-
29 Roofing for Ice Arena (Insurance Claim)	-	-	-	-	-	-	400,000	-	-
30 Dielmann Compressor Repairs (ARPA)	-	-	-	99,390	-	-	-	-	-
Subtotal - Parks and Recreational Facilities Expenses - Capital Fund	180,000	123,484	300,500	589,629	2,573,000	30,500	470,000	30,500	200,000

PARKS AND STORMWATER FUND	FY2022 ACTUAL	FY2022 PROJECTED	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Park Preliminary Designs	50,000	-	-	-	-	-	-	-	-
02 Implementation of Park Master Plan	500,000	-	25,000	25,000	100,000	25,000	25,000	25,000	25,000
03 Historic Building Rehabilitation and Preservation	25,000	-	75,000	65,012	-	-	-	-	-
04 Conway Park Cabins Relocation	-	-	40,000	23,500	120,000	60,000	60,000	-	-
05 Park Restroom Renovations	110,000	26,588	-	-	-	-	-	-	-
06 Park Path Improvements (Municipal Park Grant)	680,000	481,532	-	163,952	-	-	-	-	-
07 Malcolm Terrace Parking Lot Improvements (CDBG Grant)	50,000	74,584	-	-	-	-	-	-	-
08 Park Identification Signage Master Plan	20,000	-	-	-	-	20,000	-	-	-
09 Park Parking Lot Sealing	50,000	15,570	-	-	-	-	-	25,000	-
10 Park Furniture Replacement	80,000	-	-	-	20,000	20,000	20,000	20,000	20,000
11 Malcolm Terrace Park Trail Improvements	150,000	66,179	-	22,044	-	-	25,000	-	-
12 Repaint & Restripe Conway Park and Lake School Park Tennis Courts	75,000	115,170	-	-	-	-	-	-	-
13 Remove Small Playground at Millennium Park	20,000	-	-	-	-	-	-	-	-
14 Millennium Park Improvements - Phase 1	-	66,901	1,590,000	61,630	2,300,000	-	100,000	850,000	-
15 Millennium Park Improvements - Phase 2 - Trails & Ridgemoor Forest Connection	-	-	100,000	-	-	-	-	-	-
17 Venable Park Improvements - Phase 1 - Trail, Bridge, Tennis Courts & Splash pad	-	-	-	-	125,000	2,000,000	-	-	-
19 Playground Safety Surface Replacement (Venable 2023 & Conway 2026)	-	-	-	131,270	-	-	125,000	-	-
20 Lake School Park - Phase 1 - Master Plan, Grading & Playground	-	-	-	39,100	-	75,000	350,000	-	-
21 Millennium Park - Phase 3 - Park Entrance & Parking Lot Improvements	-	-	-	-	-	-	-	-	-
22 Lake School Park - Phase 2 - Tennis Court Complex	-	-	-	-	-	-	-	70,000	400,000
23 39N Greenway Connection to Centennial Trail	-	-	-	-	33,750	-	-	-	1,000,000
24 Venable Park Memorial (HDR Foundation Grant)	-	-	-	11,500	288,500	-	-	-	-
Subtotal - Parks and Rec. Facilities Expenses - Parks and Stormwater Fund	1,810,000	846,524	1,830,000	543,008	2,987,250	2,200,000	705,000	990,000	1,445,000

BUILDING PROJECT BOND FUND	FY2022 ACTUAL	FY2022 PROJECTED	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
	-	-	-	-	-	-	-	-	-
Subtotal - Parks and Rec. Facilities Expenses - Building Project Bond Fund	-	-	-	-	-	-	-	-	-

TOTAL CAPITAL EXPENSES (ALL FUNDS)	FY2022 ACTUAL	FY2022 PROJECTED	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
PARKS AND RECREATIONAL FACILITIES	-	-	-	-	-	-	-	-	-
Total Capital Expenses - Parks and Recreational Facilities	\$ 1,990,000	\$ 970,008	\$ 2,130,500	\$ 1,132,637	\$ 5,560,250	\$ 2,230,500	\$ 1,175,000	\$ 1,020,500	\$ 1,645,000

9509 STORMWATER ACCOUNT SUMMARY

CAPITAL FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
Subtotal - Stormwater Expenses - Capital Fund	-	-	-	-	-	-	-	-	-

PARKS AND STORMWATER FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Watershed Management Plan	15,000	-	200,000	448,026	50,000	-	-	-	-
02 Implementation of the Watershed Management Plan	-	-	-	-	-	500,000	500,000	600,000	600,000
03 Stormwater Improvements (Deer Creek - Deer Creek OMC)	-	-	-	-	-	224,000	224,000	224,000	224,000
04 Hibler Roadside Drainage	50,000	-	25,000	70,673	339,000	-	-	-	-
05 Alden Lane Drain Replacement (Deer Creek OMC)	35,000	9,700	20,000	39,533	67,000	-	-	-	-
06 Ballas Culvert Erosion Rehabilitation (Deer Creek OMC)	75,000	4,940	50,000	84,947	380,000	-	-	-	-
07 Golf Course Pond Aeration (Deer Creek OMC)	25,000	-	25,000	13,000	64,000	-	-	-	-
08 Hibler Woods Drain Replacement	-	-	20,000	-	30,000	-	-	-	-
09 Stormwater Concept Plans (Design)	-	-	175,000	-	150,000	-	-	-	-
10 Middlebrook Stormwater Restoration - Tree Plantings	-	13,400	-	-	-	-	-	-	-
11 Lake Dredging - Conway Park & Golf Course (Design & Construction)	-	-	-	241,200	40,000	450,000	200,000	-	-
12 Millennium Park Detention Emergency Repair	-	-	-	-	-	-	-	-	-
Subtotal - Stormwater Expenses - Parks and Stormwater Fund	200,000	28,040	515,000	897,379	1,120,000	1,174,000	924,000	824,000	824,000

BUILDING PROJECT BOND FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
Subtotal - Stormwater Expenses - Building Project Bond Fund	-	-	-	-	-	-	-	-	-

TOTAL CAPITAL EXPENSES (ALL FUNDS) STORMWATER	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Total Capital Expenses - Stormwater	\$ 200,000	\$ 28,040	\$ 515,000	\$ 897,379	\$ 1,120,000	\$ 1,174,000	\$ 924,000	\$ 824,000	\$ 824,000

9510 STREETS AND SIDEWALKS ACCOUNT SUMMARY

CAPITAL FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 PROJECTED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Street and Sidewalk Maintenance Program									
02 Street Reconstruction/Rehabilitation									
04 Fernview Sidewalk Concept Plan - Phase 1 Olive to Gallagher (Design & Grant Match)	1,375,000	1,395,564	1,400,000	1,899,992	1,421,000	1,442,300	1,463,900	1,485,900	1,508,200
05 New Ballas Median Plantings	35,000	34,765	300,000	482,085	50,000	60,000	300,000	-	300,000
06 Signal Enhancement Projects	-	8,800	-	1,534	50,000	-	160,000	-	-
07 Emerson Road Improvement Project (STP Grant)	180,000	272,843	-	-	-	-	-	-	-
09 Mosley Road Improvement Project (STP Grant)	-	23,353	-	-	-	-	-	-	-
10 N Ballas Road Improvements - Phase 1 - Olive to Craig (STP Grant)	1,340,000	203,199	-	1,124,563	-	-	-	-	-
11 N Ballas Sidewalk - Phase 3 (TAP Grant)	180,000	108,796	1,136,600	1,136,600	-	-	-	-	-
12 Lindbergh-Old Olive Intersection (State Cost-Share; STP Grant)	-	5,472	210,000	480,000	2,045,500	-	100,000	-	-
13 Olive-Lindbergh Interchange Enhancements	25,000	70,615	460,000	460,000	30,000	-	-	-	-
14 Pavement Condition Ratings Update	30,000	24,785	-	27,962	-	-	-	-	-
15 Olive Median Enhancement Stock	45,000	22,997	-	59,105	20,000	20,000	20,000	20,000	20,000
16 Craig Road Improvements (STP Grant)	75,000	-	150,000	225,600	100,000	1,300,000	-	-	-
17 N Ballas Road Improvements - Phase 2 S. New Ballas (Design & Grant Match)	-	-	-	-	150,000	20,000	250,000	-	-
18 N Ballas Road Improvements - Phase 3 - Ladue to Magna C (Design & Grant Match)	-	-	-	-	-	150,000	20,000	250,000	-
19 N Ballas Road Improvements - Phase 4 - Magna C to Olive (Design & Grant Match)	-	-	-	-	-	-	125,000	25,000	250,000
20 Ladue Road Improvements - Phase 1 (Design & Grant Match)	-	-	-	-	-	-	-	150,000	-
21 Olive-270 Overpass Cleaning & Painting	-	-	-	-	80,000	-	-	-	-
22 Old Olive Sidewalk Extension (Design)	-	-	-	-	25,000	60,000	-	-	-
23 Fernview Sidewalk - Phase 2 Gallagher to LeHavre (Design & Grant Match)									
Subtotal - Streets and Sidewalks - Capital Fund	3,285,000	2,171,189	3,656,600	5,417,441	4,271,500	3,052,300	2,518,900	1,930,900	2,078,200

PARKS AND STORMWATER FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Subtotal - Streets and Sidewalks - Parks and Stormwater Fund	-	-	-	-	-	-	-	-

BUILDING PROJECT BOND FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Subtotal - Streets and Sidewalks - Building Project Bond Fund	-	-	-	-	-	-	-	-

TOTAL CAPITAL EXPENSES (ALL FUNDS)								
STREETS AND SIDEWALKS								
	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Total Capital Expenses - Streets and Sidewalks	\$ 3,285,000	\$ 2,171,189	\$ 3,656,600	\$ 5,417,441	\$ 4,271,500	\$ 3,052,300	\$ 2,518,900	\$ 1,930,900
								\$ 2,078,200

9516 CAPITAL EQUIPMENT ACCOUNT SUMMARY

CAPITAL FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Public Works Capital Equipment**	532,690	186,035	331,000	228,620	619,000	401,800	398,800	408,500	428,000
02 Golf Course Capital Equipment	25,000	23,486	-	-	55,000	65,000	-	65,000	40,000
03 Police Department Capital Equipment	42,000	-	42,000	41,530	-	-	-	-	-
04 Phone System Replacement	52,000	42,434	-	-	-	-	-	-	-
05 Public Works Facility Gasoline System Replacement	-	-	-	-	-	-	-	-	-
06 Permitting Software	70,000	-	70,000	156,649	-	-	-	-	-
07 Meeting Management Software	-	-	20,000	13,126	-	-	-	-	-
08 Active Net Software	-	16,027	-	-	-	-	-	-	-
09 Capital Equipment Back Order	-	-	-	376,255	-	-	-	-	-
Subtotal - Capital Equipment - Capital Fund	721,690	267,982	463,000	816,182	674,000	466,800	398,800	473,500	468,000
PARKS AND STORMWATER FUND									
01 Parks Capital Equipment	-	-	30,000	-	30,000	-	-	-	-
Subtotal - Capital Equipment - Parks and Stormwater Fund	-	-	30,000	-	30,000	-	-	-	-
BUILDING PROJECT BOND FUND									
Subtotal - Capital Equipment - Building Project Bond Fund	-	-	-	-	-	-	-	-	-
TOTAL CAPITAL EXPENSES (ALL FUNDS)									
CAPITAL EQUIPMENT									
Total Capital Expenses - Capital Equipment	\$ 721,690	\$ 267,982	\$ 493,000	\$ 816,182	\$ 704,000	\$ 466,800	\$ 398,800	\$ 473,500	\$ 468,000

CAPITAL PROJECT ADMINISTRATION ACCOUNT SUMMARY

CAPITAL FUND	FY2022 PROJECTED	FY2023 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
01 Project Management	93,082	93,634	145,258	138,542	153,104	157,700	162,500	167,400	172,500
Subtotal - Capital Project Administration - Capital Fund	93,082	93,634	145,258	138,542	153,104	157,700	162,500	167,400	172,500
PARKS AND STORMWATER FUND									
01 Project Management	104,364	42,002	120,896	132,035	137,795	142,000	146,300	150,700	155,300
Subtotal - Capital Project Administration - Parks and Stormwater Fund	104,364	42,002	120,896	132,035	137,795	142,000	146,300	150,700	155,300
BUILDING PROJECT BOND FUND									
Subtotal - Capital Project Administration - Building Project Bond Fund	-	-	-	-	-	-	-	-	-
TOTAL CAPITAL EXPENSES (ALL FUNDS)									
CAPITAL PROJECT ADMINISTRATION									
Total Capital Expenses - Capital Project Administration	\$ 197,446	\$ 135,636	\$ 266,154	\$ 270,577	\$ 290,899	\$ 299,700	\$ 308,800	\$ 318,100	\$ 327,800

CAPITAL IMPROVEMENT PROGRAM SUMMARY

CAPITAL FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Beginning Fund Balance (Estimated Cash Basis as of July 1)				2,620,094	1,764,724	500,768	280,221	656,795	743,545
Total Anticipated Annual Revenues	2,062,368	2,052,949	2,620,094	2,620,094	1,764,724	756,412	500,768	280,221	656,795
Total Anticipated Annual Expenses	3,414,932	3,323,139	4,467,104	6,170,394	7,307,962	3,501,656	3,028,874	3,055,450	3,055,450
Total Anticipated Debt Service Revenues	(4,614,772)	(2,755,994)	(4,985,358)	(7,025,764)	(8,314,104)	(3,757,300)	(4,100,200)	(2,652,300)	(2,968,700)
Total Anticipated Debt Service Expenses	-	-	-	-	-	-	-	-	-
Ending Cash Balance - Capital Fund	862,528	2,620,094	2,101,840	1,764,724	756,412	500,768	280,221	656,795	743,545
PARKS-STORMWATER TAX FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Beginning Fund Balance (Estimated Cash Basis as of July 1)				2,988,692	4,106,102	2,644,083	1,803,728	2,731,010	3,611,254
Total Anticipated Annual Revenues	485,907	485,907	2,988,692	2,988,692	4,106,102	2,644,083	1,803,728	2,731,010	3,500,368
Total Anticipated Annual Expenses	2,495,600	3,799,351	2,625,701	3,182,030	3,395,460	3,269,727	3,308,546	3,346,081	3,153,330
Total Anticipated Debt Service Revenues	(2,494,364)	(1,296,566)	(2,988,094)	(2,064,620)	(4,857,479)	(4,110,082)	(2,381,264)	(2,576,723)	(3,042,444)
Total Anticipated Debt Service Expenses	-	-	-	-	-	-	-	-	-
Ending Cash Balance - Parks-Stormwater Tax Fund	487,143	2,988,692	2,626,299	4,106,102	2,644,083	1,803,728	2,731,010	3,500,368	3,611,254
BUILDING PROJECT BOND FUND	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Beginning Fund Balance (estimated Cash Basis as of July 1)				1,941,948	1,586,570	1,817,762	2,128,554	2,467,984	2,808,777
Total Anticipated Annual Revenues	1,878,586	1,878,586	1,941,948	1,941,948	1,586,570	1,817,762	2,128,554	2,467,984	2,808,777
Total Anticipated Annual Expenses	2,000	3,185	2,000	32,895	33,000	33,000	33,000	33,000	33,000
Total Anticipated Debt Service (Prop P) Revenues	(50,000)	(5,000)	-	-	(80,000)	-	-	-	-
Total Anticipated Debt Service (Prop P) Expenses	657,982	781,803	657,982	919,400	974,100	974,100	1,003,038	1,003,038	1,032,844
Total Anticipated Debt Service (Prop P) Expenses	(716,626)	(716,626)	(717,976)	(1,307,673)	(695,908)	(696,308)	(696,608)	(695,245)	(697,370)
Ending Cash Balance - Building Project Bond Fund	1,771,942	1,941,948	1,883,954	1,586,570	1,817,762	2,128,554	2,467,984	2,808,777	3,177,251
TOTAL COMBINED CAPITAL IMPROVEMENT PROGRAM (CAPITAL, PARKS-STORMWATER, AND BUILDING PROJECT BOND FUNDS)	FY2022 BUDGETED	FY2022 ACTUAL	FY2023 BUDGETED	FY2023 PROJECTED	FY2024 PROJECTED	FY2025 PROJECTED	FY2026 PROJECTED	FY2027 PROJECTED	FY2028 PROJECTED
Total Combined Beginning Fund Balance	4,426,862	4,417,442	7,550,734	7,550,734	7,457,396	5,218,257	4,433,050	5,479,215	6,965,940
Total Combined Revenues & Transfers In	6,570,514	7,907,478	7,752,787	10,304,719	11,708,352	7,778,483	8,224,237	7,410,993	7,274,624
Total Combined Anticipated Year End Expenditures & Transfers	(7,815,762)	(4,774,186)	(8,691,428)	(10,398,057)	(13,947,491)	(8,563,690)	(7,178,072)	(5,924,268)	(6,708,514)
Ending Fund Balance (Cash Basis) - All Capital Funds	3,121,614	7,550,734	6,612,093	7,457,396	5,218,257	4,433,050	5,479,215	6,965,940	7,532,050



PARKS & STORMWATER FUND
STATEMENT OF ESTIMATED REVENUES AND EXPENDITURES

	Actual FY 2021	Actual FY 2022	Budget FY 2023	Projected FY 2023	Estimated FY 2024	% Change to Projected FY 2023
Revenues:						
Intergovernmental Revenue	485,907	3,045,352	2,625,601	3,129,268	3,370,412	7.71%
Other Revenues	-	4,466	100	52,862	25,049	
Total Operating Revenues	485,907	3,049,818	2,625,701	3,182,130	3,395,461	
Transfers From General Fund	-	749,533	-	-	-	
Total Revenues	485,907	3,799,351	2,625,701	3,182,130	3,395,461	6.70%
Expenditures:						
Personnel	-	42,002	120,896	130,312	137,795	0.00%
Operating	-	-	-	15	-	
Park Development Projects	-	846,524	1,947,275	576,758	2,953,500	
Storm water Projects	-	28,040	614,540	897,379	1,120,000	
Capital Equipment	-	-	30,000	-	30,000	
Total Expenditures	-	916,566	2,712,711	1,604,464	4,241,295	164.34%
Other Financing Uses:						
Transfer Out for P&S Oper. and Maint.	-	380,000	492,198	492,198	582,434	18.33%
Total Other Financing Uses	-	380,000	492,198	492,198	582,434	
REVENUES OVER (UNDER) EXPENDITURES AND OTHER FINANCING USES	485,907	2,502,785	(579,208)	1,085,468	(1,428,268)	
FUND BALANCE-BEGINNING OF YEAR	-	485,907	2,716,035	2,988,692	4,074,160	
FUND BALANCE-END OF YEAR	485,907	2,988,692	2,136,827	4,074,160	2,645,892	



PARKS & STORMWATER FUND
COMPARISON OF FISCAL YEAR 2024 ESTIMATED REVENUE WITH 2023 BUDGETED AND PROJECTED
AND ACTUAL REVENUES FOR FISCAL YEARS 2021 AND 2022

	Actual Revenues FY 2021	Actual Revenues FY 2022	Budgeted Revenues FY 2023	Projected Revenues FY 2023	Estimated Revenues FY 2024
INTERGOVERNMENTAL REVENUE:					
4301 City Sales Tax - 1/2 Cent	485,907	2,564,852	2,485,601	2,912,168	2,970,412
4737 Other Agency Funding*	-	480,500	140,000	217,100	400,000
Total Intergovernmental Revenue	485,907	3,045,352	2,625,601	3,129,268	3,370,412
OTHER REVENUES:					
4703 Gain (loss) on investments	-	-	-	-	-
4704 Interest on Investments	-	4,466	100	52,862	25,049
4730 Reimbursements	-	-	-	-	-
4755 Other revenues	-	-	-	-	-
4771 Proceeds-Sales of Fixed Asset	-	-	-	-	-
Total Other Revenues	-	4,466	100	52,862	25,049
Total Current Year's Revenue	485,907	3,049,818	2,625,701	3,182,130	3,395,461
4901 Transfers From Other Funds	-	749,533	-	-	-
Total Intergovernmental Funding	-	749,533	-	-	-
TOTAL REVENUES	485,907	3,799,351	2,625,701	3,182,130	3,395,461

*Comprised of Deer Creek OMCI (\$250K), HDR Foundation Grant (\$100K) and Venable Park Private Donations (\$50K)



**PARKS & STORMWATER FUND
SUMMARY OF CAPITAL OUTLAYS BY ACTIVITY**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
CAPITAL OUTLAY:					
5101 Salaries, Permanent Empl.	-	33,653	95,071	106,875	106,875
5103 Overtime	-	47	-	400	-
5109 Provision for Salary Adj.	-	-	3,277	2,135	5,965
5110 Auto Allowance	-	-	-	-	-
5230 Hospital & Medical Insurance	-	-	3,345	-	2,410
5231 Self-Insured Medical Benefit	-	-	-	600	900
5233 Dental Insurance	-	-	119	392	459
5234 Group Life Insurance	-	116	332	530	473
5235 Accidental Death & Dismem.	-	12	38	49	52
5236 Disability Insurance	-	-	218	119	301
5240 Social Security Contribution	-	2,597	7,659	9,000	9,000
5241 Pension Contribution	-	205	5,845	5,212	5,798
5243 Worker's Compensation	-	5,371	4,992	5,000	5,562
7307 Gasoline & Mileage	-	-	-	15	-
9506 Parks and Recreational Facilities	-	846,524	1,947,275	576,758	2,953,500
9509 Stormwater Projects	-	28,040	614,540	897,379	1,120,000
9516 Capital Equipment	-	-	30,000	-	30,000
TOTAL CAPITAL OUTLAY	-	916,566	2,712,711	1,604,464	4,241,295



**PARKS & STORMWATER FUND
ESTIMATED FY 2024 CAPITAL OUTLAY PROJECTS**

Capital Outlay Detail**Annual****9506 Park Development Projects**

39 N Greenway Connection to Centennial Trail	0
Park Furniture Replacement	20,000
Historical Building Rehabilitation and Preservation	100,000
Venable Park Improvements	125,000
Park Restroom Renovations	120,000
Millennium Park Improvements - Phase 1	2,300,000
Venable Park Memorial (HDR Grant)	288,500
Total Account 9506	<u>2,953,500</u>

9509 Storm Water Projects

Watershed Management Study	50,000
Hibler Roadside Drainage	339,000
Alden Lane Drain Replacement (Deer Creek OMCI)	67,000
Ballas Culvert Erosion Rehabilitation (Deer Creek OMCI)	380,000
Golf Course Pond Aeration (Deer Creek OMCI)	64,000
Hibler Woods Drain Replacement	30,000
Stormwater Concept Plans	150,000
Lake Dredging - Conway Park & Golf Course	40,000
Total Account 9509	<u>1,120,000</u>

9516 Capital Equipment

Tractor	30,000
Total Account 9516	<u>30,000</u>

Administration

Project Manager	137,795
Total Account 9516	<u>137,795</u>

Total Capital Outlay**\$ 4,241,295**



	POLICE BUILDING FUND				
	Actual Revenue FY 2021	Actual Revenue FY 2022	Budgeted Revenue FY 2023	Projected Revenue FY 2023	Estimated Revenue FY 2024
OPERATING REVENUES					
4704 Interest Revenue	-	3,185	850	32,895	33,000
4730 Reimbursements			-	-	-
Total Operating Revenues	-	3,185	850	32,895	33,000
OTHER REVENUES					
4908 Bond Proceeds	-	-	-	-	-
4909 Premium from Bond Proceeds	-	-	-	-	-
Total Other Revenue	-	-	-	-	-
TRANSFERS					
4901 Transfer From Other Funds	-	-	-	-	-
Total Transfers	-	-	-	-	-
TOTAL POLICE BUILDING FUND REV.	-	3,185	850	32,895	33,000

**POLICE BUILDING FUND**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
OPERATING EXPENSES:					
6203 Professional Services	7,235	5,000	-	-	-
6299 Quality and Control Testing	-	-	-	-	-
9501 Building & Improvement Projects	63,262	-	-	-	80,000
9515 Bond Issuance Costs	-	-	-	-	-
TOTAL POLICE BUILDING FUND OPERATING EXPENDITURES	70,497	5,000	-	-	80,000
Total Transfers Out	-	-	-	-	-
TOTAL POLICE BUILDING FUND EXP. AND TRANSFERS OUT	70,497	5,000	-	-	80,000
EXCESS OF REV. OVER EXP.	(70,497)	(1,815)	850	32,895	(47,000)
FUND BALANCE-BEGINNING OF YEAR	1,196,295	1,125,798	1,624,902	1,123,984	1,156,879
FUND BALANCE-END OF YEAR	1,125,798	1,123,984	1,625,752	1,156,879	1,109,879

**POLICE BUILDING FUND
ESTIMATED FY 2024 CAPITAL OUTLAY PROJECTS**

Capital Improvement Projects		
Police Parking Lot Security Fence		80,000
Government Center Electrical Switchgear Replacement		
Total Capital Improvement Projects		80,000



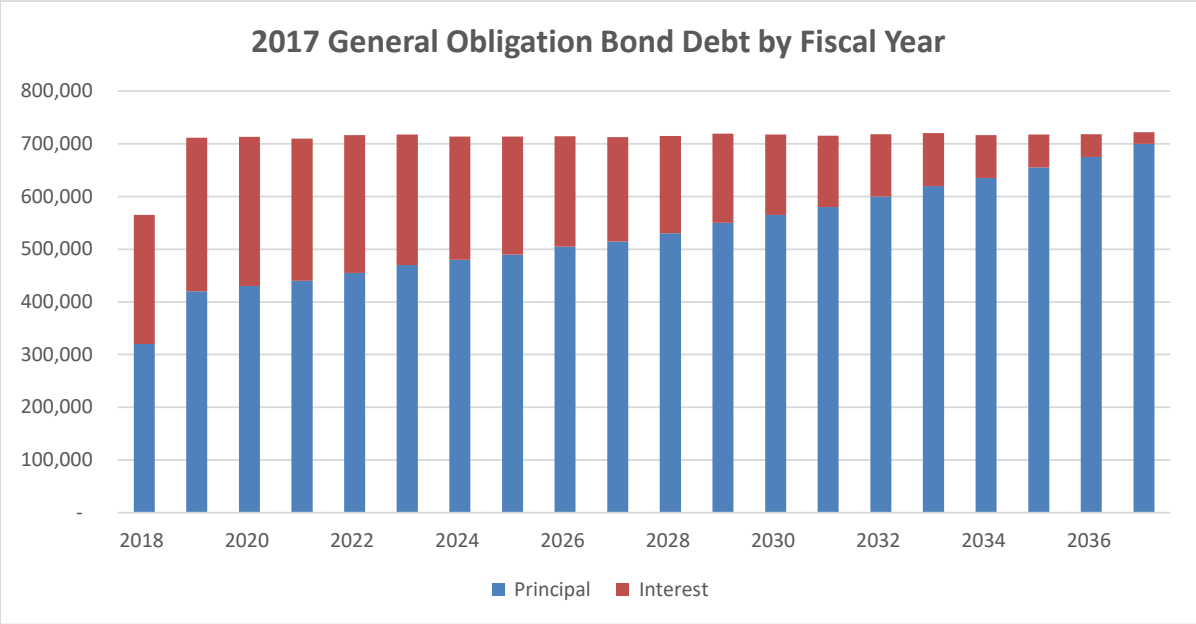
DEBT SERVICE FUND

	Actual Revenue FY 2021	Actual Revenue FY 2022	Budgeted Revenue FY 2023	Projected Revenue FY 2023	Estimated Revenue FY 2024
OPERATING REVENUES					
4101 Property Taxes	757,313	672,670	570,000	775,000	821,500
4104 Personal Property Taxes	118,401	107,051	100,000	135,000	143,100
4704 Interest Revenue	1,104	2,082	500	9,400	9,500
Total Operating Revenues	876,818	781,803	670,500	919,400	974,100
OTHER REVENUES					
	-	-	-	-	-
Total Other Revenues	-	-	-	-	-
TOTAL OPERATING FUND REVENUES	876,818	781,803	670,500	919,400	974,100



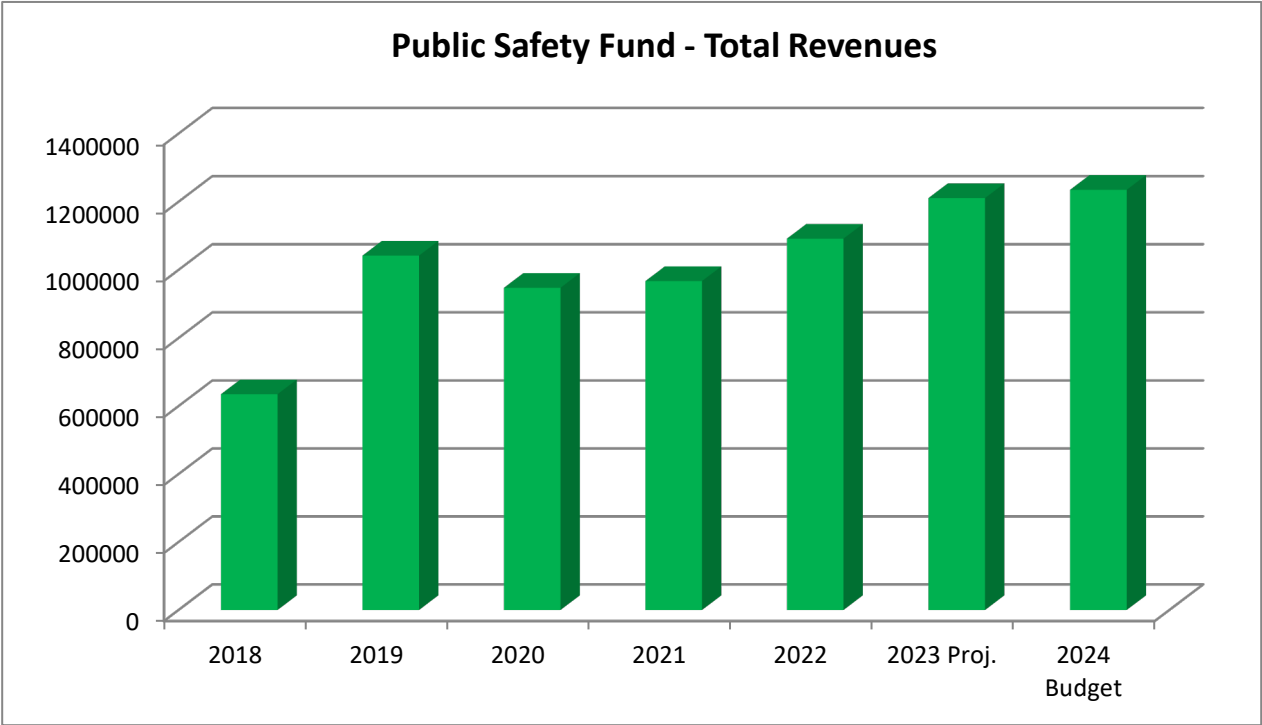
DEBT SERVICE FUND

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
OPERATING EXPENSES:					
6202 Technical & Personal Services	636	318	320	599,001	320
8410 Interest Expenditures	270,106	261,306	247,656	238,672	215,588
9514 Principal Expenditures	440,000	455,000	470,000	470,000	480,000
Total Operating Expenses	710,742	716,624	717,976	1,307,673	695,908
TOTAL DEBT SERVICE FUND EXP.	710,742	716,624	717,976	1,307,673	695,908
EXCESS OF DEBT SERVICE REVENUES OVER EXPENDITURES					
	166,075	65,179	(47,476)	(388,273)	278,192
FUND BALANCE-BEGINNING OF YEAR					
	586,710	752,786	378,126	817,965	429,692
FUND BALANCE-END OF YEAR	752,786	817,965	330,650	429,692	707,884



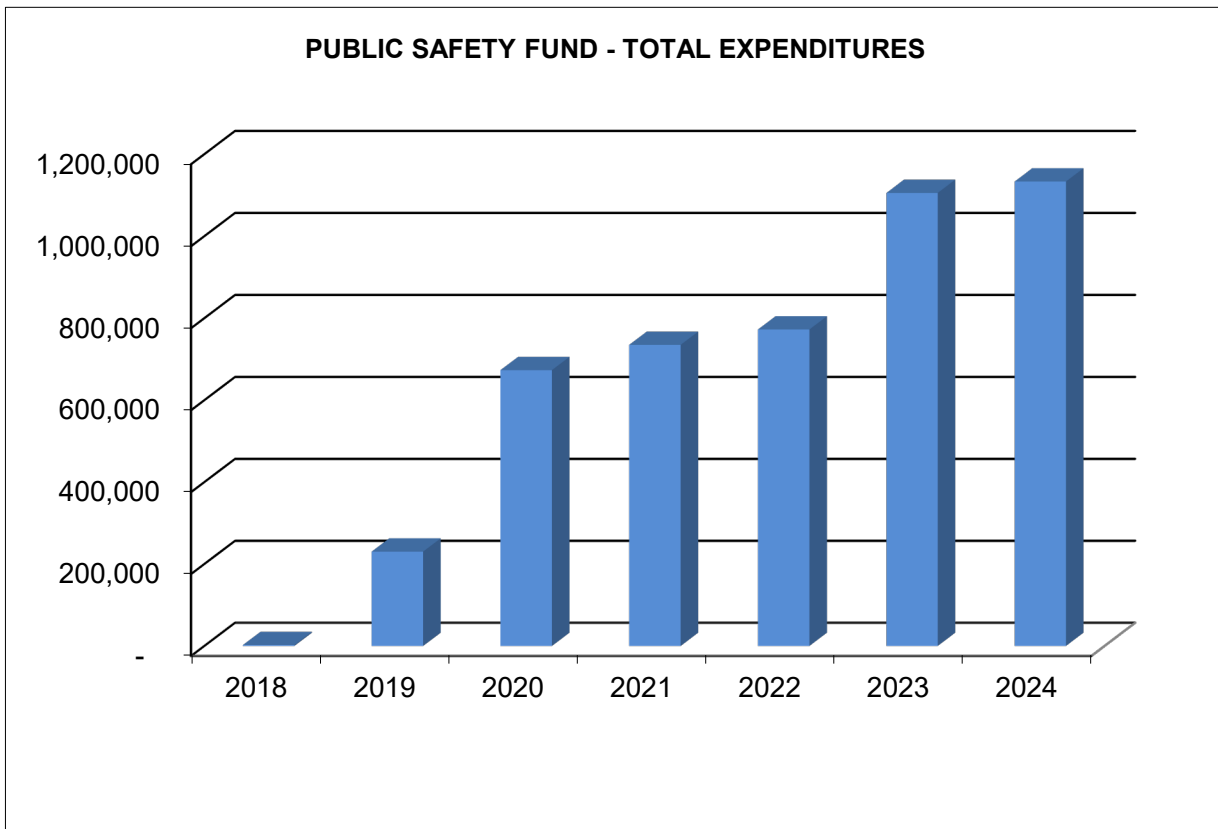


PUBLIC SAFETY FUND - REVENUES					
	Actual Revenue FY 2021	Actual Revenue FY 2022	Budgeted Revenue FY 2023	Projected Revenue FY 2023	Estimated Revenue FY 2024
OPERATING REVENUES					
4301 Public Safety Sales Tax	967,222	1,091,699	1,066,144	1,210,812	1,235,028
4546 Donations	20,000	-	-	-	-
4704 Interest	2,792	5,425	2,000	37,796	30,000
4737 Other Agency Funding	-	-	-	-	-
Total Operating Revenues	990,014	1,097,124	1,068,144	1,248,608	1,265,028
TRANSFERS					
4901 Transfer In From Other Funds	-	-	-	-	-
Total Transfers	-	-	-	-	-
TOTAL PUBLIC SAFETY REVENUES	990,014	1,097,124	1,068,144	1,248,608	1,265,028



In April of 2017, St. Louis County voters approved a one-half cent Public Safety Sales Tax. This tax is to provide funding for improving policing in St. Louis County. Five-eighths of the revenues are distributed to municipalities on a per capita basis to be used for police and public safety. Creve Coeur's share is estimated to be \$1,210,812 for FY 2023, which is up 10.9% from FY 2022 due to COVID-19 coming to an end. Revenue is projected to be up 2% at \$1,235,028 for FY 2024.

Fiscal Year	Public Safety Sales Tax	Amount of Change	Percent Change
2018	634,959	NA	NA
2019	1,041,890	406,932	64.1%
2020	947,491	(94,400)	-9.1%
2021	967,222	19,731	2.1%
2022	1,091,699	124,477	12.9%
2023 Proj.	1,210,812	119,113	10.9%
2024 Budget	1,235,028	24,216	2.0%



Fiscal Year	Total Expenditures	Amount of Change	Percent Change
2018	2,300	NA	NA
2019	230,409	228,109	9918.1%
2020	673,398	442,989	192.3%
2021	735,095	61,697	9.2%
2022	772,583	37,488	5.1%
2023 Projected	1,105,633	333,050	43.1%
2024 Budgeted	1,133,437	27,804	2.5%

Major causes of change:

FY 2019 This is still a new fund. Almost all of the expenses are due to a transfer out to the General Fund (\$131,167) to cover the costs of transitioning the police department to 12-hour shifts and transitioning holiday pay to be per each holiday instead of once per year.

FY 2020 Exenditures increased 192%. New this fiscal year is 15% of the sales tax revenue (\$131,250) will now go to offset the Police Pension Costs and will be included in every year thereafter.

FY 2021 Expenditures increased 9.2%, with most of this being from all of the new police building costs being allocated out of this fund. Also included are several one-time capital expenditures and the 15% of revenues that go for Police Pension costs were increased to 20% (\$183,568).



PUBLIC SAFETY FUND EXPENDITURES (CONT.)

FY 2022 An increase of 5.1% occurred in FY 2022. Most of this increase is due to a transfer out to the General Fund (\$68,057) for Pay Adjustments.

FY 2023 An increase of 43.1% is projected for FY 2023. New to FY 2023 is a transfer out to the General Fund for Market Equity/Step Program/Probation Completion Bonus (\$128,900) and \$83,521 for a one-time 2% COLA.

FY 2024 An increase of 2.5% is projected for FY 2024 with most of this just being an increase in goods and services due to inflation.



PUBLIC SAFETY FUND

Fund Description

In April 2017, St. Louis County voters approved a one-half-cent Public Safety Sales Tax to provide funding for public safety purposes. Per Missouri statutes, five-eighths (5/8th) of the revenues are distributed to municipalities based on population. The City policy on fund usage is located under Budget and Financial Policies as outlined in the annual budget book.

Budget Highlights

Revenues

- Acct. 9401 – Transfer from Public Safety Fund to General Fund is decreasing due to a 2% one-time, lump sum cost of living adjustment completed in FY 2023. All other costs increased 7% due to a 7% increase estimated in FY 2024 (\$371,606).

Expenses

- Acct. 5241 – Partial (20%) contribution toward police pension expenses (\$242,162).
- Acct. 6203 – Counseling fees associated with first responder counseling services (\$4,116).
- Acct. 6203 – PAS (EAP) Mandatory Mental Health Check-Ins (\$2,550).
- Acct. 6211 – Annual maintenance and upgrades for four (4) license plate recognition (LPR) systems. Cost may be offset by \$2,500 by the Crime Prevention Partnership (\$10,000).
- Acct. 6211 – Biannual window cleaning services for the Police Department Building (\$1,800).
- Acct. 6265 – Travel and conference expenses for one (1) officer to attend crash reconstruction training (\$2,500).
- Acct. 6265 – California Homicide Investigators Association (CHIA) Conference (\$400).
- Acct. 6265 – Travel and conference expenses for Crisis Intervention Training (CIT) (\$1,050).
- Acct. 6265 – Travel and conference expenses for FBI Law Enforcement Executive Development Leadership (LEEDS) training (\$1,900).
- Acct. 6265 – Decreased St. Louis University Medicolegal Death Investigator Training (\$900).
- Acct. 6266 – Body cameras and in-car video systems lease; year five of a 5-year lease (\$64,964).
- Acct. 7304 – K9 bomb dog equipment (\$5,000).
- Acct. 7313 – Decrease in practice ammunition (\$7,500).
- Acct. 7332 – Salamander Subscription Inventory Software (\$900).
- Acct. 7332 – New PD scheduling/timekeeping software (\$11,200).
- Acct. 7332 – Software programs to improve management of the Field Training Program (\$5,600).
- Acct. 9501 – Increase in firing range lead abatement fee (\$7,100).
- Acct. 9501 – Decrease in Police building repairs and upgrades (\$7,500).
- Acct. 9503 – Three (3) new Flock LPR Cameras; cost for one (1) flock camera will be reimbursed at 50% under the Peace Officer Grant (POG) for the next three years (\$9,000).
- Acct. 9503 – Seven (7) Ballistic Helmets (\$2,800).
- Acct. 9503 – Purchase of additional traffic counter due to increased resident demand (\$4,700).
- Acct. 9503 – Replacement of twenty (20) Level III Ballistic Vests for Patrol Vehicles (\$17,000).
- Acct. 9503 – Replacement of eight (8) portable radios for patrol division (\$64,000).
- Acct. 9503 – Park Camera and Internet for Millennium Park (\$12,000).
- Acct. 9503 – New recumbent bike for the PD fitness room (\$4,260).
- Acct. 9503 – Snap-On Triton-D10 Code Reader & Scanner (\$7,000).
- Acct. 9503 – PD Interview Room Camera Storage Enhancements (\$9,900).

**PUBLIC SAFETY FUND - EXPENDITURES**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5241 Pension Contribution	189,498	176,335	211,118	211,118	242,162
Total Personnel Services	189,498	176,335	211,118	211,118	242,162
OPERATING EXPENSES:					
6202 Technical & Personal Services	-	-	-	-	-
6203 Professional Services	4,116	4,116	4,116	4,116	6,666
6210 Vehicle Maintenance	-	-	-	-	-
6211 Equipment Maintenance	24,833	28,194	28,675	28,719	39,490
6212 Building and Grounds Main.	34,722	34,516	37,629	34,953	33,333
6213 Office Equipment Maint.	1,984	-	2,000	1,000	1,000
6226 Property Insurance	23,229	33,474	38,495	34,038	42,548
6250 Electricity	55,042	60,836	64,800	64,800	64,800
6252 Natural Gas	1,745	2,181	2,100	2,100	2,100
6253 Telephone	3,103	3,458	3,360	3,360	3,360
6254 Water and Sewer	6,783	7,091	7,350	7,350	7,386
6255 Cable TV and Internet	2,358	2,666	2,484	2,484	3,012
6260 Advertising	175	175	3,000	3,000	1,000
6261 Education & Training	21,903	28,685	36,300	35,400	31,500
6264 In Town Meetings	-	-	500	500	500
6265 Travel & Conferences	1,151	7,955	12,950	10,972	11,250
6266 Equipment Rental	89,964	64,964	64,964	64,964	64,964
7302 Small Tools	543	897	1,200	1,000	1,000
7303 Horticultural Supplies	-	-	1,500	215	500
7304 General Supplies	3,109	3,459	10,500	10,500	10,500
7306 Memorials & Plaques	-	-	-	-	-
7307 Gasoline & Mileage	2,201	1,882	2,500	2,500	2,500
7313 Range Supplies	5,073	5,458	10,000	7,500	7,500
7331 Computer Hardware	19,583	75,648	5,000	5,000	5,000
7332 Computer Software	-	-	75,652	75,652	34,500
Total Operating Expense	301,617	365,655	415,075	400,123	374,409
CAPITAL OUTLAY:					
9501 Buildings & Improvements	-	6,910	22,000	12,465	14,600
9502 Vehicles	-	-	-	-	-
9503 Equipment	47,613	13,688	51,400	51,112	130,660
Total Capital Outlay	47,613	20,598	73,400	63,577	145,260
Other Financing Uses:					
Transfer Out to General Fund	196,366	209,995	\$ 430,816	430,816	\$ 371,606
Transfer Out to Capital Improvements	-	-	-	-	-
Total Other Financing Uses	196,366	209,995	430,816	430,816	371,606
TOTAL PUBLIC SAFETY EXP.	735,095	772,583	1,130,409	1,105,633	1,133,437
REVENUES OVER (UNDER) EXPENDITURES AND OTHER FINANCING USES					
	254,919	324,541	(62,265)	142,974	131,591
FUND BALANCE-BEGINNING OF YEAR	1,737,026	1,991,946	1,256,550	2,316,487	2,459,461
FUND BALANCE-END OF YEAR	1,991,946	2,316,487	1,194,285	2,459,461	2,591,052

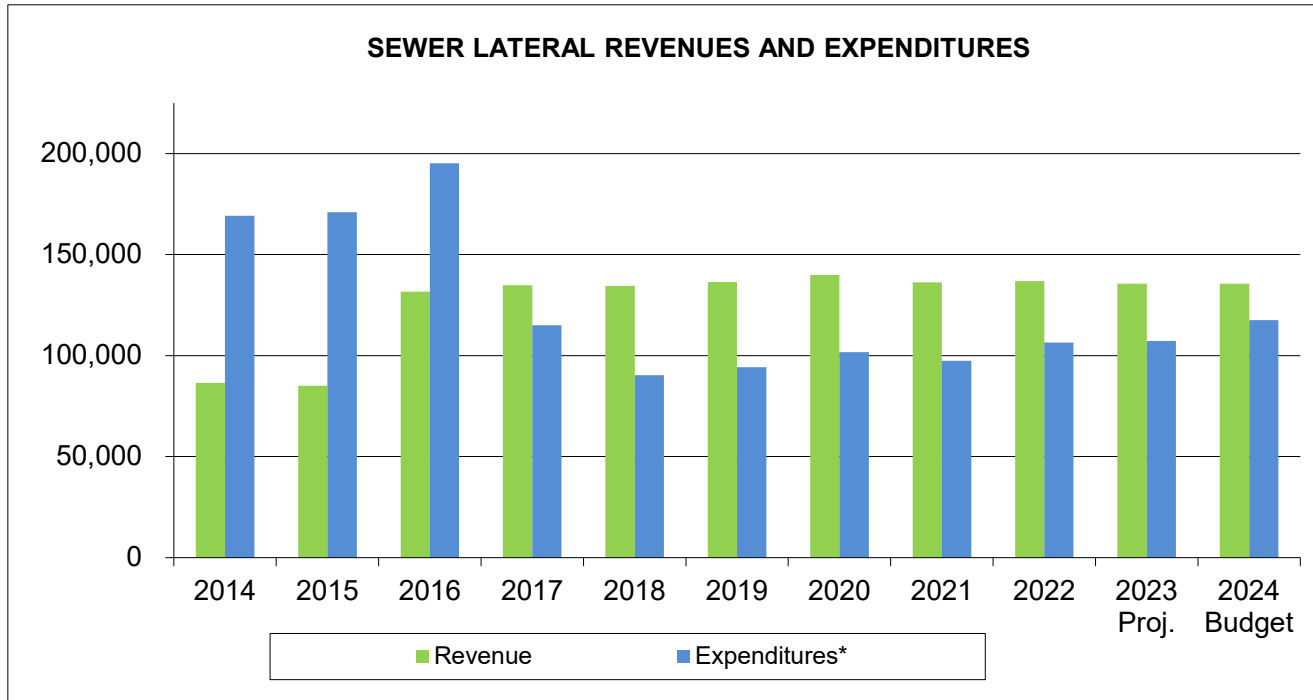


**PUBLIC SAFETY FUND
ESTIMATED FY 2024 CAPITAL OUTLAY PROJECTS**

Capital Outlay Detail	Annual
9501 Buildings & Improvements	
Building Upgrades and Repairs	7,500
Firing Range Lead Abatement	7,100
Total Account 9501	<u>14,600</u>
9502 Vehicles	
(Nothing Budgeted)	-
Total Account 9502	<u>-</u>
9503 Equipment	
Traffic Counter	4,700
Replacement of Level III Carriers for Patrol	17,000
Millennium Park Cameras & Internet	12,000
PD Interview Room Camera Storage Enhancements	9,900
3 Flock LPR Cameras (1 Reimbursed @ 50% thru Grant)	9,000
7 Ballistic Helmets	2,800
Recumbant Bike, Leg Curl Machine	4,260
Snap-On Triton-D10 Code Reader & Scanner	7,000
Walkie Talkie Replacements	64,000
Total Account 9503	<u>130,660</u>
Total Capital Outlay	<u><u>145,260</u></u>



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**SEWER LATERAL REVENUES, EXPENDITURES AND FUND BALANCE**

Fiscal Year	Fee	Revenue	Expenditures*	Surplus (Deficit)	Fund Balance	Reimburs. % Up to \$7,500
2014	\$18	86,574	169,184	(82,610)	\$186,500	80%
2015	\$18	85,162	170,980	(85,818)	\$100,682	80%
2016	\$28	131,711	195,268	(63,557)	\$37,125	80%
2017	\$28	134,821	115,030	19,791	\$56,916	50%
2018	\$28	134,540	90,339	44,201	\$101,117	50%
2019	\$28	136,425	94,202	42,223	\$143,339	50%
2020	\$28	139,942	101,743	38,199	\$181,538	50%
2021	\$28	136,325	97,389	38,936	\$220,474	50%
2022	\$28	136,836	106,465	30,370	\$250,845	50%
2023 Proj.	\$28	135,700	107,227	28,473	\$279,318	50%
2024 Budget	\$28	135,700	117,654	18,046	\$297,364	50%

* 20% of a Public Works Project Manager's Salary and Benefits was not included in the Sewer Lateral Fund in FY 2017 - FY 2020.



**SEWER LATERAL FUND
SUMMARY OF REVENUE BY ACTIVITY
FOR FISCAL YEAR ENDING JUNE 30, 2024**

	Actual FY 2021	Actual FY 2022	Budgeted FY 2023	Projected FY 2023	Estimated FY 2024
DISTRICT OPERATING REVENUE:					
4101 Real Property, Current	135,967	136,188	135,500	135,500	135,500
Total Property Taxes	135,967	136,188	135,500	135,500	135,500
OPERATING REVENUES					
4704 Interest Revenue	358	647	200	200	200
Total Operating Revenues	358	647	200	200	200
TOTAL SEWER LATERAL REVENUES	136,325	136,836	135,700	135,700	135,700



**SEWER LATERAL FUND
SUMMARY OF OPERATING EXPENSES BY ACTIVITY
FOR FISCAL YEAR ENDING JUNE 30, 2024**

	Actual FY 2021	Actual FY 2022	Budgeted FY 2023	Projected FY 2023	Estimated FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	11,078	11,302	11,400	12,410	12,390
5102 Salaries, Temporary Empl.	-	-	-	-	-
5103 Overtime	151	195	100	100	100
5104 Vacation Pay	-	-	-	-	-
5105 Longevity Pay	115	115	115	115	115
5109 Provision for Salary Adj.	166	-	725	725	885
5230 Hospital & Medical Insurance	-	-	-	-	-
5231 Self-Insured Medical Benefit	120	120	120	120	120
5233 Dental Insurance	53	50	49	49	48
5234 Group Life Insurance	34	38	41	45	51
5235 Accidental Death & Dismem.	4	4	5	4	4
5236 Disability Insurance	29	32	35	35	37
5240 Social Security Contribution	892	901	963	963	1,000
5241 Pension Contribution	4,516	1,531	1,514	1,549	1,694
5243 Worker's Compensation Ins.	-	-	589	612	710
Total Personnel Services*	17,160	14,289	15,656	16,727	17,154
* 20% of PW's Project Manager's Salary & Benefits now allocated to Sewer Lateral					
OPERATING EXPENSES:					
6202 Technical & Personal Services	-	-	500	500	500
9315 Sewer Lateral reimbursements	80,229	92,176	100,000	90,000	100,000
Total Operating Expenses	80,229	92,176	100,500	90,500	100,500
TOTAL SEWER LATERAL EXP.	97,389	106,465	116,156	107,227	117,654
EXCESS OF REV. OVER EXP.	38,936	30,370	19,544	28,473	18,046
FUND BALANCE-BEGINNING OF YEAR	181,537	220,473	148,816	250,844	279,317
FUND BALANCE-END OF YEAR	220,473	250,844	168,360	279,317	297,363

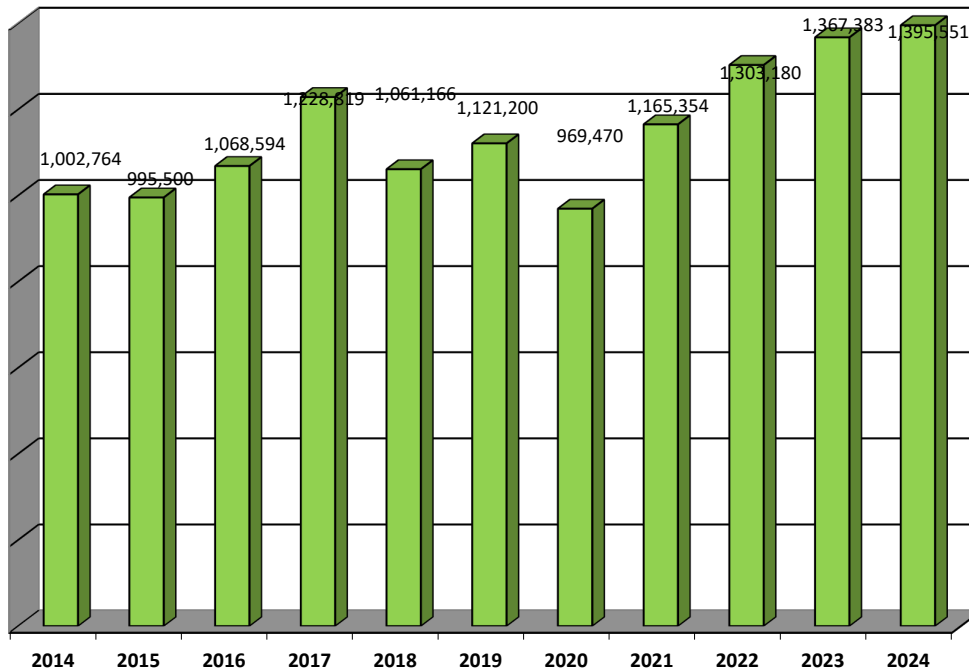


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**MUNICIPAL ENTERPRISE FUND
STATEMENT OF ESTIMATED REVENUE AND EXPENSES
FOR FISCAL YEAR ENDING JUNE 30, 2024
IN COMPARISON WITH BUDGETED AND PROJECTED TOTALS FOR FY 2023
AND ACTUAL TOTALS FOR FY 2021 & FY 2022**

	Actual FY 2021	Actual FY 2022	Budget FY 2023	Projected FY 2023	Estimated FY 2024	% Change to Projected FY 2023
Revenues:						
Ice Arena	567,754	753,305	728,961	760,574	784,188	3.10%
Golf Course	557,297	496,498	446,319	547,509	551,563	0.74%
Food Service	40,303	53,377	50,450	59,300	59,800	0.84%
Total Operating Revenues	1,165,354	1,303,180	1,225,730	1,367,383	1,395,551	2.06%
Utilization of Retained Earnings	-	-	-	-	-	-
Transfer from General Fund	-	-	-	-	-	-
Total Revenues	1,165,354	1,303,180	1,225,730	1,367,383	1,395,551	2.06%
Expenses:						
Ice Arena	512,869	548,694	614,437	615,744	644,766	4.71%
Golf Course	552,801	569,329	616,363	608,695	619,430	1.76%
Food Service	32,042	49,116	46,292	52,143	49,445	-5.17%
Total Operating Expenses	1,097,713	1,167,139	1,277,092	1,276,582	1,313,641	2.90%
Total Expenses	1,097,713	1,167,139	1,277,092	1,276,582	1,313,641	2.90%
TOTAL REVENUES OVER EXPENSES	67,641	136,041	(51,362)	90,801	81,910	

**MUNICIPAL ENTERPRISE FUND - TOTAL REVENUES**

Fiscal Year	Total revenues	Amount of Change	Percent Change
2014	1,002,764	48,921	5.1%
2015	995,500	(7,264)	-0.7%
2016	1,068,594	73,094	7.3%
2017	1,228,819	160,225	15.0%
2018	1,061,166	(167,653)	-13.6%
2019	1,121,200	60,034	5.7%
2020	969,470	(151,730)	-13.5%
2021	1,165,354	44,154	3.9%
2022	1,303,180	333,710	34.4%
2023	Projected 1,367,383	64,203	4.9%
2024	Budgeted 1,395,551	28,168	2.1%

Major causes of change:

- FY 2014 An increase of 5.1% occurred primarily as a result of a one-time write off of credit accounts to Golf revenues and increase in Golf play. This increase offset a decrease in Ice Revenues due to a week.
- FY 2015 A decrease of .7% in Revenues occurred in FY 2015. Revenues at the Golf Course and Snack Bar were down, primarily due to decreased usage and a one-time accounting adjustment in FY 2014 for Skating Lessons and Figure Skating Contracts.



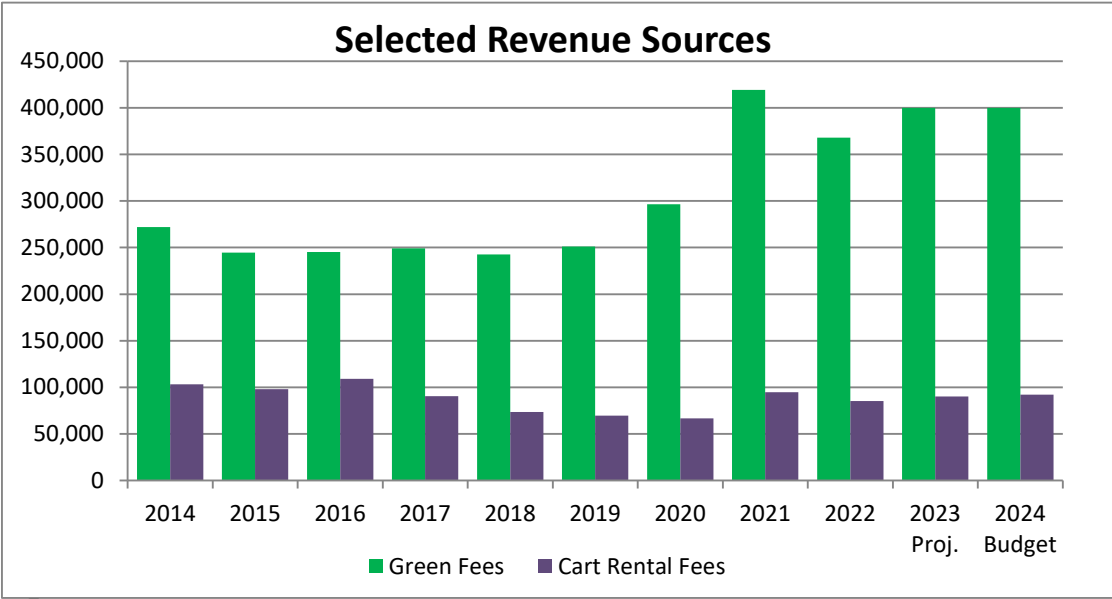
MUNICIPAL ENTERPRISE FUND REVENUES (CONT'D)

- FY 2016 An increase of 7.3% in revenues as a result of increase in Revenues at the Ice Arena, especially in Hockey. The increase was partially offset by decreases at the Golf Course and in Food Service.
- FY 2017 An increase of 15% in revenues primarily resulting from a large upfront one-time tower lease renewal payment which was credited to the Ice Arena; otherwise Revenues only increased 3.8% from FY 2016.
- FY 2018 A decrease of 13.6% in revenues primarily resulting from a large upfront one-time tower lease renewal payment which was credited to the Ice Arena in FY 2017.
- FY 2019 An increase of 5.7% in revenues as a result of increase in Revenues at the Ice Arena, especially in Hockey and Ice Rental.
- FY 2020 A significant decrease of 13.5% in revenues due to pandemic (COVID-19) crisis.
- FY 2021 Increased 3.9% due to an increase in fees and COVID-19 recovery. Golf Revenues were a primary contributor for FY 2021 since outdoor activity such as golf was one of the many activities that people could do during the pandemic; subsequently, Golf experienced a record year.
- FY 2022 An increase of 34.4% in revenues due to the ice arena opening back up and revenues getting back to normal. While golf revenues aren't as high as the previous year, they are still higher than pre-pandemic numbers.
- FY 2023 An increase of 4.9% in revenues is budgeted due to the anticipation of Golf revenues still being up, as well as an increase in Ice and Food revenues.
- FY 2024 An increase of 2.1% in revenues is budgeted as a result of a full year of rates being increased January 1, 2023 for Golf, Ice and Room Rentals. FY 2024 also includes a \$42,620 decrease in revenues as a result of the ice arena being shut down for one month while the refrigerant is being replaced.



MUNICIPAL ENTERPRISE FUND
COMPARISON OF FISCAL YEAR 2024 ESTIMATED REVENUE WITH 2023 BUDGETED AND PROJECTED
AND ACTUAL REVENUES FOR FISCAL YEARS 2021 AND 2022

	Actual Revenue FY 2021	Actual Revenue FY 2022	Budgeted Revenue FY 2023	Projected Revenue FY 2023	Estimated Revenue FY 2024	% Change to Projected FY 2023
CHARGES FOR MUNICIPAL FACILITIES:						
Ice Arena:						
4519 Hockey Merchandise	3	12	32	75	50	0.00%
4520 Admissions	16,454	52,526	48,000	56,000	49,684	-11.28%
4521 Youth Hockey Association	171,746	174,656	170,000	175,000	186,250	6.43%
4522 Hockey Contract Rentals	242,120	333,840	353,000	331,000	359,982	8.76%
4523 Skate Rental	316	9,676	9,300	10,000	12,364	23.64%
4524 Skate Sharpening	396	204	250	25	100	300.00%
4525 Learn to Skate	27,830	55,396	47,000	55,000	51,300	-6.73%
4526 Locker Rental	65	94	100	25	25	0.00%
4527 Figure Skating Contracts	30,334	41,645	30,000	40,000	34,280	-14.30%
4528 Miscellaneous Revenue	486	440	100	670	670	0.00%
4530 Freestyle	38,884	31,904	25,000	30,000	25,580	-14.73%
4532 Dielmann Tower Lease Payments	10,490	10,805	11,129	11,129	11,463	0.00%
4533 Instructional Hockey	2,256	3,554	3,000	3,700	3,070	-17.03%
4534 Stick & Puck	12,018	12,966	12,000	13,000	12,370	-4.85%
4540 Dielmann West Meeting Room Re	1,429	25,284	20,000	33,000	35,000	6.06%
4704 Interest on Investments	85	304	50	1,950	2,000	2.56%
4730 Reimbursements	12,842	-	-	-	-	0.00%
Total Ice Arena	567,754	753,305	728,961	760,574	784,188	3.10%
Golf Course:						
4500 Green Fees	419,135	367,898	325,000	400,000	400,000	0.00%
4501 Cart Rental	94,736	85,417	80,000	90,000	92,000	2.22%
4502 Equipment Rental	450	610	500	700	700	0.00%
4506 Misc. Golf Course Revenue	11,425	10,964	11,129	11,239	11,463	2.00%
4509 Merchandise Revenue	15,058	17,264	14,640	18,620	18,400	-1.18%
4541 Dielmann East Meeting Room Re	16,408	14,042	15,000	25,000	27,000	8.00%
4704 Interest on Investments	85	304	50	1,950	2,000	0.00%
Total Golf Course	557,297	496,498	446,319	547,509	551,563	0.74%
Food Service:						
4504 Alcoholic Beverages	25,503	26,030	24,000	28,000	28,000	0.00%
4505 Sandwiches & Hotdogs	1,878	7,659	6,800	9,000	9,000	0.00%
4507 Coffee, Tea, Soft drinks	10,109	13,663	14,000	15,000	15,500	3.33%
4508 Snacks	2,814	6,025	5,650	7,300	7,300	0.00%
Coke Contract	-	-	-	-	-	-
Total Food Service	40,303	53,377	50,450	59,300	59,800	0.84%
Total Municipal Facilities	1,165,354	1,303,180	1,225,730	1,367,383	1,395,551	2.06%
TOTAL MUNICIPAL ENTERPRISE FUND	1,165,354	1,303,180	1,225,730	1,367,383	1,395,551	



Green Fees

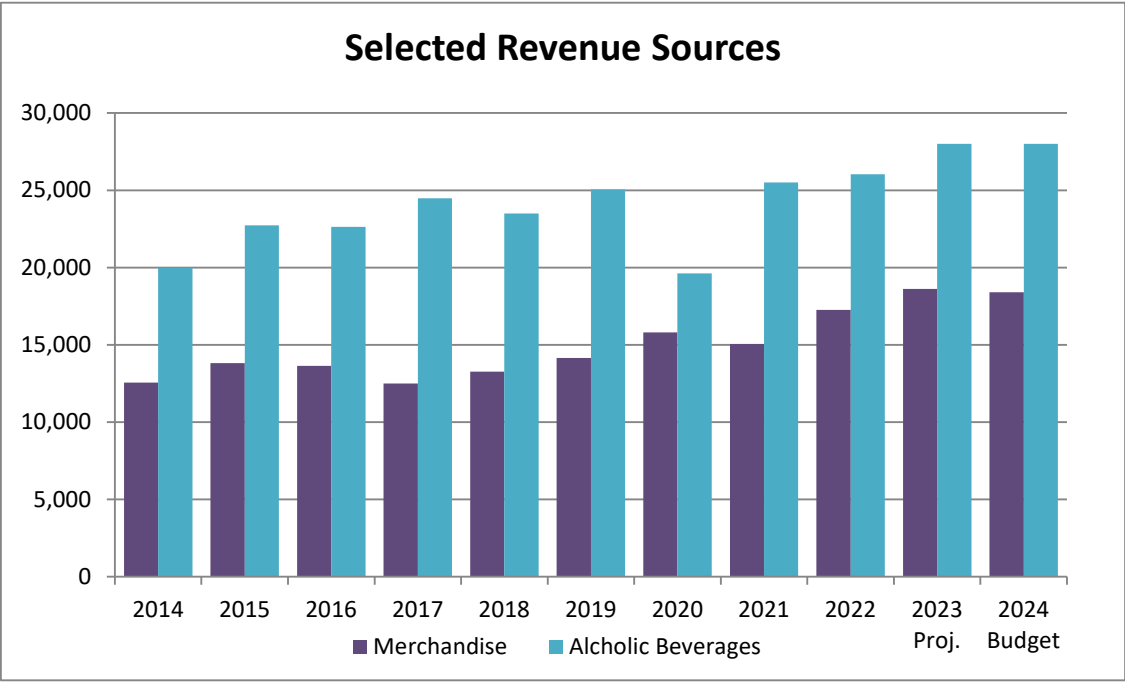
In accordance with City Ordinance, a fee is charged for all users of the Golf Course. The FY 2023 revenue is estimated at \$400,000. FY 2024 is budgeted at \$400,000. The greens fees revenues are based upon projected usage of the course year round. The following fees (in red) were increased January 1, 2023 and are currently in effect:

	<u>Resident</u>	<u>Non-Resident</u>
Weekdays	15.00	18.00
Weekdays, Senior or Junior	14.00	17.00
Weekdays, Add'l 9 Holes	12.50	12.50
Weekdays, Add'l 9 Holes, Senior or Junior	12.50	12.50
Weekend	16.00	19.00
Weekend, Additional 9 Holes	15.00	15.00

Cart Rental Fees

In accordance with City Ordinance, a rental fee is charged for use of golf carts. The current rental fee is up \$1 as of January 1, 2023 to \$9 per player per round. FY 2023 revenue is estimated at \$90,000. The FY 2024 revenue is projected to increase to \$92,000.

Fiscal Year	Green Fees	Cart Rental Fees
2014	272,152	103,358
2015	244,658	98,116
2016	245,123	109,110
2017	249,279	90,590
2018	242,498	73,352
2019	251,064	69,646
2020	296,562	66,628
2021	419,135	94,736
2022	367,898	85,417
2023 Proj.	400,000	90,000
2024 Budget	400,000	92,000



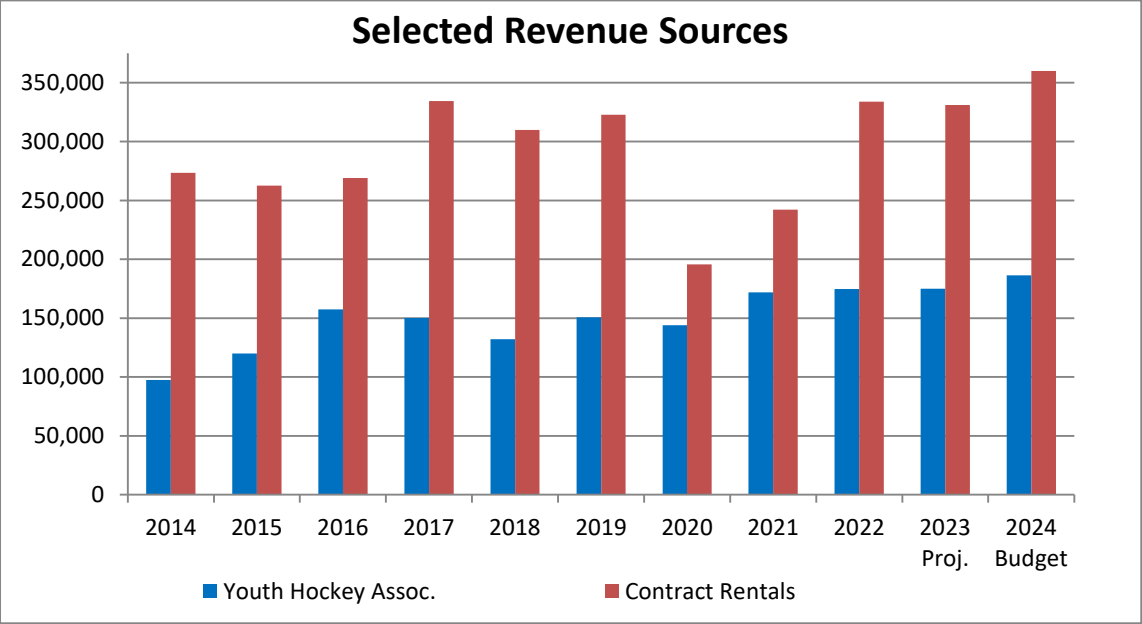
Merchandise

In accordance with City Ordinance No. 1280 and Administrative Policy, golf merchandise is made available to patrons of the Golf Course. Various items available for sale are golf clubs, golf balls, hats, gloves and golfing apparel. The FY 2024 revenue is estimated at \$18,400, and represents a slight decrease over the previous fiscal year (\$18,620).

Alcoholic Beverages

In accordance with Administrative Policy, sales of alcoholic beverages (beer & wine only) are made available to patrons of the Golf Course. The FY 2024 revenue is estimated at \$28,000.

Fiscal Year	Merchandise	Alcoholic Beverages
2014	12,547	19,985
2015	13,816	22,733
2016	13,632	22,640
2017	12,491	24,486
2018	13,267	23,496
2019	14,140	25,053
2020	15,808	19,624
2021	15,058	25,503
2022	17,264	26,030
2023 Proj.	18,620	28,000
2024 Budget	18,400	28,000



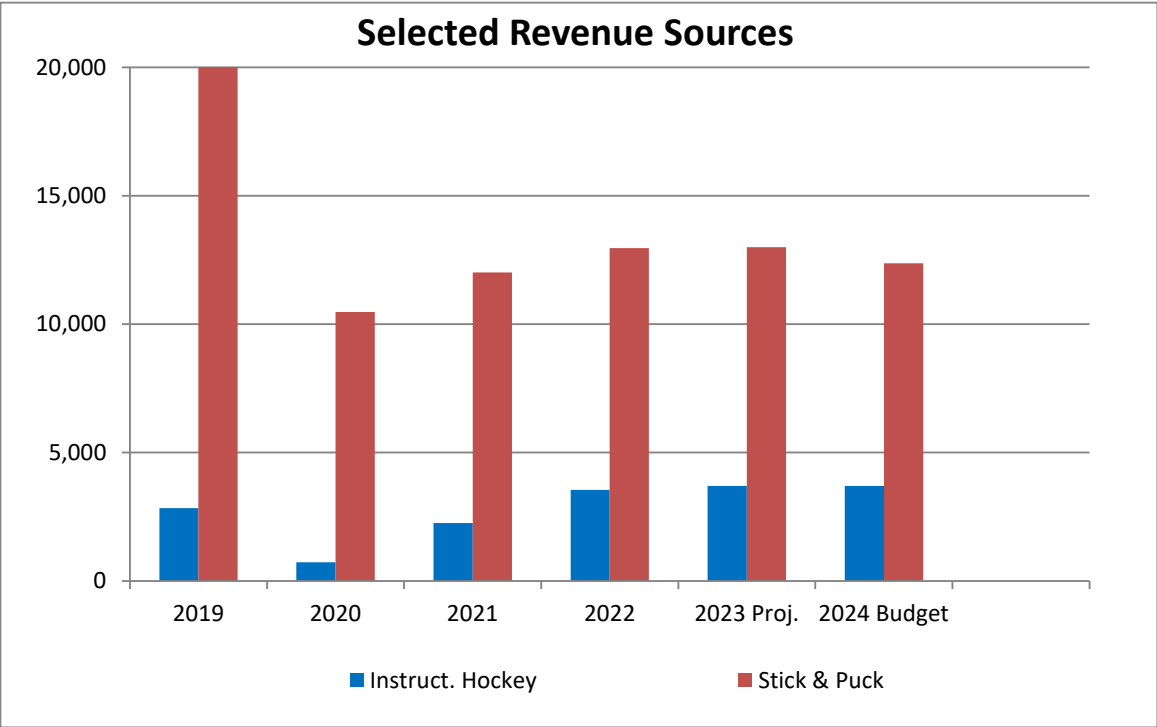
Youth Hockey Association

The Hockey Association pays a user fee for rental of ice time. FY 2023 Ice Rental for the Hockey Association is based upon a rental of 729 hours at an average rate of \$240 per hour. FY 2024 revenue is estimated at \$189,625 due to a fee increase as of January 1, 2023 to \$270 per hour.

Hockey Contract Rentals

In accordance with City Ordinance, a user fee is charged for rental of ice time. The hourly charge for ice rental increased to an average of \$240 per hour in FY 2023. FY 2023 revenue is estimated at \$331,000. FY 2024 revenue is based on 1,358 hours of ice time or estimated at \$366,741.

Fiscal Year	Youth Hockey Assoc.	Contract Rentals
2014	97,302	273,437
2015	119,854	262,474
2016	157,361	268,877
2017	150,046	334,391
2018	131,987	309,711
2019	150,654	322,746
2020	143,925	195,615
2021	171,746	242,120
2022	174,656	333,840
2023 Proj.	175,000	331,000
2024 Budget	186,250	359,982



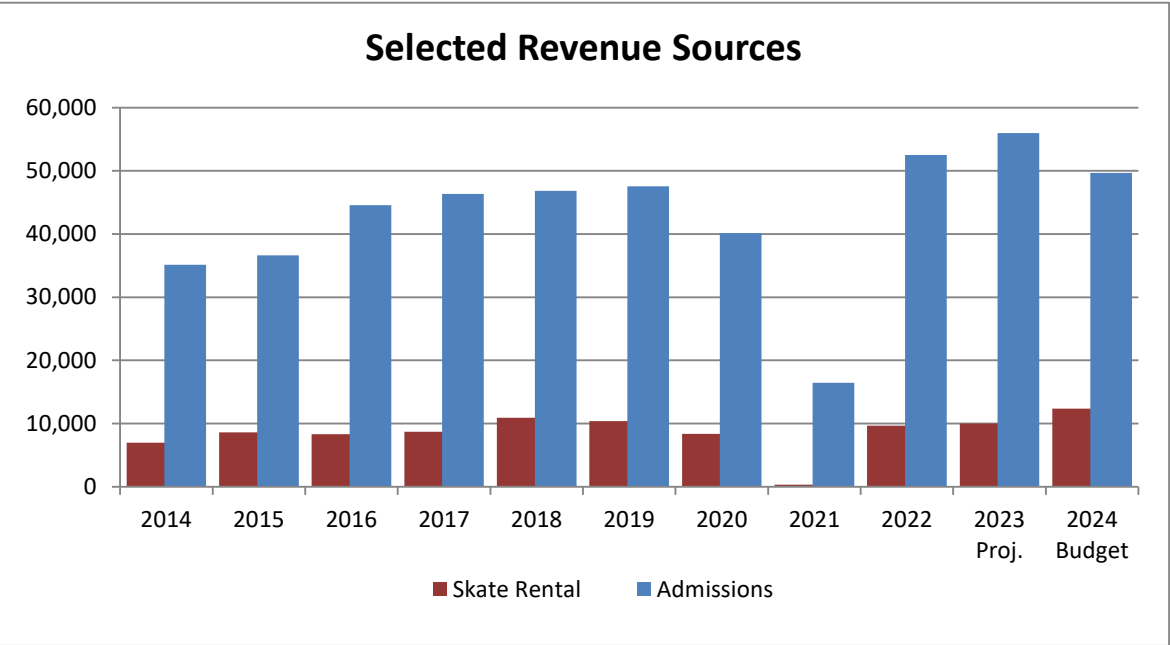
Instructional Hockey

Fees for instructional hockey are \$8 per person. FY 2024 revenue is estimated at \$3,385.

Stick & Puck

FY 2024 Revenue for Stick & Puck is estimated at \$7 per person for a total of \$12,685.

Fiscal Year	Instruct. Hockey	Stick & Puck
2019	2,832	29,474
2020	728	10,478
2021	2,256	12,018
2022	3,554	12,966
2023 Proj.	3,700	13,000
2024 Budget	3,700	12,370



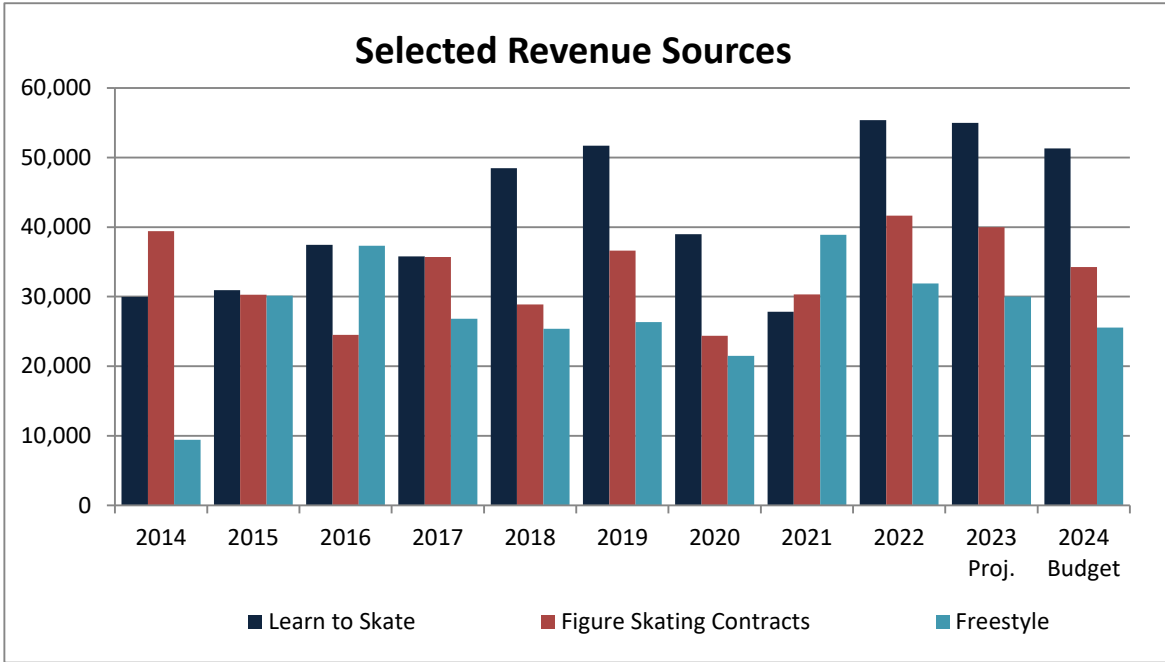
Admissions

In accordance with City Ordinance, a user fee is charged for admission to the Ice Arena to skate. Estimated FY 2023 is projected at \$56,000 up due to COVID-19 subsiding. The FY 2024 admission revenues are estimated to decrease to \$52,842.

Skate Rental

In accordance with City Ordinance, a fee is charged for rental of skates. Rental fees increased from \$2 to \$3 per pair January 1, 2023. FY 2023 revenue is estimated at \$10,000. The projected skate rental revenue for FY 2024 are \$12,682.

Fiscal Year	Admissions	Skate Rental
2014	35,151	6,979
2015	36,624	8,623
2016	44,557	8,344
2017	46,372	8,727
2018	46,837	10,902
2019	47,553	10,377
2020	40,164	8,361
2021	16,454	316
2022	52,526	9,676
2023 Proj.	56,000	10,000
2024 Budget	49,684	12,364



Learn to Skate

In accordance with administrative policy, fees are charged for group skating lessons through the city's Learn-to-Skate program. Group lessons are \$78 for a 6 week session per person. FY 2023 revenue is estimated at \$55,000. The FY 2024 revenues are estimated to be \$51,300.

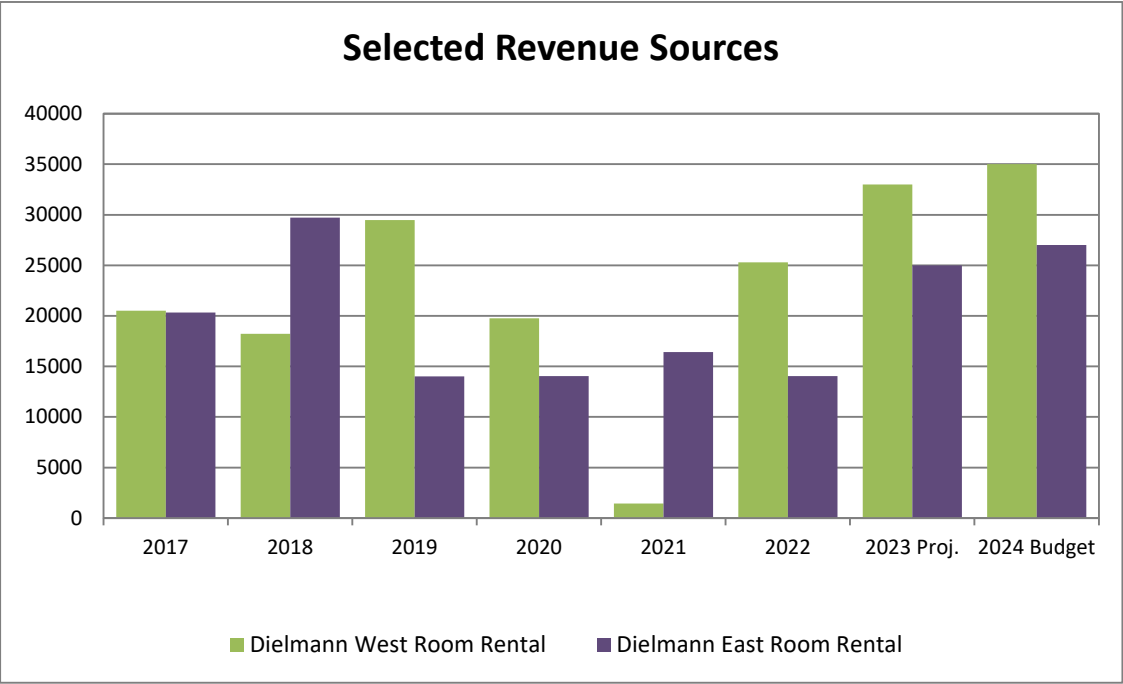
Figure Skating Contracts

In accordance with City Ordinance, a user fee is charged to the Creve Coeur Figure Skating Club. The FY 2023 user fee of \$240 per hour increas to \$270 per hour on January 1, 2023. FY 2024 revenue is estimated at \$39,140.

Freestyle

In accordance with City Ordinance, a \$5 per half hour fee is charged for ice skating. FY 2024 is estimated to be \$27,790.

Fiscal Year	Learn to Skate	Figure Skating Contracts	Freestyle
2014	29,972	39,431	9,433
2015	30,954	30,274	30,145
2016	37,433	24,505	37,327
2017	35,783	35,691	26,849
2018	48,476	28,893	25,370
2019	51,696	36,616	26,360
2020	38,990	24,393	21,495
2021	27,830	30,334	38,884
2022	55,396	41,645	31,904
2023 Proj.	55,000	40,000	30,000
2024 Budget	51,300	34,280	25,580



Dielmann West Room Rental

FY 2023 revenue is estimated at \$33,000 up from FY 2022 as a result of COVID-19 subsiding. The FY 2024 revenues are estimated to increase slightly to \$35,000 as a result of increased room rental rates on January 1, 2023.

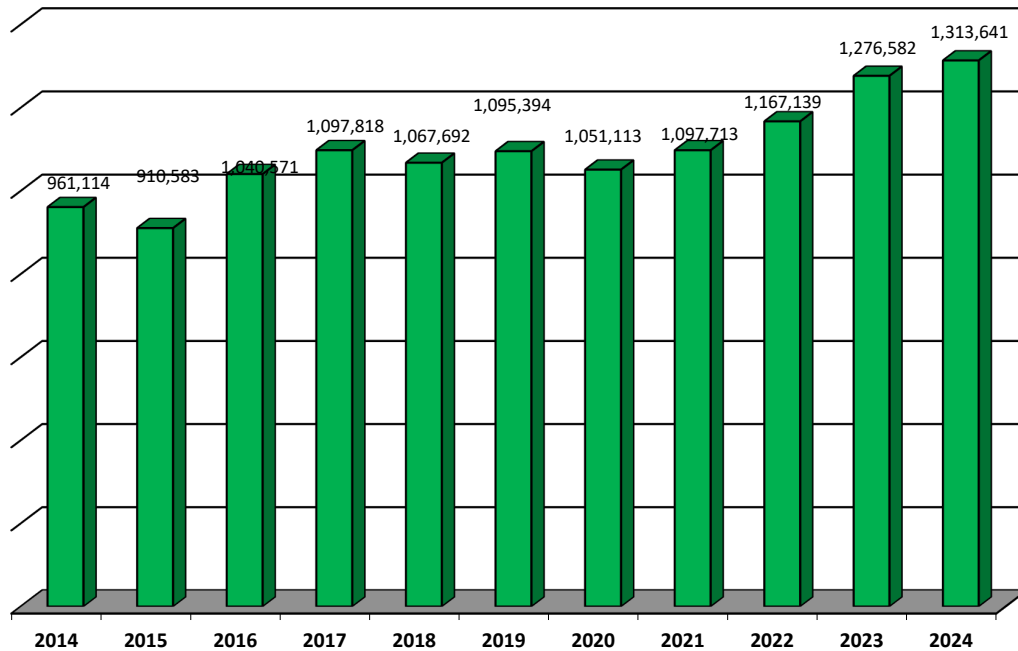
Dielmann East Room Rental

FY 2023 revenue is estimated to be up from FY 2022 to \$25,000. The FY 2024 revenues are estimated to increase slightly to \$27,000 as a result of increased room rental rates on January 1, 2023.

Fiscal Year	Dielmann West Room Rental	Dielmann East Room Rental
2017	20,516	20,321
2018	18,220	29,726
2019	29,474	14,013
2020	19,763	14,041
2021	1,429	16,408
2022	25,284	14,042
2023 Proj.	33,000	25,000
2024 Budget	35,000	27,000



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**MUNICIPAL ENTERPRISE FUND - TOTAL EXPENDITURES**

Fiscal Year	Total Expenditures	Amount of Change	Percent Change
2014	961,114	49,665	5.4%
2015	910,583	(50,531)	-5.3%
2016	1,040,571	129,988	14.3%
2017	1,097,818	57,247	5.5%
2018	1,067,692	(30,126)	-2.7%
2019	1,095,394	27,702	2.6%
2020	1,051,113	(44,281)	-4.0%
2021	1,097,713	2,319	0.2%
2022	1,167,139	116,026	11.0%
2023 Projected	1,276,582	109,444	9.4%
2024 Budgeted	1,313,641	37,059	2.9%

Factors impacting variances:

- FY 2014** An increase in expenditures of 5.4% occurred in FY 2014. Normal increases in salary and benefits occurred in 2014. In addition a large one time repair occurred in December of FY 2014. These additional expenses were offset by savings in such areas as debt service in excess of \$43,000 and capital.
- FY 2015** A decrease of 5.3% occurred in FY 2015. This is primarily due to the large one-time repair expenditure that occurred at the Ice Arena in FY 2014. This decrease offset an increase in cost due to increased staffing at the Golf Course. Capital costs at the Golf Course decreased.



MUNICIPAL ENTERPRISE FUND EXPENDITURES (CONT.)

- FY 2016 A increase of 14.3% occurred in FY 2016. This is primarily due to increases in all divisions of the Recreation complex, Ice, Golf and Food. These increases are primarily due to normal personnel cost increases and other costs such as Maintenance, Temp Employees, Electricity and Ice Repairs. In addition Golf Maintenance Capital increase in FY 2016. Also Walters Golf Management was hired.
- FY 2017 An increase of 5.5% occurred in FY 2017. Overall operating costs increased due primarily to increases in operating costs at the Ice Arena and increased management and contractual costs at the Golf Course.
- FY 2018 A decrease of 2.7% occurred in FY 2018 due to a decrease in ice repairs.
- FY 2019 An increase of 2.6% occurred in FY 2019. This increase is due to normal increases in personnel costs, including a new part-time recreation supervisor, as well as a slight increase in capital equipment.
- FY 2020 An increase was originally projected, but due to COVID-19, a 4% decrease occurred. The Ice Arena was closed several months, and as a result, part-time staff were furloughed.
- FY 2021 Expenditures increased .2%. While no salary increases were budgeted, a one-time merit bonus was done at mid-year. Most of the increase was due to water and sewer being up as a result of a hot and dry summer, which meant an increase in watering of the golf course. Also, as a result of the pandemic, credit card transactions increased, which increased the City's expenditures since the City pays for this expense instead of passing it on to the customer.
- FY 2022 An increase of 11% occurred in FY 2022. Personnel costs included a 2% salary increase, as well as a 3% increase for benefit expenditures, but most of the increase is due to a new position (Building Supervisor). Operational expenditures, including capital, includes a 16.6% increase due to hiring an outside custodial service for the Dielmann Complex since the City could not find staffing, and other operational and maintenance costs increased.
- FY 2023 An increase of 9.4% is projected for FY 2023. Personnel costs include a 4% salary increase, as well as a 2% one-time bonus as a result of a high inflation rate in 2022. Benefit expenditures are budgeted to increase 3%. Operational expenditures, including capital, includes a decrease.
- FY 2024 An increase of 2.9% is projected for FY 2024. Personnel costs include a 3% COLA, as well as a 4% Merit. Insurance includes a 5% increase. Contractual Services and Commodities are budgeted to remain flat. Capital Equipment is budgeted to decrease.

**CITY OF CREVE COEUR****ALL DEPARTMENTS FOR ENTERPRISE FUND-FY24**

ACCOUNT NUMBER AND DESCRIPTION	2022 Actual	2023 Budget	2023 Projected	2024 Request	% Change om Projects
5101 Salaries, Permanent Empl.	364,177	374,136	390,770	393,240	0.63%
5102 Salaries, Temporary Empl.	153,678	158,940	158,525	166,990	5.34%
5103 Overtime	1,240	1,000	1,000	1,500	50.00%
5104 Vacation Pay	1,270	2,887	2,745	3,000	9.29%
5109 Provision for Salary Adj.	0	31,915	7,859	29,020	0.00%
5110 Auto Allowance	2,880	2,880	2,880	2,880	0.00%
5230 Hospital & Medical Insurance	64,977	69,810	66,935	69,810	4.30%
5231 Self-Insured Medical Benefit	150	600	500	900	0.00%
5233 Dental Insurance	2,908	2,785	2,785	2,212	-20.57%
5234 Group Life Insurance	1,238	1,325	1,417	1,614	13.90%
5235 Accidental Death & Dismem.	133	142	138	141	2.17%
5236 Disability Insurance	798	1,088	927	1,052	13.48%
5240 Social Security Contribution	38,682	42,301	41,760	43,601	4.41%
5241 Pension Contribution	25,468	29,346	25,080	30,828	22.92%
5243 Worker's Compensation Ins.	11,360	17,513	18,183	21,122	16.16%
6202 Technical & Personal Services	29,220	32,132	28,765	28,680	-0.30%
6203 Professional Services	11,987	1,000	19,500	19,500	0.00%
6210 Vehicle Maintenance	15,367	3,000	3,700	3,000	-18.92%
6211 Equipment Maintenance	33,755	32,117	34,065	35,815	5.14%
6212 Building & Ground Maint.	30,869	26,486	31,571	31,436	-0.43%
6213 Office Equipment Maint.	1,618	3,440	4,184	4,160	-0.57%
6220 Liability and Property Insurance	15,047	15,800	7,712	8,483	9.99%
6226 Property Insurance	16,737	17,580	24,577	30,724	25.01%
6250 Electricity	109,724	113,840	112,280	111,840	-0.39%
6252 Natural Gas	27,174	30,000	25,000	26,000	4.00%
6253 Telephone	593	600	600	1,460	143.33%
6254 Water & Sewer	43,360	55,550	66,800	58,500	-12.43%
6255 Cable TV	1,628	2,498	2,498	2,498	0.00%
6260 Advertising	1,460	3,100	2,300	2,300	0.00%
6261 Education and Training	425	1,854	854	854	0.00%
6262 Dues, Memberships & Subsc.	2,878	2,988	3,241	3,291	1.54%
6264 In Town Meetings	0	50	50	50	0.00%
6265 Travel & Conferences	0	0	1,444	2,500	0.00%
6266 Equipment Rental	885	800	1,545	900	-41.75%
6268 Ice Repairs	21,155	20,000	15,000	15,000	0.00%
6271 Medical	652	400	400	400	0.00%
7301 Chemicals & Cleaning	2,813	6,108	6,400	6,200	-3.13%
7302 Small Tools	1,138	1,225	1,225	1,225	0.00%
7303 Horticultural Supplies	23,389	25,018	25,018	25,018	0.00%
7304 General Supplies	8,946	6,500	6,750	6,750	0.00%
7307 Gasoline & Mileage	10,895	12,500	12,500	11,000	-12.00%
7308 Wearing Apparel & Linen	3,051	2,510	3,210	3,610	12.46%
8310 Food For Resale	39,293	30,500	34,218	34,625	1.19%
8320 Merchandise	9,399	9,660	10,360	10,660	2.90%
8321 Miscellaneous Supplies	1,156	1,000	1,000	1,000	0.00%
9501 Buildings & Improvements	8,202	28,050	16,996	13,400	-21.16%
9502 Vehicles	0	0	0	0	0.00%
9503 Equipment	25,366	53,918	51,115	44,652	-12.64%
9504 Office Equipment	0	200	200	200	0.00%
	1,167,139	1,277,092	1,276,582	1,313,641	2.90%



**MUNICIPAL ENTERPRISE FUND
SUMMARY OF DEPARTMENTAL APPROPRIATIONS
BY MAJOR EXPENDITURE CATEGORY**

Department/Division	Personnel Expenses	Operating Expenses	Capital Outlay	Capital Improvement	Total
Ice Arena	359,964	267,002	17,800	-	644,766
Golf Course Maintenance	245,162	99,647	3,300	-	348,109
Golf Course	154,723	81,446	35,152	-	271,321
Food Service	8,061	39,384	2,000	-	49,445
Total Operations	767,910	487,479	58,252	-	1,313,641
TOTAL OPERATING EXPENSES MUNICIPAL ENTERPRISE FUND	767,910	487,479	58,252	-	1,313,641

**RECREATION DEPARTMENT - ICE ARENA****Mission Statement**

To provide safe, friendly, family-oriented service for patrons of all ages and abilities.

Description

The city manages a year-round indoor Ice Arena providing ice time from approximately 6:00 a.m. to 11:00 p.m. daily during the primary season. A limited schedule is offered during the summer months. The Learn-to-Skate program operates under the recreation supervisor and includes the skating staff. The program provides instruction to children and adults of all abilities and from the beginner to the competitive skater. The arena is home to the St. Louis Rockets, an amateur hockey club, the Creve Coeur Figure Skating Club and the St. Louis Curling Club. In addition, several high schools and men's groups utilize the Ice Arena for hockey practice and competitive play. National and local skating organizations also use the arena for special events. The "I Skate" program, which operates under the "St. Louis Society" umbrella, provides special needs skating opportunities.

Performance and Workload Measures

	FY 2021¹	FY 2022	Projected FY 2023	Estimated FY 2024²
Ice Arena Operating Revenues Per Operating Expenditures (i.e., Revenues Per Dollar Spent)	\$0.99	\$1.27	\$1.23	\$1.28
Participants in Public Skating Sessions	2,700	7,900	8,035	7,730
Participants in Figure Skating, Stick & Puck, and Instructional Hockey	9,000	8,075	8,046	7,800
Participants in Learn to Skate Program	300	600	832	750

¹Decrease due to programming disruptions related to the COVID-19 pandemic.

²Decrease due to projected 2-week shutdown of ice rink for R-22 switchover project.

Service Standards

- Provide the maximum use possible of the Ice Arena while focusing on efficiency, profitability and best ice surface with minimal down time.
- Observe and operate all details of cash control with checks, balances and records consistent with city policies and procedures.
- Uphold resurface schedule to ensure quality ice and safety of all customers.
- Continuity of information and knowledge regarding the entire recreation complex through cross training of employees.

Objectives

- Continue to use guest satisfaction surveys for rentals and programs, designed to record guest response to Dielmann Complex facilities, activities and services to ensure excellent satisfaction levels.
- Seek continual improvements of all customer points of contact to provide excellent guest services.
- Comply with safety program, first aid training and objectives for all workers at the ice arena



- to control loss and prevent accidents.
- Review and update maintenance standards and records to improve building maintenance, cleanliness and to reduce operating expenditures and maximize revenues.
- Increase customer awareness of the ice arena through in-house literature, phone messaging, and customer service.

Budget Highlights

- Revenue – Decrease due to anticipated 2-week shutdown of ice rink for the R-22 switchover project (-\$21,310).
- Acct. 5102 – Increase in part-time salaries to attract new employees in a competitive market and to comply with increasing Missouri State minimum wage (\$2,115).
- Acct 6211 – Increase due to Olympia biannual preventative maintenance provided by the dealer (3,500).
- Acct 6265 – Increase due to training opportunities for new Building Maintenance Technician-Ice (\$1,500).
- Acct 9501 – Decrease due to maintenance project completed in FY 2023.
- Acct 9503 – Increase due to replacement of current scoreboard controller (\$1,900).



ICE ARENA

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	139,424	158,928	169,536	172,435	173,655
5102 Salaries, Temporary Empl.	75,209	85,005	89,892	90,100	92,215
5103 Overtime	796	535	500	500	500
5104 Vacation Pay	1,383	-	1,540	-	-
5109 Provision for Salary Adj.	1,834	-	11,476	3,474	12,305
5110 Auto Allowance	2,880	2,880	2,880	2,880	2,880
5230 Hospital & Medical Insurance	22,777	23,558	27,430	24,555	27,430
5231 Self-Insured Medical Benefit	-	150	600	500	900
5233 Dental Insurance	1,295	1,394	1,375	1,375	806
5234 Group Life Insurance	455	556	600	627	713
5235 Accidental Death & Dismem.	49	60	65	61	62
5236 Disability Insurance	374	244	485	313	395
5240 Social Security Contribution	16,380	18,383	20,100	20,000	21,000
5241 Pension Contribution	10,625	9,474	13,746	9,265	13,206
5243 Worker's Compensation Ins.	4,430	5,022	11,523	11,964	13,897
Total Personnel Services	277,912	306,187	351,748	338,049	359,964
OPERATING EXPENSES:					
6202 Technical & Personal Services	5,397	6,201	8,600	5,500	5,500
6203 Professional Services	3,621	11,987	1,000	19,500	19,500
6211 Equipment Maintenance	33,919	26,150	24,765	24,765	27,015
6212 Building & Ground Maint.	10,968	17,540	12,586	17,586	17,536
6213 Office Equipment Maint.	3,969	852	2,960	3,344	3,320
6220 Liability and Property Insurance	6,935	7,524	7,900	3,772	4,149
6226 Property Insurance	8,369	8,369	8,790	21,888	27,361
6250 Electricity	81,044	87,740	88,560	89,000	88,560
6252 Natural Gas	18,051	19,194	21,000	18,000	19,000
6253 Telephone	458	296	300	300	730
6254 Water & Sewer	19,122	16,991	23,000	19,000	19,000
6255 Cable TV	1,746	1,109	1,600	1,600	1,600
6260 Advertising	132	800	350	350	350
6261 Education and Training	-	-	1,400	400	400
6262 Dues, Memberships & Subsc.	1,599	1,311	1,278	1,381	1,381
6265 Travel & Conferences	-	-	-	1,444	2,500
6266 Equipment Rental	-	-	-	700	-
6268 Ice Repairs	7,440	21,155	20,000	15,000	15,000
6271 Medical	-	558	300	300	300
7301 Chemicals & Cleaning	4,951	1,955	5,000	5,000	5,000
7302 Small Tools	36	427	500	500	500
7304 General Supplies	214	1,007	750	1,000	1,000
7307 Gasoline & Mileage	7,595	5,242	6,500	5,000	5,000
7308 Wearing Apparel & Linen	1,400	1,952	1,400	2,000	2,300
Total Operating Expenses	216,965	238,360	238,539	257,330	267,002
CAPITAL OUTLAY:					
9501 Buildings & Improvements	16,533	2,672	15,850	12,850	9,100
9503 Equipment	793	1,476	8,300	7,515	8,700
9504 Office Equipment	665	-	-	-	-
Total Capital Outlay	17,992	4,148	24,150	20,365	17,800
TOTAL ICE ARENA	512,869	548,694	614,437	615,744	644,766



**ICE ARENA
CAPITAL OUTLAY DETAIL**

Capital Outlay Detail	Annual
9501 Building and Improvements	
Door Closer	500
DRC Landscape Supplies	500
Painting Ice Rink Walls	2,500
Painting Exterior Areas of Building	5,600
Total Account 9501	9,100
9503 Equipment	
Hockey Goals	600
Rink Digital Clock	500
Scoreboard Controller	1,900
Drinking Fountain	4,000
AED Machine and Pads	1,700
Total Account 9503	8,700
Total Capital Outlay	17,800



RECREATION DEPARTMENT – GOLF COURSE MAINTENANCE

Mission Statement

To properly maintain the Creve Coeur municipal golf course to a standard that makes it a safe and enjoyable place to play.

Description

The 55-acre golf course is maintained year-round by a Golf Course Maintenance Superintendent, a Maintenance Worker II, a Maintenance Worker, and part-time seasonal Greenskeepers. Maintenance includes attention to the tees, fairways, greens, roughs, irrigation system, creeks, lakes, landscapes, hardscapes, parking lots and vegetation. During peak season, a variety of cultural and chemical practices are utilized to maintain turf and other landscape areas on a regular basis. Construction activities are undertaken during the off season to improve the condition of the course. Pruning, planting, and fertilizing are important to maintaining the overall health of the vegetation on the course.

Service Standards

- Provide proactive and efficient maintenance of the course year-round to ensure a safe, enjoyable customer experience.
- Integrate environmentally responsible practices such as organic fertilization with traditional course maintenance procedures, maintain course at the highest level possible with the use of daily mowing schedules, cultural practices, fertilization, irrigation, pest control, and other activities designed to ensure healthy turf grass.
- Maintain an accident-free work environment through proper equipment and materials handling and storage procedures.

Objectives

- Maintain all equipment in proper working condition to ensure worker safety and equipment availability and to maximize the life of the equipment.
- Continue to enhance the overall appearance of the course through landscaping and turf quality. New and replacement trees will be added along with landscaped areas containing perennial and annual plantings. Turf quality will continue to improve with our cultural, chemical, and over-seeding programs.
- Expand and nurture natural habitats throughout the golf course utilizing native vegetation.
- Routinely perform course inspections to ensure safety of patrons.
- Install drain pipe in fairways for better playability during inclement weather.
- Continue to complete projects in the spirit of Audubon Certification for the course.

Budget Highlights

- Acct 6211 – Increase due to inflation with equipment repairs and raw materials (\$8,000).
- Acct 6254 – Increase due to expected rising cost of water for irrigation (\$35,000).
- Acct 9501 – Increase due to material cost associated with replacement of two (2) aging tie walls with concrete modular blocks (\$3,300).
- Acct 9503 – Decrease due to one-time purchase in FY 2023 for a fertilizer spreader and broadcast sprayer (-\$7,600).

**GOLF COURSE - MAINTENANCE**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	133,301	138,087	138,152	146,740	148,305
5102 Salaries, Temporary Empl.	15,352	19,453	23,085	17,485	22,950
5103 Overtime	607	705	500	500	1,000
5109 Provision for Salary Adj.	1,553	-	13,620	2,959	11,525
5230 Hospital & Medical Insurance	31,892	29,372	30,035	30,035	30,035
5233 Dental Insurance	850	956	885	885	885
5234 Group Life Insurance	452	460	490	533	608
5235 Accidental Death & Dismem.	48	49	52	52	53
5236 Disability Insurance	303	370	407	414	443
5240 Social Security Contribution	10,937	11,580	13,101	12,500	13,101
5241 Pension Contribution	9,186	10,902	10,263	10,443	12,025
5243 Worker's Compensation Ins.	4,467	5,063	3,509	3,643	4,232
Total Personnel Services	208,948	216,995	234,099	226,189	245,162
OPERATING EXPENSES:					
6202 Technical & Personal Services	247	1,610	535	535	250
6210 Vehicle Maintenance	746	858	1,500	1,500	1,500
6211 Equipment Maintenance	5,750	6,185	6,552	8,500	8,000
6212 Building & Ground Maint.	13,271	13,276	13,200	13,200	13,200
6220 Liability and Property Insurance	-	-	-	1,916	2,108
6226 Property Insurance	-	-	-	437	547
6250 Electricity	1,927	2,037	3,780	3,780	3,780
6253 Telephone	458	296	300	300	730
6254 Water & Sewer	35,070	24,116	27,300	43,300	35,000
6261 Education and Training	-	425	354	354	354
6262 Dues, Memberships & Subsc.	1,000	1,017	1,100	1,250	1,250
6266 Equipment Rental	-	195	100	100	100
6271 Medical	-	94	100	100	100
7301 Chemicals & Cleaning	377	286	400	400	400
7302 Small Tools	584	591	600	600	600
7303 Horticultural Supplies	21,930	23,389	25,018	25,018	25,018
7307 Gasoline & Mileage	3,882	5,652	6,000	7,500	6,000
7308 Wearing Apparel & Linen	693	699	710	710	710
Total Operating Expense	85,935	80,727	87,549	109,500	99,647
CAPITAL OUTLAY:					
9501 Buildings & Improvements	11,554	5,530	7,000	2,446	3,300
9502 Vehicles	(5,677)	-	-	-	-
9503 Equipment	-	-	7,600	7,600	-
Total Capital Outlay	5,877	5,530	14,600	10,046	3,300
TOTAL GOLF COURSE	300,760	303,252	336,248	345,735	348,109



GOLF COURSE - MAINTENANCE
CAPITAL OUTLAY DETAIL

Capital Outlay Detail	Annual
9501 Building and Improvements	
Tie Wall at Maintenance Shed	1,300
Tie Wall at #1 Tee Fence Line	2,000
Total Account 9501	<u>3,300</u>
9502 Vehicles	
(Nothing Budgeted)	-
Total Account 9502	<u>-</u>
9503 Equipment	
(Nothing Budgeted)	-
Total Account 9503	<u>-</u>
Total Capital Outlay	<u>3,300</u>

**RECREATION DEPARTMENT – GOLF COURSE PRO SHOP****Mission Statement**

To provide a pleasurable experience for our golfers by increasing customer service to higher levels.

Description

The city operates a 9-hole, par 35, golf course on 55 rolling acres. The slope rating for the course is 111. The course record is 29. The course offers individual play, league opportunities, and golf clinics/lessons provided by contracted professional. The check in desk also provides general merchandise from gloves to golf clubs. Special events may be arranged for groups of all sizes including tournaments and "Glow Golf" events. The course also is home to a 9-hole foot golf course available during specific times, as well as tournaments, birthday parties, and special events. Food service is available to complement group outings with social distancing and contactless procedures in effect.

Service, Performance and Workload Levels

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Operating Rev Per Operating Exp (Revenues per Dollar Spent) ¹	\$1.00	\$.87	\$.90	\$.89
Rounds Played	21,500	25,421	29,836	29,800
Number Resident Rounds	6,350	6,406	6,294	6,350
Program Participants (Camps, Leagues)	193	222	242	250
Group Outings Held (Corporate/Private)	37	29	36	38
Website Visits (Sessions) ²	27,150	24,500	25,000	26,000
Website Bookings**	4,369	3,824	5,158	6,000
Website Visits to Bookings, Conversion ²	6.21%	6.41%	7.93%	8.06%
Overall Customer Ratings (1-5) ²	4.20	4.3	4.3	4.4
Revenue Per Available Tee Time	\$4.15	\$4.25	\$4.33	\$4.41
Weather, Days 90+ degrees ²	80	70	74	75
Total Number of playable days ²	210	217	230	235
Total Precipitation (inches) ²	50.5	49.0	52.0	45.00

¹Includes all expenditures for Golf Pro Shop and Golf Maintenance.

²Information provided by GolfNow.

Service Standards

- Provide outstanding personal service to our customers including ongoing training in guest service, point of sales, effective golf cart management, merchandising, leagues, and corporate and private golf outings:



- Guest service training involves commitment to ensure golfers a pleasant experience whether they call in or are at the golf course. Guests are serviced promptly.
- Well-maintained golf cart fleet to ensure a pleasant playing experience for customers. Carts are available for rent at all times.
- Effective merchandising programs include providing an appropriate variety of merchandise to choose from which is fairly priced and properly displayed.
- Effective instructional programs designed to meet and exceed customer expectations, including the opportunity to participate in leagues, junior camps, tournaments, and special events. New, innovative programs are encouraged to continue to promote the game of golf to future generations.
- Tee times are scheduled up to one week in advance. Creve Coeur residents receive one extra day as a resident preference when scheduling tee times.
- Continue reciprocal agreements with Ballwin and University City golf courses, and Maryland Heights during the summer.
- Continue to market for group outings of 16 or more to play 9 holes for meetings, events, etc.
- Standard of play is an average 2 hours and 15 minutes per 9-hole round, which is a comfortable time for a 9-hole round of golf. USGA standard time for the course with little traffic is 1 hour and 57 minutes.
- Coordinate calendar so that leagues, public, group outings and high school golf teams, soccer teams and families all have an opportunity to play golf at Creve Coeur Golf Course.

Objectives

- Continue to implement database, marketing tools, and promotions.
- Work with Finance to ensure that Pro Shop inventory records are accurate and up-to-date.
- Continue with the World Handicap System through the USGA for a more efficient and usable handicap tool for all of our league players as well as our daily users.
- Implement the features to the Tournament pairing program to ensure customer satisfaction for leagues, outings, and tournaments.
- Along with Junior PGA, add 2 more junior week long camps.
- Continue to market group outings and events with catering options to improve the tournament margin and increase player experience. Some of these groups include local business as well as regular tournaments such as the Senior Olympics and Creve Coeur/Olivette Chamber of Commerce.
- Continue to monitor and analyze monthly reports and other information to determine how to streamline operations for more profitability and/or to create improved service opportunities.
- Implement the new revised version of the Golf Genius Software, including new options for tournaments, group outings, and leagues.
- Continue with the GolfNow contract, which includes tee sheet, website, tiered pricing and database in exchange for two (2) trade times per day.

Budget Highlights

- Revenues – Increases reflect highest revenue and rounds of golf witnessed in 20 seasons.
- Acct. 9503 – Annual cost associated with new 4-year golf cart lease with TNT-Yamaha (\$32,040).

**GOLF COURSE-PRO SHOP**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5101 Salaries, Permanent Empl.	63,073	67,162	66,448	71,595	71,280
5102 Salaries, Temporary Empl.	43,562	44,036	39,913	43,740	44,625
5104 Vacation Pay	1,245	1,270	1,347	2,745	3,000
5109 Provision for Salary Adj.	972	-	6,819	1,426	5,190
5230 Hospital & Medical Insurance	11,039	12,047	12,345	12,345	12,345
5233 Dental Insurance	528	558	525	525	521
5234 Group Life Insurance	226	223	235	257	293
5235 Accidental Death & Dismem.	24	24	25	25	26
5236 Disability Insurance	181	185	196	200	214
5240 Social Security Contribution	8,262	8,302	8,710	8,710	9,000
5241 Pension Contribution	4,995	5,093	5,337	5,372	5,597
5243 Worker's Compensation Ins.	889	1,007	2,182	2,266	2,632
Total Personnel Services	134,997	139,907	144,082	149,206	154,723
OPERATING EXPENSES:					
6202 Technical & Personal Services	22,758	20,964	22,302	22,035	22,235
6210 Vehicle Maintenance	4,601	14,509	1,500	2,200	1,500
6211 Equipment Maintenance	397	-	200	200	200
6212 Building & Ground Maint.	-	43	-	85	-
6213 Office Equipment Maint.	1,539	767	480	840	840
6220 Liability and Property Insurance	6,935	7,524	7,900	1,952	2,147
6226 Property Insurance	8,369	8,369	8,790	1,904	2,381
6250 Electricity	16,234	19,947	21,500	19,500	19,500
6252 Natural Gas	7,736	7,980	9,000	7,000	7,000
6254 Water & Sewer	2,791	2,252	5,250	4,500	4,500
6255 Cable TV	651	519	898	898	898
6260 Advertising	-	660	2,750	1,950	1,950
6262 Dues, Memberships & Subsc.	450	550	610	610	660
6264 In Town Meetings	-	-	50	50	50
6265 Travel & Conferences	-	-	-	-	-
6266 Equipment Rental	-	690	700	745	800
7301 Chemicals & Cleaning	332	-	200	200	200
7302 Small Tools	97	106	75	75	75
7304 General Supplies	3,807	7,704	5,450	5,450	5,450
7308 Wearing Apparel & Linen	-	300	300	300	400
8320 Merchandise	8,929	9,399	9,660	10,360	10,660
Total Operating Expense	85,626	102,281	97,615	80,854	81,446
CAPITAL OUTLAY:					
9501 Buildings & Improvements	68	-	5,200	1,700	1,000
9503 Equipment	31,351	23,890	33,018	31,000	33,952
9504 Office Equipment	-	-	200	200	200
Total Capital Outlay	31,418	23,890	38,418	32,900	35,152
TOTAL GOLF COURSE	252,042	266,077	280,115	262,960	271,321



GOLF COURSE - PRO SHOP
CAPITAL OUTLAY DETAIL

Capital Outlay Detail

Annual

9501 Buildings & Improvements

Misc. Renovation Projects	1,000
Total Account 9501	1,000

9503 Equipment

Foot Golf Equipment	200
Golf Cart Lease	32,040
Misc. Items for Cart Storage	200
Security Cameras & TV	1,200
Pull Carts	312
Total Account 9503	33,952

9504 Office Equipment

Misc.	200
Total Account 9504	200

Total Capital Outlay	35,152
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**RECREATION DEPARTMENT – FOOD SERVICES****Mission Statement**

To provide quality menu options and customer service for patrons of the Creve Coeur Golf Course and Ice Arena.

Description

The division provides food service for patrons of the Golf Course and Ice Arena with lunch specials throughout the golf season and concession services for Ice Arena events as well as catering for special events.

Performance and Workload Measures

	FY 2021	FY 2022	Projected FY 2023	Estimated FY 2024
Operating Revenues Per Operating Expenditures (Revenue per Dollar Spent)	\$1.26	\$1.08	\$1.14	\$1.21

Service Standards

- Operations include preparing and serving customers quality food and drink, maintaining a clean concession stand, and reporting accurate daily receipts.
- Continue to seek vendors for highest quality products at competitive pricing.
- Train food service personnel in proper food storage, food preparation, kitchen maintenance, cleanliness, courtesy, safety, opening and closing procedures, stocking and waste reduction.
- Maintain efficient operation of all records, licenses, and inspections.
- Institute and follow sound inventory control by use of expiration and attention to shelf life.
- Price different items and review current menu for larger revenue goals.
- Increase revenues by reducing waste, bulk purchasing and increased marketing efforts.
- Increase sales/revenue by closely monitoring price of product and sale price.

Objectives

- Establish and maintain sound inventory control and purchasing policies, provide for rotation of stock to ensure high quality food service, scheduling of trained personnel to ensure quality customer service, and routine maintenance of equipment.
- Continue to provide "Grade A" inspection by scheduling quarterly staff meetings to review Missouri Restaurant Association guidelines and to ensure that all personnel comply with these standards.
- Train staff on proper guidelines for sale of alcoholic beverages.
- Make staff knowledgeable on the Safe Serve certification maintained by the city.
- Increase more catering sales with the number of parties, leagues, etc.

Budget Highlights

- Acct 9503 – Decrease due to one-time purchase of new snack vending machine in FY 2023 (-\$4,500).



FOOD SERVICES

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
PERSONNEL SERVICES:					
5102 Salaries, Temporary Empl.	1,903	5,185	6,050	7,200	7,200
5240 Social Security Contribution	146	417	390	550	500
5243 Worker's Compensation Ins.	237	269	299	310	361
Total Personnel Services	2,285	5,870	6,739	8,060	8,061
OPERATING EXPENSES:					
6202 Technical & Personal Services	443	445	695	695	695
6211 Equipment Maintenance	1,303	1,420	600	600	600
6212 Building & Ground Maint.	-	10	700	700	700
6220 Liability and Property Insurance	-	-	-	72	79
6226 Property Insurance	-	-	-	348	435
6261 Education and Training	125	-	100	100	100
7301 Chemicals & Cleaning	516	573	508	800	600
7302 Small Tools	-	14	50	50	50
7304 General Supplies	-	235	300	300	300
7308 Wearing Apparel & Linen	-	100	100	200	200
8310 Food For Resale	26,774	39,293	30,500	34,218	34,625
8321 Miscellaneous Supplies	596	1,156	1,000	1,000	1,000
Total Operating Expense	29,757	43,245	34,553	39,083	39,384
CAPITAL OUTLAY:					
9503 Equipment	-	-	5,000	5,000	2,000
Total Capital Outlay	-	-	5,000	5,000	2,000
TOTAL FOOD SERVICES	32,042	49,116	46,292	52,143	49,445

FOOD SERVICE
CAPITAL OUTLAY DETAIL

Capital Outlay Detail	Annual
9503 Equipment	
Misc.	2,000
Total Account 9503	2,000
Total Capital Outlay	2,000



**MUNICIPAL ENTERPRISE
ANNUAL SURPLUS/DEFICIT BY DEPARTMENT
2014-2024**

YEAR	2014*			2015*			2016*			2017*		
DEPT	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)
**ICE	522,415	517,501	4,914	562,286	449,047	113,238	615,392	518,700	96,692	787,584	562,035	225,550
**GOLF	424,687	437,457	(12,770)	378,840	418,922	(40,082)	397,348	473,966	(76,618)	383,155	487,583	(104,428)
FOOD	55,473	38,629	16,844	52,497	40,597	11,900	55,854	49,922	5,932	58,080	48,201	9,879

Total	1,002,575	993,587	8,988	993,622	908,567	85,056	1,068,593	1,042,587	26,006	1,228,819	1,097,818	131,001
	-6.00%	2.94%		-0.89%	-8.56%		7.55%	14.75%		14.99%	5.30%	

YEAR	2018*			2019*			2020*			2021 *		
DEPT	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)
**ICE	620,484	497,863	122,621	703,384	530,670	172,714	516,501	508,741	7,760	567,754	512,869	54,885
**GOLF	383,923	514,336	(130,414)	359,463	512,278	(152,815)	405,928	496,116	(90,188)	557,297	552,801	4,496
FOOD	56,759	54,843	1,916	58,353	52,445	5,908	47,041	46,255	785	40,303	32,042	8,261

Total	1,061,166	1,067,043	(5,877)	1,121,200	1,095,394	25,806	969,470	1,051,113	(81,642)	1,165,354	1,097,712	67,642
	-13.64%	-2.80%		5.66%	2.66%		-13.53%	-4.04%		20.21%	4.43%	

YEAR	2022 *			2023 Projected*			2024 Budget*		
DEPT	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)
**ICE	753,305	554,938	198,367	760,574	615,744	144,830	784,188	644,766	139,422
**GOLF	496,498	582,972	(86,474)	547,509	608,695	(61,186)	551,563	619,430	(67,866)
FOOD	53,377	49,116	4,261	59,300	52,143	7,157	59,800	49,445	10,354

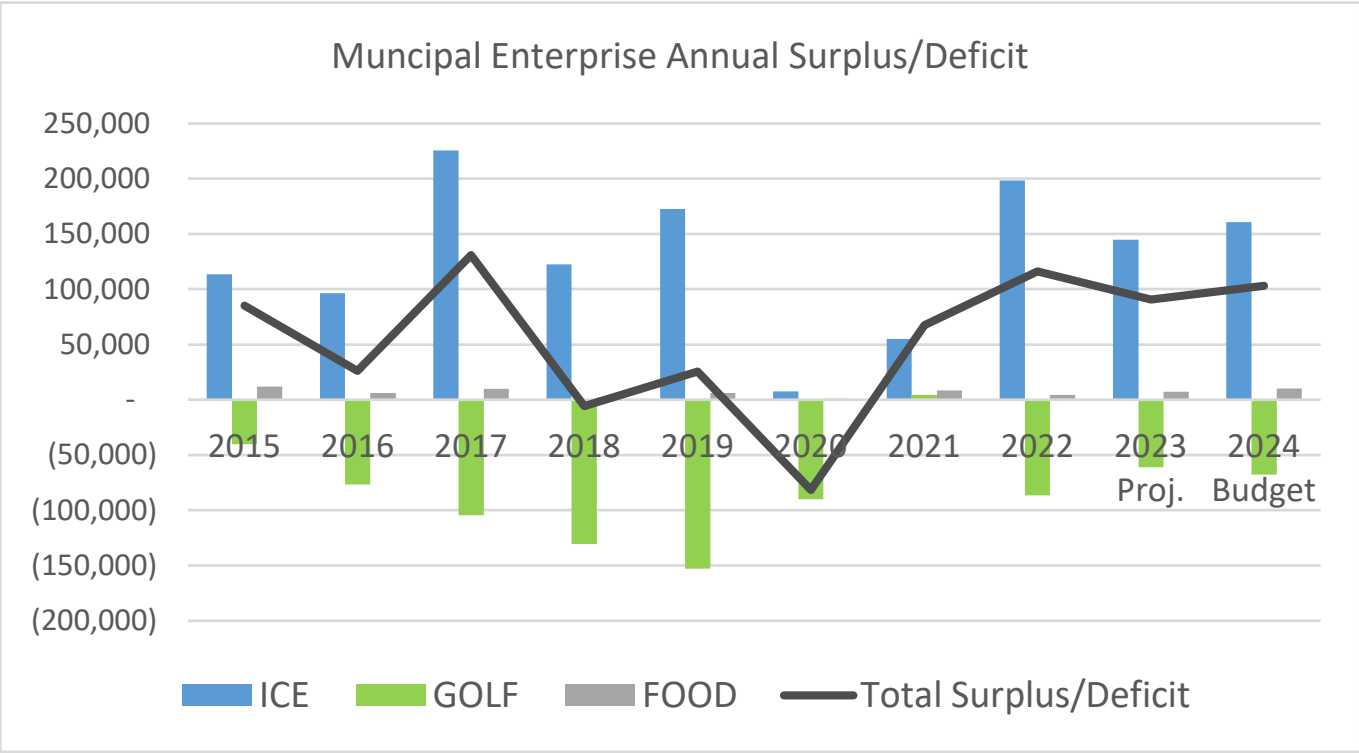
Total	1,303,180	1,187,026	116,155	1,367,383	1,276,582	90,801	1,395,551	1,313,641	81,910
	11.83%	8.14%		4.93%	7.54%		2.06%	2.90%	

YEAR	10 Year Average (2014-2023)			5 Year Average (2019-2023)		
DEPT	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)	OPERATING REVENUES	OPERATING EXPENSES	SURPLUS/ (DEFICIT)
**ICE	640,968	526,811	114,157	660,304	544,593	115,711
**GOLF	433,465	508,513	(75,048)	473,339	550,572	(77,233)
FOOD	53,704	46,419	7,284	51,675	46,400	5,274

Total	1,128,136	1,081,743	46,394	1,185,318	1,141,565	43,752
	3.11%	3.04%		5.82%	3.75%	

* Operating expenses for both Golf and Ice do not include interest payments on interfund debt in these years. These payments were discontinued in FY 2014

** Depreciation expense is excluded



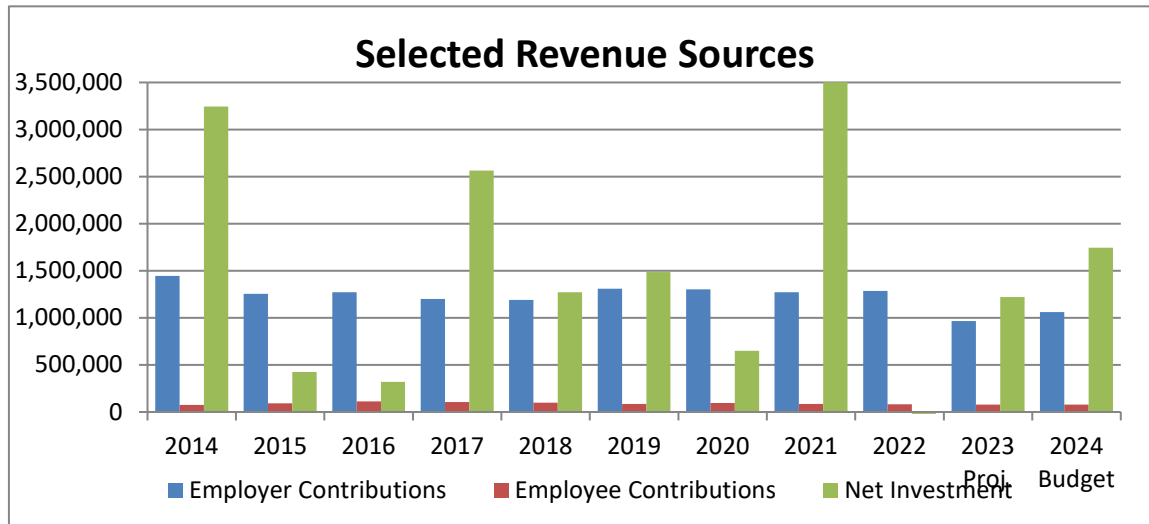


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**CITY EMPLOYEES RETIREMENT FUND
STATEMENT OF ESTIMATED REVENUES AND EXPENDITURES
FOR FISCAL YEAR ENDING JUNE 30, 2024
IN COMPARISON WITH BUDGETED AND PROJECTED TOTALS FOR FY 2023
AND ACTUAL TOTALS FOR FY 2021 & FY 2022**

	Actual FY 2021	Actual FY 2022	Budget FY 2023	Projected FY 2023	Estimated FY 2024
Revenues:					
Employer Contributions-Public Safety	189,498	176,335	211,118	211,118	242,162
Employer Contributions-General Fund	1,081,755	1,110,782	875,693	754,087	820,658
Employee Contributions	89,838	82,726	87,500	79,000	78,200
Other Revenues	7,397,079	(3,287,646)	2,420,000	1,220,000	1,743,307
Total Operating Revenues	8,758,170	(1,917,803)	3,594,311	2,264,205	2,884,327
Operating Transfer	-	-	-	-	-
Total Revenues	8,758,170	(1,917,803)	3,594,311	2,264,205	2,884,327
Expenditures:					
Professional Services	21,279	23,824	22,690	22,690	22,690
Investment Manager Fees	61,527	59,700	67,600	59,000	59,000
Employee Benefits Expense	1,929,682	2,057,704	2,166,768	2,166,768	2,220,000
Total Expenditures	2,012,488	2,141,228	2,257,058	2,248,458	2,301,690
TOTAL REV. OVER (UNDER) EXP.	6,745,682	(4,059,031)	1,337,253	15,747	582,637



Employer Contributions

In accordance with the City's Legacy Defined Benefit Retirement Plan Document, the City contributes to the Employee's Retirement Fund for the benefit of participating employees as determined by the City's Actuary. It is estimated that the FY 2024 Employer Contribution will be \$1,062,820, which is up from the actuarially determined amount of \$957,715 for FY 2023. This includes a 10% increase as well as interest. However, \$242,162 of this amount will be paid from the Public Safety Sales Tax Fund. This will be the 9th year using the reduced amortization period (10 year-fixed). However, the amortization period was extended from 10 years to 14 years starting July 2021. The interest rate earnings assumptions was lowered from 6.75% to 6% in July 2021.

Employee Contributions

Employee contributions began in FY 2012 at 1% on base pay plus longevity, and have increased gradually to 3%. FY 2020 the contribution rate increased to 4%. The estimated contribution for FY 2024 is \$78,200. Since this is a closed Plan, the employee contribution will continue to decrease as more employees retire.

Net Investment Incr/Decr

In accordance with Section 140.060 of the Cities Codified Ordinances, the City receives earnings from various investment instruments. Earnings are realized utilizing a three-year smoothing formula. In addition, funds invested with Commerce Bank and Sunpointe incur realized and unrealized earnings. The estimated increased value of the Pension Fund in FY 2024 is \$1.7M.

Fiscal Year	Employer Contributions	Employee Contributions	Net Investment
2014	1,444,717	74,173	3,245,641
2015	1,254,457	93,100	426,117
2016	1,270,402	112,251	319,990
2017	1,200,992	107,272	2,565,367
2018	1,188,826	99,041	1,271,693
2019	1,307,755	86,614	1,484,647
2020	1,303,058	96,152	650,203
2021	1,271,253	85,924	7,397,079
2022	1,287,117	82,726	-3,287,646
2023 Proj.	965,205	79,000	1,220,000
2024 Budget	1,062,820	78,200	1,743,307



CITY EMPLOYEES RETIREMENT FUND
COMPARISON OF FISCAL YEAR 2024 ESTIMATED REVENUE WITH 2023 BUDGETED AND PROJECTED
AND ACTUAL REVENUES FOR FISCAL YEARS 2021 AND 2022

	Actual Revenue FY 2021	Actual Revenue FY 2022	Budgeted Revenue FY 2023	Projected Revenue FY 2023	Estimated Revenue FY 2024	
INTERGOVERNMENTAL REVENUES:						
4307 Employer Contrib.-Public Safety	189,498	176,335	211,118	211,118	242,162	1
4308 Employer Contrib.-General Fund	1,081,755	1,110,782	875,693	754,087	820,658	1
	<u>1,271,253</u>	<u>1,287,117</u>	<u>1,086,811</u>	<u>965,205</u>	<u>1,062,820</u>	
Total Intergovernmental Revenue	<u>1,271,253</u>	<u>1,287,117</u>	<u>1,086,811</u>	<u>965,205</u>	<u>1,062,820</u>	
OTHER REVENUES:						
4309 Employee Contributions	89,838	82,726	87,500	79,000	78,200	
4704 Investment Income-Other	720,420	865,596	800,000	800,000	800,000	2
4709 Unrealized Gains	6,676,659	(4,153,242)	1,620,000	420,000	943,307	2
	<u>7,486,917</u>	<u>(3,204,920)</u>	<u>2,507,500</u>	<u>1,299,000</u>	<u>1,821,507</u>	
Total Other Revenues	<u>7,486,917</u>	<u>(3,204,920)</u>	<u>2,507,500</u>	<u>1,299,000</u>	<u>1,821,507</u>	
Operating Transfers In	-	-	-	-	-	
Total Current Year's Total Current Year's Revenues	<u>8,758,170</u>	<u>(1,917,803)</u>	<u>3,594,311</u>	<u>2,264,205</u>	<u>2,884,327</u>	
TOTAL CITY EMPLOYEES RETIREMENT FUND	<u>8,758,170</u>	<u>(1,917,803)</u>	<u>3,594,311</u>	<u>2,264,205</u>	<u>2,884,327</u>	

1 - Employer contributions are determined through a discussion with the Actuary based upon investment performance. As with any estimate, the actual contribution will fluctuate. The actual contribution will be based upon the annual actuarial valuation to be completed in the fall.

2 - Investments earnings are estimated using actuarial assumptions. Actual earnings will fluctuate.

**CITY EMPLOYEES RETIREMENT FUND
BENEFITS AND OPERATING EXPENDITURES**

	Actual Expenditures FY 2021	Actual Expenditures FY 2022	Budgeted Expenditures FY 2023	Projected Expenditures FY 2023	Estimated Expenditures FY 2024
6203 Professional Services	21,279	23,824	22,690	22,690	22,690
6205 Investment Manager Fees	61,527	59,700	67,600	59,000	59,000
6206 Employee Benefits Expense	1,929,682	2,057,704	2,166,768	2,166,768	2,220,000
TOTAL BENEFITS AND OPERATING EXPENDITURES	2,012,488	2,141,228	2,257,058	2,248,458	2,301,690
EXCESS OF REV. OVER EXP.	6,745,682	(4,059,031)	1,337,253	15,747	582,637
FUND BALANCE-BEGINNING OF YEAR	26,352,717	33,098,402	25,729,820	29,039,372	29,055,119
FUND BALANCE-END OF YEAR	33,098,402	29,039,372	27,067,073	29,055,119	29,637,756



City of Creve Coeur, Missouri
General Information, Map and Statistical Data

Form of Government

The city is located in St. Louis County approximately 15 miles west of downtown St. Louis. It is the home of the world-renowned Bayer, the Donald Danforth Plant Science Center, Missouri Baptist University, and two of the areas largest medical centers. Initially a farming community, the city has developed into a thriving community in central St. Louis County with beautiful homes, acres of parkland, hundreds of businesses, and a number of high-tech office parks. The city was one of many unincorporated communities that grew along Olive Street Road. Its name, which means broken heart in French, comes from nearby Creve Coeur Lake. Legend has it that an Indian princess fell in love with a French fur trapper, but the love was not returned. According to the story, she then leapt from a ledge overlooking Creve Coeur Lake, the lake then formed itself into a broken heart. When the city was incorporated in December 1949, less than one square mile housed a population of 1,900 citizens. As of July 1, 2021, the estimated population of the city is 18,660 spanning 10.28 square miles with approximately 8,988 housing units.

The city was incorporated in December 1949 as a Fourth Class City under state law. On February 10, 1976, the citizens of Creve Coeur adopted a Home Rule Charter and the Council-Administrator form of government. Comprised of four wards, citizens are represented by eight Council Members, two per ward, and a Mayor elected at large. The Creve Coeur Government Center houses the departments of Administrative Services, Finance, Municipal Court, Public Works, Community Development and the Community Center. The Police Department moved into a new building on the government center property in FY 2019.

Regular City Council meetings are generally held on the second and fourth Monday of each month at 7:00 p.m. Planning and Zoning Commission meetings are generally held on the first and third Monday of each month at 7:00 p.m. Municipal Court sessions are held on Wednesday evenings.

Area

Square Miles	10.28
Acres	6,573
Housing Units ¹	8,988
Persons Per Square Mile ¹	1,833
Persons Per Acre	2.87

Population Growth

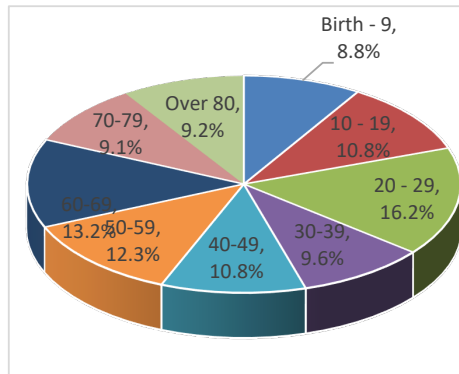
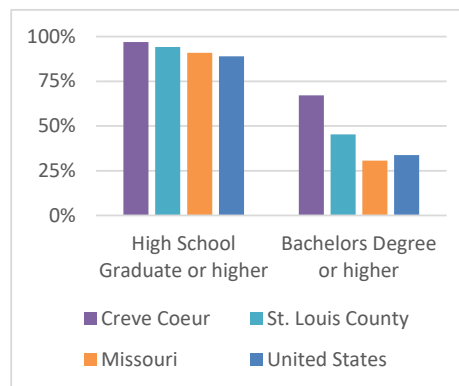
1945 (Upon Incorporation)	1,878
1960	5,122
1970	8,967
1980	11,757
1990	12,304
2000	16,759
2010	17,833
2020	18,834
2021	18,660

**General Information and Statistical Data (Cont'd)****Median Household Income¹**

100,810

Median Age (years)¹

46.0

Age of Residents¹**Education¹****Occupation²**

Management, business, science, and arts occupations	65.0%
Sales and office occupations	17.0%
Service occupations	11.0%
Production, transportation, and material moving occupations	4.0%
Natural resources, construction, and maintenance occupations	3.0%
Other	0.0%

Ethnicity¹

Caucasian	74.1%
African-American	9.7%
American Indian and Alaskan Native	0.1%
Asian	11.0%
Other	3.4%
Other	1.7%

Housing¹

Owner Occupied	63.6%
Renter Occupied	36.4%

**General Information and Statistical Data (Cont'd)****Centerline Miles of Streets:**

Public	78.9
Private	17.3
State Highway	14.8
County Arterials	5.6
Total Miles of Streets	116.6

Police Protection

Commissioned	49
Noncommissioned	6.7

Parks and Recreation:

Number of Parks	6
Acres of Parks	94
Number of Tennis Courts	7
Number of Pickle Ball Courts	2
Indoor Ice Arena (Year-round operations; includes private rentals & programs)	1
9-Hole Golf Course	1

Land Use²

Residential	57%
Commercial	16%
Light Industrial	3%
Institutional	16%

Largest Employers (number of employees)³

Mercy Hospital St. Louis	6,222
Bayer	3,800
SSM Health Care Corporation	969
Barnes West County Hospital	788
Refinitiv US LLC	391
Plaza Motor Company	339
Armanino	284
Midwest Series of Lockton Companies LLC	283
The Climate Corporation	250
Daugherty Systems Inc	225

Number of City of Creve Coeur Authorized Full-Time Employees	107
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¹ Per U.S. Census Bureau, Census, 2017-2021 (5-Year Estimate)² Per Creve Coeur Planning Department, 2021³ Per 2022 Comprehensive Annual Financial Report (Creve Coeur Finance Department 2022 Business Licenses)



CITY OF CREVE COEUR, MISSOURI
COMPUTATION OF LEGAL DEBT MARGIN
June 30, 2022

Net Assessed Value: as of January 1, 2021	<u>\$ 1,174,669,078</u>
Debt Limit: 10% of Assessed Value	117,466,908
Total Bonded Debt	8,724,095
Less: Assets in Debt Service Fund	<u>(817,965.00)</u>
Total Amount of General Obligation Debt Applicable to Debt Limit	<u>7,906,130</u>
Legal Debt Margin	<u>\$ 109,560,778</u>

Note: Bonded indebtedness is limited by Section 95.115 and 95.120 of the Missouri Revised Statutes to 10% of the assessed value of taxable tangible property.

The calculation above demonstrates the City's capacity to issue debt if needed. It has been the City's policy to operate on a "pay as you go" basis and avoid debt if possible.

In April 2017, the City issued \$10,635,000 in General Obligation Bonds, the proceeds of which are to be used for the construction of a new police building and for certain renovations to the existing government center. The General Obligation Bonds are to be repaid from property tax levies. The outstanding bonds bear interest at rates ranging from 2.0 - 3.125% and mature in 2037.

The annual principal and interest requirements to maturity of the General Obligation Bonds as of June 30, 2022 are as follows:

Years Ending June 30,	Principal	Interest	Total
2022	470,000	247,656	717,656
2023	480,000	233,556	713,556
2024	490,000	223,956	713,956
2025	505,000	209,256	714,256
2026	515,000	197,894	712,894
2027	530,000	185,018	715,018
2028	550,000	169,118	719,118
2029	565,000	152,618	717,618
2030	580,000	135,668	715,668
2031	600,000	118,268	718,268
2032	620,000	100,268	720,268
2033	635,000	81,668	716,668
2034	655,000	62,618	717,618
2035	675,000	42,968	717,968
2036	700,000	21,876	721,876
2037	0	0	0
	<u>8,570,000</u>	<u>2,182,406</u>	<u>10,752,406</u>

Source: 2022 Comprehensive Annual Financial Report



CITY OF CREVE COEUR, MISSOURI
DIRECT AND OVERLAPPING GOVERNMENTAL ACTIVITIES DEBT
JUNE 30, 2022

Name of Governmental Unit	Debt Outstanding	Percentage Applicable To City of Creve Coeur	Amount Applicable To City Of Creve Coeur
St. Louis County	64,395,000	4.11%	2,646,635
Parkway School District	227,965,000	13.32%	30,364,938
Ladue School District	229,010,000	19.72%	45,160,772
Pattonville School District	73,790,000	3.58%	2,641,682
Monarch Fire District	9,975,000	4.30%	428,925
West Overland Fire District	2,490,000	9.20%	229,080
Creve Coeur Fire	15,575,000	61.91%	9,642,483
Sub-total	623,200,000		91,114,514
City of Creve Coeur	8,724,095	100.00%	8,724,095
Total Direct and Overlapping Debt	631,924,095		99,838,609

Source: 2022 Comprehensive Annual Financial Report

The percentage applicable to the City of Creve Coeur is based
on the jurisdiction's assessed value within the boundaries of Creve Coeur.

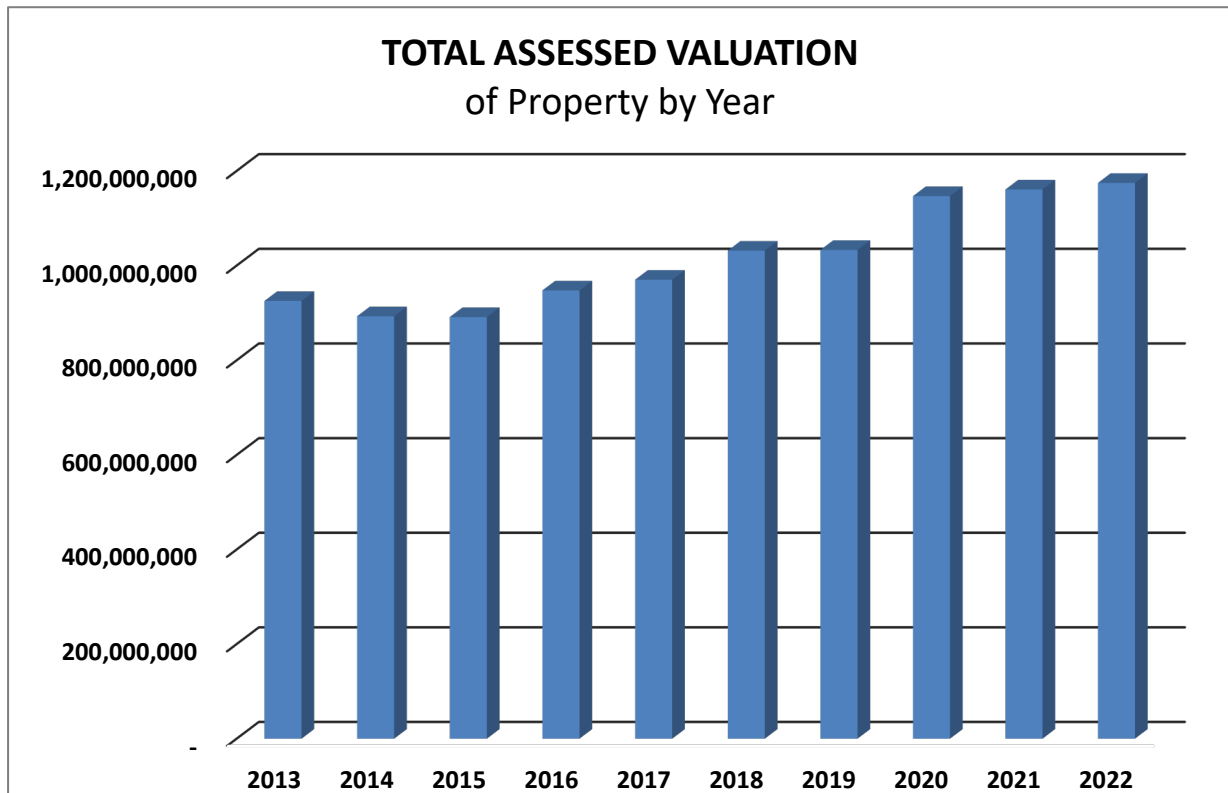


**CITY OF CREVE COEUR
PRINCIPAL REAL ESTATE TAXPAYERS (1)
JUNE 30, 2022**

Taxpayer	Type of Business	2022 Assessed Valuation	Percent of Total (2)
Bayer Research/Monsanto Company	Regional Headquarters	69,625,830	5.93 %
RNSI City Place Owner LLC	Developers	39,977,410	3.40
Emerson Rd LLC (formerly I & G Direct Real Estate 18, LP)	Developers	26,316,030	2.24
Danforth Plant Center	Bio-Research & Developmen	12,803,670	1.09
Missouri American Water/St. Louis Co Water	Water Company	11,750,170	1.00
MRES CP6 Holdings LP	Real Estate	10,542,820	0.90
Asbury Automotive St. Louis, LLC	Retail auto sales	10,229,200	0.87
Waterfront Creve Coeur MO LLC (Formerly Cross Creek Multifamily Apartments LP)	Rental Apartments	10,029,510	0.85
Plaza Motors	Retail auto sales	8,461,720	0.72
AVBH VICINO LLC	Rental Apartments	6,950,670	0.59
		\$ 206,687,030	17.60 %

(1) Source - 2022 Comprehensive Annual Financial Report

(2) Total assessed value of the City was \$1,174,669,078 as of December 31, 2021



Fiscal Year	Real Property	Personal	Railroad & Utilities	Total
2013	787,780,570	128,951,800	8,522,313	925,254,683
2014	759,807,910	124,352,250	8,768,479	892,928,639
2015	760,034,050	122,154,990	9,028,873	891,217,913
2016	813,636,250	124,026,720	9,870,668	947,533,638
2017	822,297,210	138,314,730	9,469,166	970,081,106
2018	881,952,780	139,885,830	9,750,787	1,031,589,397
2019	874,487,810	150,073,580	8,428,855	1,032,990,245
2020	984,836,820	152,195,430	9,747,807	1,146,780,057
2021	1,002,505,260	147,927,770	10,432,432	1,160,865,462
2022	1,004,028,350	159,926,260	10,714,468	1,174,669,078

Note: Assessed values are based on the following valuations: Residential 19%, Agriculture 12%, Commercial and Industrial 32%, Personal Property 33 1/3% and Railroad & Utilities 32% as of December 31.



Property Value and Construction
Last Ten Fiscal Years

Fiscal Year	Total Estimated Actual Value (1)	New Construction (2)						Alterations and Additions		Building Demolitions	
		Commercial			Residential			Number Of Permits	Estimated Cost Of Construction	Number Of Permits	Estimated Cost Of Construction
		Number Of Permits	Estimated Cost Of Construction	Number Of Permits	Estimated Cost Of Construction						
2013	3,815,929,320	3	13,277,459	9	6,925,444	930	57,907,117	11			
2014	3,713,371,407	2	18,389,042	14	6,381,607	1042	48,245,467	26			
2015	3,695,388,826	5	52,602,986	55	27,205,217	1060	56,975,739	26			
2016	3,912,975,119	7	30,974,548	48	22,179,779	1102	48,216,828	23			
2017	4,045,195,714	1	5,366,000	32	16,073,170	1191	68,495,046	29			
2018	4,315,659,767	6	31,341,876	18	8,763,246	1350	73,837,539	23			
2019	4,343,736,577	4	10,697,000	18	12,389,490	1329	71,746,160	44			
2020	4,841,257,311	3	20,935,295	17	11,641,106	1302	68,892,357	24			
2021	4,891,026,881	4	62,070,016	6	4,919,000	1131	111,664,327	10			
2022	5,021,698,487	5	60,658,387	12	7,328,690	649	82,053,411	19			

(1) Source - 2022 Comprehensive Annual Financial Report (St. Louis County Assessor)

(2) Source - 2022 Comprehensive Annual Financial Report (City of Creve Coeur Building Department)



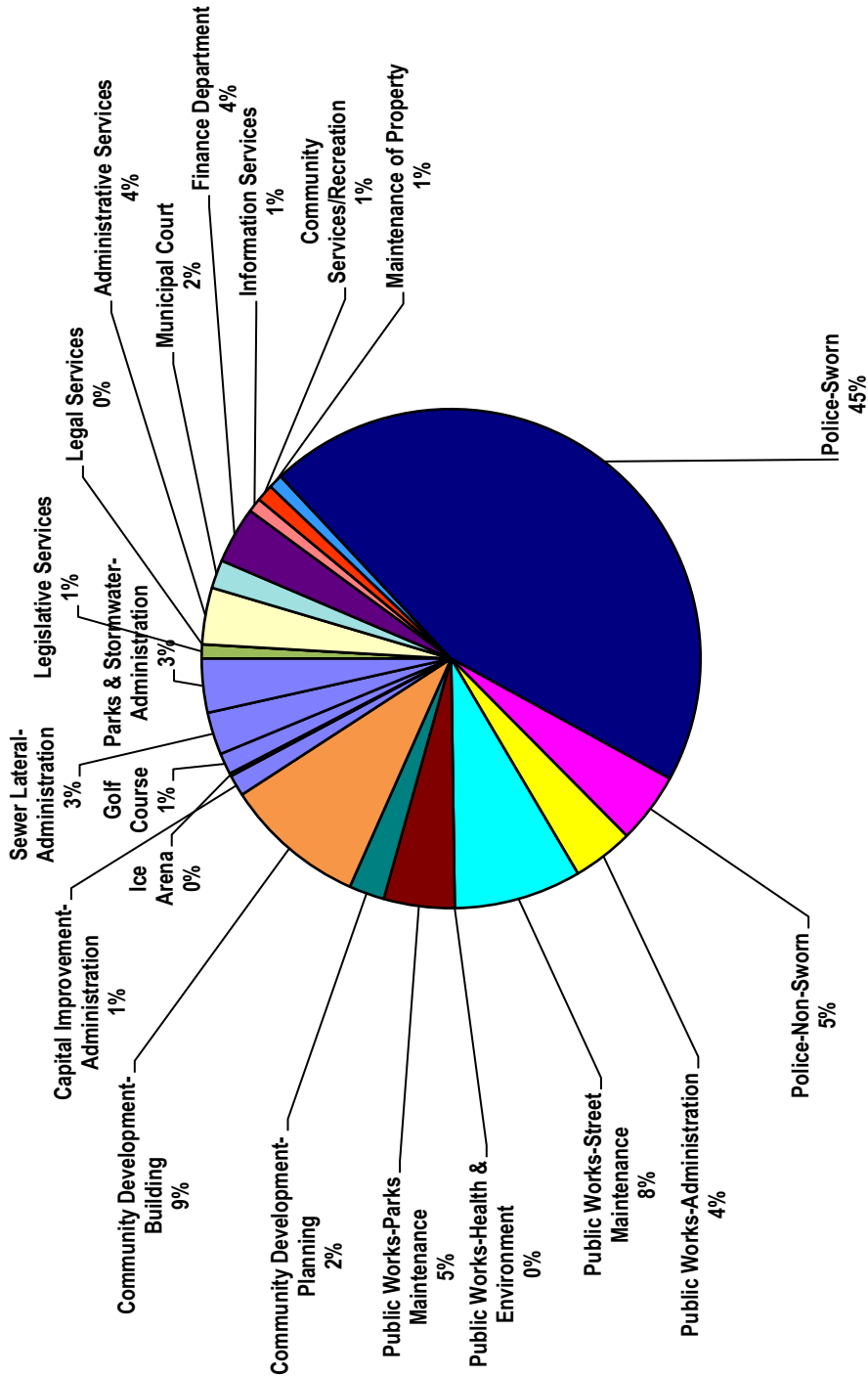
**ALL FUNDS
SUMMARY OF FULL-TIME AUTHORIZED PERSONNEL
BY DEPARTMENT/FUND**

DEPARTMENT/DIVISION	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
<u>GENERAL FUND:</u>					
Legislative Services	1	1	1	1	1
Legal Services	0	0	0	0	0
Administrative Services	4	4	4	4	4
Municipal Court	2	2	2	2	2
Finance Department	5	4	4	4	4
Information Services	1	1	1	1	1
Community Services/Recreation	0.70	1.20	1.20	1.20	1.20
Maintenance of Property	2.50	2.50	1	1	1
Police-Sworn	49	49	49	49	50
Police-Non-Sworn	3	4	5	5	5.25
Public Works-Administration	3.5	3.3	3.3	4.3	4.3
Public Works-Street Maintenance	9	9	9	9	8.75
Public Works-Health & Environment	0	0	0	0	0
Public Works-Parks Maintenance	3.5	3.5	4	5	5
Community Development-Planning	3.5	3.5	3.5	2.5	2.5
Community Development-Building	10	10	10	10	8
Subtotal*	97.70	98.00	98.00	99.00	98.00
<u>CAPITAL IMPROVEMENT FUND:</u>					
Capital Improvement-Administration	1	1	1	1.5	1.5
Subtotal	1	1	1	1.5	1.5
<u>SEWER LATERAL FUND:</u>					
Sewer Lateral-Administration	0	0.2	0.2	0.2	0.2
Subtotal*	0	0.2	0.2	0.2	0.2
<u>PARKS & STORMWATER FUND:</u>					
Parks & Stormwater-Administration	0	0	1	1.5	1.5
Subtotal	0	0	1	1.5	1.5
<u>MUNICIPAL ENTERPRISE FUND:</u>					
Ice Arena	2.50	3.00	3.00	3.00	3.00
Golf Course	3.80	3.80	3.80	3.80	3.80
Subtotal*	6.30	6.80	6.80	6.80	6.80
TOTAL AUTHORIZED FULL-TIME EMPLOYEES:	105.00	106.00	107.00	109.00	108.00

* Decimals are due to sharing of some full-time positions among more than one department.
See section on "Authorized Positions" for additional detail.



Summary of Personnel by Department/Fund - FY 2024





**CITY OF CREVE COEUR
FISCAL YEAR 2024
FULL-TIME SALARIES BY GRADE**

GRADE	ANNUAL SALARY			HOURLY RATES*		
	MIN	MID	MAX	MIN	MID	MAX
7	41,666.80	49,981.24	58,295.69	20.0321	24.0294	28.0268
8	44,516.02	53,397.80	62,279.57	21.4019	25.6720	29.9421
9	48,575.54	58,264.17	67,952.81	23.3536	28.0116	32.6696
10	54,916.96	65,878.92	76,840.88	26.4024	31.6726	36.9427
11	61,485.31	73,758.42	86,031.53	29.5602	35.4608	41.3613
11a ¹	64,034.42	74,177.93	84,321.45	30.7858	35.6625	40.5392
12	68,721.85	82,451.09	96,180.33	33.0393	39.6399	46.2405
13	75,718.84	90,828.57	105,938.30	36.4033	43.6676	50.9319
13a ¹	81,330.30	92,402.73	103,475.16	39.1011	44.4244	49.7477
14	81,266.01	97,472.57	113,679.12	39.0702	46.8618	54.6534
14a ¹	91,440.51	102,835.74	114,230.96	43.9618	49.4403	54.9187
15	87,430.93	104,898.21	122,365.48	42.0341	50.4318	58.8296
15a ¹	98,446.14	110,702.81	122,959.49	47.3299	53.2225	59.1151
16	94,011.89	112,796.62	131,581.35	45.1980	54.2291	63.2603
17	101,273.64	121,489.28	141,704.93	48.6892	58.4083	68.1274
18	109,569.18	131,442.67	153,316.16	52.6775	63.1936	73.7097
19a ¹	118,006.00	141,563.68	165,121.36	56.7337	68.0595	79.3853

¹ 11a, 12a, 13a, 14a, 15a and 19a denote commissioned officer salaries based on market pay.

**CITY OF CREVE COEUR
FISCAL YEAR 2024
FULL-TIME POLICE DEPARTMENT SALARIES BY GRADE/STEP¹**

GRADE	STEP	ANNUAL SALARY	HOURLY RATES*
11a	0	64,034.42	30.7858
11a	1	66,276.23	31.8636
11a	2	68,595.66	32.9787
11a	3	70,996.86	34.1331
11a	4	73,480.86	35.3273
11a	5	76,052.84	36.5639
11a	6	78,714.86	37.8437
11a	7	81,470.03	39.1683
11a	8	84,321.45	40.5392
13a	0	81,330.30	39.1011
13a	1	84,177.59	40.4700
13a	2	87,123.20	41.8862
13a	3	90,172.31	43.3521
13a	4	93,329.06	44.8697
13a	5	96,595.52	46.4402
13a	6	99,975.83	48.0653
13a	7	103,475.16	49.7477

*Approximate hourly rates; annual is hourly rate x 2080 hours.

¹ Step Pay Plans apply to police officer (11a) and police sergeant (13a) positions only.



**CITY OF CREVE COEUR
FISCAL YEAR 2024
FULL-TIME EMPLOYEE CLASSIFICATION PLAN AND PAY RANGES**

GRADE	POSITION TITLE	DEPARTMENT/DIVISION	ANNUAL*	
			Min	Max
7	Building Maintenance Technician	Community Services, Ice Arena	41,666.80	58,295.69
	Maintenance Worker	Golf Course, Ice Arena, Police-Administration, Public Works-Streets, Parks		
	Records Associate	Police-Administration		
8	Accounting Associate	Finance	44,516.02	62,279.57
	Administrative Services Associate	Community Development-Building, Public Works- Administration, Recreation		
	Court Clerk I	Administrative Services-Municipal Court		
	Maintenance Worker I	Building Maintenance, Golf Course, Public Works- Streets, Parks		
	Support Services Associate	Police-Administration		
9	Apartment Re-Occupancy	Community Development-Building	48,575.54	67,952.81
	Inspector/Code Enforcement Officer			
	Court Clerk II	Administrative Services-Municipal Court		
	Executive Assistant to Chief of Police	Police-Administration		
	Maintenance Worker II	Building Maintenance, Public Works-Streets, Parks, Golf Course		
	Maintenance Worker II/Mechanic	Police-Administration, Public Works-Streets		
	Payroll Associate	Finance		
	Police Academy Recruit	Police-Patrol		
	Recreation Supervisor	Community Services, Ice Arena		
10	Administrative Services Supervisor	Community Development-Planning, Public Works- Administration	54,916.96	76,840.88
	Foreman I	Public Works-Parks, Streets		
	Golf Course Manager	Golf Course		
	Human Resources Generalist	Administrative Services		
	Residential Building Inspector	Community Development-Building		
	Senior Accounting Associate	Finance		
11	Assistant Director of Recreation	<i>vacant</i>	61,485.31	86,031.53
	Building Inspector	Community Development-Building		
	City Planner	Community Development-Planning		
	Court Administrator	Administrative Services-Municipal Court		
	Golf Maintenance Superintendent	Golf Course		
	Plans Examiner	Community Development-Building		
	Public Information Officer & Management Analyst	Administrative Services		
	Project Manager-Engineering	Public Work-Administration		



**CITY OF CREVE COEUR
FISCAL YEAR 2024
FULL-TIME EMPLOYEE CLASSIFICATION PLAN AND PAY RANGES**

GRADE	POSITION TITLE	DEPARTMENT/DIVISION	ANNUAL*	
			Min	Max
11a	Police Officer	Police-Patrol	64,034.42	84,321.45
Step	Police Officer-Detective	Police-Investigations		
	Police Officer-Special Assignment	Police-Patrol		
12	City Clerk	Legislative	68,721.85	96,180.33
	Information Systems Coordinator	Finance-Information Systems		
	Senior Plans Examiner	Community Development-Building		
13	Chief Building Official	Community Development-Building	75,718.84	105,938.30
	Civil Engineer	Public Works-Administration		
	Operations Superintendent	Public Works-Parks, Streets		
13a	Sergeant	Police-Patrol, Investigations	81,330.30	103,475.16
Step	Sergeant-Administrative	Police-Administration		
	Sergeant-CALEA	Police-Administration		
14	<i>Currently Vacant</i>		81,266.01	113,679.12
14a	Lieutenant	Police-Administration, Patrol	91,440.51	114,230.96
	Lieutenant-CALEA	Police-Administration		
15	Assistant City Administrator	Administrative Services	87,430.93	122,365.48
	Assistant Director of Public Works /	Public Works-Administration		
	City Engineer			
	Director of Recreation	Ice Arena, Community Services		
15a	Captain	Police-Administration, Investigations, Patrol	98,446.14	122,959.49
16	<i>Currently Vacant</i>		94,011.89	131,581.35
17	Director of Finance	Finance	101,273.64	141,704.93
	Director of Community Development	Community Development-Planning		
	Director of Public Works Director	Public Works-Administration		
18	<i>Currently Vacant</i>		109,569.18	153,316.16
19a¹	Chief of Police	Police-Administration	118,006.00	165,121.36

*Hourly rate is calculated by dividing annual rate by 2080 hours.

Note: Grades 11a, 12a, 13a, 14a, 15a, and 19a denote commissioned officers higher minimum salaries than grades 11, 12, 13, 15 based on market pay; 11a and 13a are step systems.



**CITY OF CREVE COEUR
FISCAL YEAR 2024
MERIT-BASED PAY PLAN**

Merit-based pay recognizes outstanding performers and incentivizes employees to provide excellent service to our citizens. Employee compensation is based on a review of individual employee performance. The Merit-Based Pay Plan is set up to provide higher compensation to employees who perform at a level superior to their peers or who exceed established job performance criteria and achieve developmental goals for the year. With the exclusion of non-exempt commissioned officers, all city employees are on a merit-based pay plan. Non-exempt commissioned officers – specifically Police Officers and Sergeants – are on a Step Pay Plan and are described separately.

Through the Merit-Based Pay Plan, each department is allocated a percentage of its payroll. This percentage is uniform among departments unless it is determined that a specific department (or group of jobs within a department) should receive a different percentage based on market factors. The allocated percentage is based on a survey of average salary increases among comparator cities in the region.

Each department distributes its merit allocation among its employees based on individual employee performance. All non-probationary employees are evaluated and rated during the month of May for their performance during the previous 12 months (May 1 through April 30). Each department then calibrates its employee performance ratings and determines the distribution of its merit allocation among employees. Superior-performers receive a higher-than-average percentage increase while fair-performers receive a lower-than-average increase. For example, if the department's allocation were 4% of payroll, a superior-performing employee might receive a 4.5% salary increase while a fair-performing employee might receive a 2% increase. The department may not exceed its budgeted allocation of 4% of payroll.

FY 2024 Department Allocation

During budget deliberations each year, the Council considers a management recommendation for the adoption of the merit pay allocation that reflects labor market conditions and fiscal realities. The City Council adopts the merit pay allocation with the annual budget.

The merit salary allocation for FY 2024 is budgeted at 4% of payroll excluding employees who are not eligible for a salary increase as a result of having reached the top of their pay grades.

Employees, not included on a step pay plan, are eligible for a lump-sum merit bonus once they reach the top of their pay plan. The merit bonus allocation for FY 2024 is budgeted at 2% of salaries of employees who have reached the top of their pay grades. The merit-bonus allocation is normally distributed among employees in the same manner as the merit-salary allocation (i.e., employees are evaluated; evaluations are calibrated, and the department distributes its allocation among employees based on individual merit).

When employees initially reach the top of their pay grades, they do not receive the full merit increase amount that they would otherwise receive. For example, if an employee is 1% under the ceiling and receives a performance score that would normally result in a 4% merit pay increase, the employee can only receive a 1% increase to base salary as a result of reaching the top of the grade.



Under the merit bonus system, employees are eligible for a bonus in addition to the increase in base salary. The merit bonus allocation is half of the merit salary allocation; therefore, employees are eligible to receive in bonus pay half of the amount of the merit salary increase that would increase salary above the top of the grade. For example, if an employee receives a performance score that would normally equate to a 4% pay increase (but is 1% under the top of the grade), the employee receives a 1% increase to base salary plus a 1.5% one-time bonus (half of the remaining 3%).

Prorated Merit Increases

Employees, not included on a step pay plan, who have received a probation completion merit increase during the previous fiscal year may be eligible to receive a prorated merit increase on July 1 with a performance evaluation score meeting set criteria. A prorated merit aligns a newer employee to the fiscal year merit increase schedule with all other City employees, and is calculated using the number of calendar days from the employee's probation-completion merit increase to July 1.

For example, an employee received a probation-completion merit increase on December 31 (or 182 days from July 1), and the department allocation for a "Superior" performance rating is 4.2% on July 1. The employee would be eligible to receive an approximate 2.1% increase in base pay on July 1 (i.e., half of 4.2% for 182 out 365 days, or 50%). The following year on July 1 and every year thereafter, the employee would be eligible to receive a full merit, subject to a satisfactory performance rating and budget allocations.

Performance Rating Levels*

With the exception of Police Department employees, employee performance is evaluated using four rating levels: Superior (4), Good (3), Fair (2), and Unsatisfactory (1). Supervisors rate each job category or essential job function in an employee's evaluation using a whole number, 1, 2, 3, or 4. The scores for each essential job function are weighted with the final evaluation score being the sum of weighted scores. The total of the weighted scores is categorized into one of four (4) overall rating levels:

Performance Rating Score*	Final Evaluation Score	Pay Increase and/or One-Time Merit Bonus
4 – Superior	3.50 – 4.00	Eligible
3 – Good	2.80 – 3.49	Eligible
2 – Fair	2.00 – 2.79	Eligible to receive half (50%) of the department's allocation for its employees rated "Good"; Not eligible for one-time merit bonus
1 – Unsatisfactory	1.00 – 1.99	Not eligible

**Excluding all Police Department personnel.*

"Superior" performance is defined as performance that exceeds that of most other peers and/or exceeds the standards set forth in the job description.

"Good" performance is defined as a performance that consistently meets the standards set forth in the job description and/or performs at a level comparable to most peers.

"Fair" performance is defined as performance below that of most peers and/or performance that fails to meet the standards set forth in the job description.



“Unsatisfactory” performance represents a significant failure to perform. Disciplinary action may include rating performance as “unsatisfactory”.

Police Department Performance Rating Levels

The Police Department improved its performance rating system in response to statutory revisions in recent years, and also to fulfill the Police Department’s mission, increase workplace efficiency, improve work quality and establish a level of accountability. The three foundations of Constitutional Policing are: 1) good, clear and tested policy development; 2) training to ensure employees know the policies and procedures; and 3) effective supervision.

The Police Department strives to maintain a high level of competency and trust from the community. This is accomplished by following best practices. The accreditation process through CALEA (Commission on Accreditation for Law Enforcement Agencies) is a mechanism that provides a high level of accountability based on a Code of Conduct and the essential job functions performed on a daily basis.

All exempt commissioned positions (Police Lieutenant, Police Captain, and Chief of Police) and all non-commissioned support personnel in the Police Department are on a Merit-Based Pay Plan with annual budget appropriations remaining the same as all other city department employees. All non-exempt commissioned officers (i.e., Police Officers and Police Sergeants) are on a designated Step Pay Plan (see Police Department Step Plans).

The Police Department’s performance management system is based on four performance factors: 1) competence/safety; 2) relationships/attitudes; 3) reports; and 4) use of work time. The Police Department uses three rating levels for the Merit-Based Pay Plan and the Step Pay Plan:

		MERIT-BASED PAY PLAN	STEP PAY PLAN
Performance Rating Score	Final Evaluation Score	Pay Increase and/or One-Time Merit Bonus	Step Increase and/or Probation Completion Bonus
3 – Meets Expectations	3	Eligible	Eligible
2 – Marginally Meets Expectations	2	Eligible, receives half (50%) of the department’s allocation for “Meets Expectations”; not eligible for one-time merit bonus	Eligible after successful completion of a performance improvement plan; otherwise, not eligible
1 – Below Expectations	1	Not Eligible	Not Eligible

“Meets Expectations” is defined as performance that consistently meets the standards set forth in the job description and/or performs at a level comparable to most peers.



“Marginally Meets Expectations” is defined as performance that sometimes meets expectations, but not consistently, or occasionally fails to meet expectations.

“Below Expectations” is defined as performance that represents a significant failure to perform.

**CITY OF CREVE COEUR
FISCAL YEAR 2024
POLICE DEPARTMENT STEP PAY PLANS**

All non-exempt commissioned Police Officers are on a Step Plan. Grade 11a Step Pay Plan applies to all Police Officers and Grade 13a Step Pay Plan applies to all Police Sergeants. A step pay plan is a benefit enhancement tool used to: attract and retain the best-qualified commissioned personnel; ensure internal and external equity for commissioned employees with similar duties; and provide uniform methods for establishing and applying salary rates.

Grade 11a Step Pay Plan – Includes all Patrol Officers, Detectives, and Special Assignment Officers (i.e., Traffic Safety, Community Policing, K-9, School Resource) and consists of nine steps: Step 0 through Step 8 (see Full Time Salaries by Grade for more information). In FY 2024, each step equates to a pay differential of 3.5% in the Grade 11a Step Plan. A non-probationary Police Officer is eligible to advance to the next subsequent step on July 1, and annually thereafter, subject to a satisfactory performance rating score and budget appropriations.

Grade 13a Step Pay Plan – Includes all Police Sergeants and consists of eight steps: Step 0 through Step 7 (see Full Time Salaries by Grade for more information). In FY 2024, each step equates to a pay differential of 3.5% in the Grade 13a Step Plan. A non-probationary sergeant is otherwise eligible to advance to the next subsequent step on July 1, and annually thereafter, subject to a satisfactory performance rating score and budget appropriations.

Probation Completion Bonus – An incentive tool for Police Officers and Sergeants on a Step Pay Plan who have completed probation during the previous fiscal year and not yet eligible to advance to the next step in the plan until July 1 – the beginning of the fiscal year. The Probation Completion Bonus is a lump-sum payment; does not increase base salary nor employee benefits; and is prorated the total number of calendar days from the date of probation completion and July 1.

For example, a Police Officer completing probation on December 31 would receive a partial 3.5% lump-sum bonus for 182 days (the number of days between December 31 and July 1) out of 365 calendar days. The bonus is calculated using the current annualized base pay and the prorated increase of 1.75% (i.e., half of 3.5% for 182 out 365 days, or 50%). On July 1, and annually thereafter, the Police Officer would be eligible to advance to the next step in the plan, subject to a satisfactory performance rating score and budget appropriations.



CITY PREMIUM PAY FY 2024

Police Field Training Pay

Police Officers are occasionally requested to assume the additional assignment of training a new officer in the field. This requires specialized training and represents additional effort and responsibility beyond the normal scope of the Police Officer job description, and as such warrants a marginal pay increase. A Police Officer shall receive an additional \$2.00 per hour for each day when assigned as a field trainer. Such assignments and pay shall be subject to the approval of the Chief of Police.

Police Nightshift Differential Pay

Studies have concluded the “critical age range” for intolerance to fluctuating shift work begins around age 45. As officers age, their body’s ability to recover from frequent shift changes diminishes. Night shift differential pay incentivizes officers to volunteer for a permanent night shift assignment; helps sustain a permanent dayshift for other officers; and can increase diversity of experience of officers working the night shift. In FY 2024, the Police Nightshift Differential Pay is \$1.00 per hour for all officers who work between the hours 6:00 p.m. and 6:00 a.m. – the designated night shift. Officers are not eligible to receive this pay during paid or unpaid leave, or time spent in working or training outside the designated hours.

Police On-Call Pay

Detectives assigned to be the on-call Detective in rotation and as assigned make a reasonable effort to be response ready to report for duty for any major crimes, crime scene processing, prisoner interviews and interrogations. Other Detectives should remain aware that they might be called in either because more personnel are required or because the assigned on-call detective cannot respond. When assigned to be the on-call Detective, the officer will receive one (1) hour of pay for the day. It is not grounds for discipline if the assigned Detective cannot respond, but the responding Detective will receive the extra pay for that day instead of the assigned Detective. If a detective expressly or effectively refuses to serve in rotation as the on-call Detective, the matter is revisited during performance review.

When receiving a subpoena for Municipal Court, officers must remain in communication with the prosecutor and generally be prepared to report for duty should their testimony be needed for Court (or advise the prosecutor that they should seek a new court date). When assigned or receiving a subpoena or told by the Court to be prepared for appearance in court at a time that is outside their shift, they shall receive one (1) hour of pay for that time period of waiting.

Police Supervisor Pay

Regular full-time commissioned non-supervisory personnel requested by the Chief of Police to serve in a temporary supervisory capacity shall receive a premium in the amount of \$16.00 per work shift. Serving in a supervisory capacity shall mean that the employee is placed in effective charge of non-supervisory personnel and required to perform all normal supervisory functions for that work group during the assigned work shift.

Police Traffic Safety Officer Pay

Traffic Safety Officers (TSOs) are required to complete advanced training and are given additional responsibilities beyond other patrol officers, including, but not limited to: management of traffic grants and equipment, conducting research and surveys, analyzing data and preparing reports. TSOs receive an



additional \$2.00 per hour for each day assigned as a TSO. Officers are not eligible to receive this pay during paid or unpaid leave.

Police Academy Recruit Pay

Occasionally the Police Department sponsors an applicant through the St. Louis County and Municipal Police Academy. The Police Academy is a six-month commitment of education, physical fitness, defensive tactics, as well as an acclimation of all state laws and procedures. The Police Recruit is classified as a general employee of the City of Creve Coeur while attending the academy. A living stipend is provided for a Police Recruit as well as medical, dental, life and accidental death and dismemberment insurance at the same premium rates paid by City employees. The Police Recruit is eligible to enroll in other ancillary insurance benefits and deferred compensation offered to City employees. The Police Recruit is not eligible to accumulate vacation time, compensatory time and sick time until graduation from the Police Academy as well as becoming Peace Officer Standards and Training (POST) certified. Once graduating from the Academy, the recruit is then reclassified as a commissioned officer to a Police Officer Grade 11(a) Step Plan.

CITY RECRUITMENT INCENTIVE PROGRAM FY 2024

The City recognizes one of the best recruitment tools in attracting new employees is through word-of-mouth of its valued employees. The Recruitment Incentive Program awards six-hundred dollars (\$600) before taxes in a lump-sum payment to any full-time employee who refers a new full-time employee of the City and meets program criteria. Positions excluded from eligibility include: the City Administrator, directors, and managers or other positions with hiring authority over the new hire.

To be eligible, the following criteria must be met: 1) the new hire was not previously employed as a full-time or part-time employee of the City; 2) the new hire maintains full-time employment for a minimum of six months; 3) the new hire lists the referring employee by name on the employment application; 4) the referring employee must be actively employed with the City at the time the department director submits the request for incentive payment and approval by the Office of the City Administrator is received.

CITY SELF-INSURED PORTION OF HEALTH INSURANCE DEDUCTIBLE FY 2024

The City reimburses (self-insures) up to \$1,100 of the \$1,500 individual deductible and up to \$2,200 of the \$3,000 family/dependent deductible to employees enrolled in the City's health insurance plan. The employee is responsible for paying the first \$400 of the individual deductible and the first \$800 of the family/dependent plan deductible. Reimbursement claims are submitted in accordance with procedures established by the Office of the City Administrator. Employees hired before July 1, 2001 who have retired and are receiving the benefit of City payment of a percentage of premium of the City health insurance plan are also eligible to participate in the City's self-insurance of the deductible on the same terms and conditions as an active employee. The City Council may amend these provisions by resolution at any time in its discretion.



CITY SPOUSAL HEALTH INSURANCE SURCHARGE FY 2024

On and after January 1, 2021, in an effort to keep costs down for all employees, the City of Creve Coeur requires all employees and retirees who cover their spouses under the City-employee cost-sharing health insurance benefit to be assessed a monthly surcharge if the spouse is eligible for a major medical/prescription insurance plan through their employer which meets minimum value standards on all employee health insurance benefits. This provision does not apply to employee spouses who are covered under Medicare and also under the age of 65, Tricare, or COBRA. The monthly spousal health insurance surcharge is approved by City Council as part of the annual fiscal budget process. The City Council may amend these provisions by resolution at any time in its discretion. The monthly spousal health insurance surcharge for FY 2024 is \$200.00 per month.

**CITY OF CREVE COEUR
FY 2024 PAY SCHEDULE****SALARIES OF ELECTED AND APPOINTED OFFICIALS****POSITION TITLE**

Mayor	600.00	Per Month
City Council	400.00	Per Month
Planning & Zoning Commission Chairperson	150.00	Per Month
Planning & Zoning Commission Member	45.00	Per Session
Board of Adjustment Member	45.00	Per Session
Municipal Court Judge*	22,500.00	Per Year
Provisional Judge*	500.00	Per Session
Prosecuting Attorney*	2,500.00	Per Month
Alternate Prosecuting Attorney*	400.00	Per Session

HOURLY PAY RANGES FOR PART TIME AND SEASONAL EMPLOYEES**PER HOUR****GENERAL**

Clerk	12.00 - 16.00
Intern	12.00 - 16.00

FINANCE

Accountant	20.00 - 25.00
Accounting Clerk	17.00 - 25.00

COMMUNITY DEVELOPMENT

Planner	20.00 - 25.00
Community Development Clerk	17.00 - 25.00

PUBLIC WORKS

Seasonal Maintenance Worker	16.80 - 25.00
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GOLF COURSE

Greenskeeper	14.00 - 20.00
Concession Attendant	12.00 - 17.00
Recreation Aide-Golf	12.00 - 17.00

ICE ARENA

Learn to Skate Instructor	17.00 - 28.00
Learn to Skate Coordinator	17.00 - 28.00
Building Supervisor-Ice	16.00 - 20.00
Custodian-Ice	14.00 - 20.00
Intern	12.00 - 17.00
Receptionist	12.00 - 17.00
Recreation Aide-Ice	12.00 - 17.00

COMMUNITY SERVICES

Community Center Recreation Monitor	14.00 - 20.00
Intern	12.00 - 17.00
Receptionist	12.00 - 17.00
Recreation Aide-Community Services	12.00 - 17.00

POLICE

CALEA Accreditation Assistant	25.00 - 30.00
Evidence Custodian	25.00 - 30.00
Administrative Assistant	18.00 - 25.00

**Independent contractor*



**GENERAL FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS LEGISLATIVE SERVICES			
	City Clerk	<u>1</u> 1	<u>1</u> 1
FULL-TIME POSITIONS ADMINISTRATIVE SERVICES			
	City Administrator	1	1
	Assistant City Administrator	1	1
	Public Information Officer & Management Analyst	1	1
	Human Resources Generalist	<u>1</u> 4	<u>1</u> 4
FULL-TIME POSITIONS ADMINISTRATIVE SERVICES - MUNICIPAL COURT			
	Court Administrator	1	1
	Court Clerk	<u>1</u> 2	<u>1</u> 2
PART-TIME POSITIONS ADMINISTRATIVE SERVICES - MUNICIPAL COURT			
	Clerk	<u>0.51</u> 0.51	<u>0.51</u> 0.51
		1063	1063
		1063	1063
FULL-TIME POSITIONS FINANCE - ADMINISTRATION			
	Director of Finance	1	1
	Senior Accounting Associate	1	1
	Payroll Associate	1	1
	Accounting Associate	<u>1</u> 4	<u>1</u> 4
PART-TIME POSITIONS FINANCE - ADMINISTRATION			
	Intern	0.23	0.23
	Accounting Clerk	<u>1.00</u> 1.23	<u>1.00</u> 1.23
		480	480
		2080	2080
		2560	2560
FULL-TIME POSITIONS FINANCE - MIS OPERATIONS			
	Information Systems Coordinator	<u>1</u> 1	<u>1</u> 1

GENERAL FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs		FY 2024 AUTHORIZED FTEs	
FULL-TIME POSITIONS					
COMMUNITY SERVICES - ADMINISTRATION					
	(1) Director of Recreation	0.2		0.2	
	(1) Administrative Services Associate	0.5		0.5	
	(1) Recreation Supervisor	0.5		0.5	
		<u>1.2</u>		<u>1.2</u>	
PART-TIME POSITIONS					
COMMUNITY SERVICES - ADMINISTRATION					
	(1) Receptionist - Comm. Serv./Ice	0.38	HRS 800	0.30	HRS 630
		<u>0.38</u>	<u>800</u>	<u>0.30</u>	<u>630</u>
FULL-TIME POSITIONS					
MAINTENANCE OF MUNICIPAL FACILITIES					
	Building Maintenance Worker II	1		1	
		<u>1</u>		<u>1</u>	
FULL-TIME POSITIONS					
POLICE - ADMINISTRATION					
	Chief of Police	1		1	
	Police Lieutenant-Professional Standards	1		1	
	Police Captain-Support Services	1		1	
	Police Officer-CPO	2		2	
	Police Officer- SLCMPA Instructor	0		1	
	Executive Assistant to Police Chief	1		1	
	(2) Maintenance Worker II/Mechanic	0		0.25	
	Support Services/Fleet Maintenance Associate	1		1	
	Records Associate	2		2	
	Building Maintenance Worker	1		1	
		<u>10</u>		<u>11.25</u>	
PART-TIME POSITIONS					
POLICE - ADMINISTRATION					
	CALEA Accreditation Assistant	0.7	HRS 1456	0.7	HRS 1456
	Evidence Custodian	0.7	1456	0.7	1456
		<u>1.4</u>	<u>2912</u>	<u>1.4</u>	<u>2912</u>
FULL-TIME POSITIONS					
POLICE - INVESTIGATIONS					
	Police Lieutenant	1		1	
	Police Detective	5		5	
	Police Officer-SRO	1		1	
		<u>7</u>		<u>7</u>	



**GENERAL FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS			
POLICE - PATROL			
	Police Captain-Patrol Division Commander	1	1
	Police Lieutenant-Dep. Patrol Division Commander	1	1
	Police Sergeant	8	8
	Police Officer	22	22
	Police Officer-TSO	4	4
	Police Officer-K9	1	1
		<u>37</u>	<u>37</u>
FULL-TIME POSITIONS			
PUBLIC WORKS - ADMINISTRATION			
	Director of Public Works	1	1
	Assistant Director of Public Works/City Engineer	1	1
	⁽³⁾ Project Manager-Engineering	0.8	0.8
	⁽⁴⁾ Administrative Services Supervisor	0.5	0.5
	Administrative Services Associate	1	1
		<u>4.3</u>	<u>4.3</u>
FULL-TIME POSITIONS			
PUBLIC WORKS - STREET MAINTENANCE			
	Operations Superintendent	1	1
	Foreman I - Streets	2	2
	Maintenance Worker II	3	3
	⁽²⁾ Maintenance Worker II/Mechanic	1	0.75
	Maintenance Worker I	2	2
		<u>9</u>	<u>8.75</u>
PART-TIME POSITIONS			
PUBLIC WORKS - STREETS			
	Seasonal Maintenance Worker	1.0	1.0
		<u>1.0</u>	<u>1.0</u>
		2080	2080
		2080	2080
FULL-TIME POSITIONS			
PUBLIC WORKS - PARKS MAINTENANCE			
	Foreman I - Parks/Arborist	1	1
	Maintenance Worker II	1	1
	Maintenance Worker I	3	3
		<u>5</u>	<u>5</u>
FULL-TIME POSITIONS			
COMMUNITY DEVELOPMENT - PLANNING			
	Director of Community Development	1	1
	City Planner	1	1
	⁽³⁾ Administrative Support Supervisor	0.5	0.5
		<u>2.5</u>	<u>2.5</u>

**GENERAL FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS			
COMMUNITY DEVELOPMENT - BUILDING			
	Chief Building Official	1	1
	Senior Plans Examiner	1	0
	Plans Examiner	1	2
	Building Inspector	2	3
	Residential Building Inspector	2	0
	Apartment Re-Occupancy Inspector/Code Enforcement Officer	1	1
	Administrative Support Associate	2	1
		<u>10</u>	<u>8</u>
PART-TIME POSITIONS			
COMMUNITY DEVELOPMENT - BUILDING			
		HRS	HRS
	Community Development Clerk	0.00 0	0.70 1456
		<u>0.00 0</u>	<u>0.70 1456</u>
GENERAL FUND TOTAL FULL-TIME (FTEs)		99.00 *	98.00 *
GENERAL FUND TOTAL PART-TIME (FTEs)		4.53	5.14



CAPITAL IMPROVEMENT FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS ADMINISTRATION			
	(5) Civil Engineer	1.5	1.5
		1.5	1.5
CAPITAL FUND FULL-TIME FTEs		1.5	1.5
CAPITAL FUND PART-TIME FTEs		0	0

SEWER LATERAL FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS ADMINISTRATION			
	(3) Project Manager-Engineering	0.2	0.2
		0.2	0.2
SEWER LATERAL FUND FULL-TIME FTEs		0.2	0.2
SEWER LATERAL FUND PART-TIME FTEs		0	0

PARKS AND STORMWATER FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS ADMINISTRATION			
	(2) Civil Engineer	0.5	0.5
	Project Manager-Engineering	1	1
		1.5	1.5
PARKS AND STORMWATER FUND FULL-TIME FTEs		1.5	1.5
PARKS AND STORMWATER FUND PART-TIME FTEs		0	0

**MUNICIPAL ENTERPRISE FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
FULL-TIME POSITIONS			
ICE ARENA			
	(1) Director of Recreation	0.8	0.8
	(1) Recreation Supervisor	0.5	0.5
	(1) Administrative Services Associate	0.5	0.5
	Building Maintenance Technician	1	1
	(6) Maintenance Worker	0.2	0.2
		<u>3</u>	<u>3</u>
PART-TIME POSITIONS			
ICE ARENA			
		HRS	HRS
	Building Supervisor - Ice	1.44 3000	1.73 3600
	Custodian - Ice	0.38 780	0.00 0
	Learn to Skate Instructor	0.17 350	0.29 610
	Learn to Skate Coordinator	0.07 150	0.04 75
	(1) Receptionist-Comm. Serv./Ice	0.38 800	0.30 630
	Recreation Aide - Ice	0.53 1100	0.38 800
		<u>2.97 6180</u>	<u>2.75 5715</u>
FULL-TIME POSITIONS			
GOLF COURSE - MAINTENANCE			
	Golf Maintenance Superintendent	1	1
	Maintenance Worker II	1	1
	(6) Maintenance Worker	0.8	0.8
		<u>2.80</u>	<u>2.80</u>
PART-TIME POSITIONS			
GOLF COURSE - MAINTENANCE			
		HRS	HRS
	Greenskeeper	0.91 1900	0.82 1700
		<u>0.91 1900</u>	<u>0.82 1700</u>
FULL-TIME POSITIONS			
GOLF COURSE - PRO SHOP			
	Assistant Director of Recreation	1	0
	Golf Course Manager	0	1
		<u>1</u>	<u>1</u>
PART-TIME POSITIONS			
GOLF COURSE - PRO SHOP			
		HRS	HRS
	Recreation Aide - Golf	1.58 3285	1.68 3500
		<u>1.58 3285</u>	<u>1.68 3500</u>
PART-TIME POSITIONS			
GOLF COURSE - FOOD SERVICES			
		HRS	HRS
	Concession Attendant	0.26 550	0.29 600
		<u>0.26 550</u>	<u>0.29 600</u>

**MUNICIPAL ENTERPRISE FUND
DETAIL OF AUTHORIZED FULL-TIME EQUIVALENTS (FTEs)
BY DEPARTMENT FY 2024**

DEPARTMENT	POSITION TITLE	FY 2023 AUTHORIZED FTEs	FY 2024 AUTHORIZED FTEs
ENTERPRISE FUND TOTAL FULL-TIME (FTEs)		6.80	6.80
ENTERPRISE FUND TOTAL PART-TIME (FTEs)		5.73	5.54
TOTAL FULL-TIME FTEs (ALL FUNDS)		109.00	108.00
TOTAL PART-TIME FTEs (ALL FUNDS)		10.25	10.68

- Notes:**
- ⁽¹⁾ Shared between Community Services and Ice Arena
 - ⁽²⁾ Shared between Public Works-Streets and Police-Administration
 - ⁽³⁾ Shared between Public Works-Administration and Sewer Lateral Fund
 - ⁽⁴⁾ Shared between Public Works-Administration and Community Development-Planning
 - ⁽⁵⁾ Shared between Capital Improvement Fund & Parks & Stormwater Fund
 - ⁽⁶⁾ Shared between Golf Maintenance and Ice Arena

**CITY OF CREVE COEUR
CHART OF ACCOUNTS****PERSONNEL SERVICES**

- 5101 SALARIES - PERMANENT EMPLOYEES
Includes base salary of permanent employees and officials.
- 5102 SALARIES - TEMPORARY EMPLOYEES
Includes all wages paid to part-time, seasonal and temporary employees including paid commission members.
- 5103 OVERTIME
Includes all overtime for all personnel, plus special meeting allowances.
- 5104 VACATION PAY
Includes wages paid in lieu of vacation.
- 5105 LONGEVITY PAY
- 5106 HOLIDAY PAY
- 5107 UNIFORM ALLOWANCE
- 5109 PROVISION FOR SALARY ADJUSTMENT
Includes all provisions for salary adjustments of permanent employees and officials.
- 5110 AUTOMOBILE ALLOWANCE
- 5111 CELL PHONE ALLOWANCE
- 5120 EMPLOYEE REFERRAL BONUS
- 5230 HOSPITAL AND MEDICAL INSURANCE
- 5231 SELF-INSURED MEDICAL BENEFITS
- 5233 DENTAL INSURANCE
- 5234 GROUP LIFE INSURANCE
- 5235 ACCIDENTAL DEATH AND DISMEMBERMENT
- 5236 DISABILITY INSURANCE
- 5240 SOCIAL SECURITY CONTRIBUTION
- 5241 PENSION CONTRIBUTION
- 5242 DEFERRED RETIREMENT COMPENSATION
- 5243 WORKERS' COMPENSATION
- 5244 UNEMPLOYMENT COMPENSATION
- 5246 HEALTH INSURANCE DEDUCTIBLE REIMBURSEMENT

OPERATING EXPENSES

- 6201 LEGAL SERVICES
Includes city attorney fees, special counsel.
- 6202 TECHNICAL AND PERSONAL SERVICES
Includes towel service and dry cleaning, towing and storage, recording and filing fees, docket fees and car titles, burglar alarm service, professional photography, court reporter services for public hearings and court proceedings, blueprint service, plumbing inspections, REJIS user fees and other technical services.
- 6203 PROFESSIONAL SERVICES
Includes data processing service, real estate abstracts from County Department of Revenue, codification of ordinances, title search, consulting services, psychological services, land surveys, architectural service, newsletter printing and mailing.
- 6204 PLANNING AND DESIGN SERVICES
Professional park and master plan development, site planning, landscape planning or engineering service.
- 6205 INVESTMENT MANAGER FEES
- 6206 RETIRED EMPLOYEES BENEFITS

**CITY OF CREVE COEUR
CHART OF ACCOUNTS****OPERATING EXPENSES (Cont'd)**

- 6207 TEMPORARY PERSONNEL SERVICES
Includes salaries and fees for temporary or seasonal labor contracted through an independent employment agency.
- 6209 ACCOUNTING SERVICES
- 6210 VEHICLE MAINTENANCE
Includes lubricating oils, grease, anti-freeze, parts and minor accessories, tires, and garage repairs on autos, trucks and golf carts.
- 6211 EQUIPMENT MAINTENANCE
Includes parts, petroleum products, service contracts and contracted repair costs on radios, video systems, tape recording systems, self-powered equipment other than trucks, cars, or golf carts.
- 6212 BUILDING AND GROUNDS MAINTENANCE
Includes all contracts for building maintenance or grounds maintenance including carpet cleaning, pruning services, pest control, preventative maintenance on non-mechanical building fixtures, landscaping, parking lot maintenance, plumbing and electrical systems.
- 6213 OFFICE EQUIPMENT MAINTENANCE
Includes service contracts and parts directly related to maintenance of typewriters, copiers, calculators, tape recorders, projectors, computer hardware, computer software, etc.
- 6214 REFUSE COLLECTIONS
Cost of refuse collection contract.
- 6215 WEED CUTTING AND TREE REMOVAL
Cost of contracted weed cutting and tree removal.
- 6216 LARVICIDING
Contract with St. Louis County for spraying creeks for insects.
- 6217 RECYCLING
Cost of recycling contract.
- 6219 OLIVE BOULEVARD LANDSCAPING
- 6220 LIABILITY INSURANCE
- 6221 EXCESS LIABILITY INSURANCE
- 6222 PUBLIC OFFICIALS LIABILITY INSURANCE
- 6223 FIRE AND EXTENDED COVERAGES
- 6224 BOILER INSURANCE
- 6225 SURETY BONDS
- 6226 PROPERTY INSURANCE (PROP/AUTO)
- 6227 WEST COUNTY DISPATCH CENTER
- 6230 FARMER'S MARKET
- 6247 DOG PARK EXPENSES
- 6249 PRISONER HOUSING EXPENSE
- 6250 ELECTRICITY
Includes all city facilities, park lighting and city-owned parking lots.
- 6251 STREET LIGHTING
Does not include parking lot or street lighting in parks.
- 6252 NATURAL GAS
All natural gas expenditures.
- 6253 TELEPHONE
- 6254 WATER & SEWER
- 6255 CABLE TV

**CITY OF CREVE COEUR
CHART OF ACCOUNTS****OPERATING EXPENSES (Cont'd)**

- 6260 ADVERTISING
Includes all legal and other public notices published in newspapers and on other advertising media.
- 6261 EDUCATION AND TRAINING
Includes lodging per diem, travel, registration or tuition, books for educational seminars, classes or training.
- 6262 DUES, MEMBERSHIPS, AND SUBSCRIPTIONS
- 6263 ELECTION EXPENSE
Includes pay for election assistance and voting machines.
- 6264 INTOWN MEETINGS
In town meeting expense including business meetings during meal periods in St. Louis metro area.
- 6265 TRAVEL AND CONFERENCES
Includes travel to state or national conferences or meetings not properly defined as seminars (which includes mileage or travel cost, per diem, lodging and conference registration), out-of-town investigation of felonies and transporting prisoners.
- 6266 EQUIPMENT RENTAL
Includes rental of copiers, postage meter, self-powered and other equipment such as backhoes and computers.
- 6268 ICE REPAIRS
- 6269 POSTAGE
- 6271 MEDICAL
Includes medical care for prisoners, physical examinations, drug screens, psychological evaluations, medicines, prescriptions, oxygen, bandages and first aid kits.
- 6272 EMPLOYEE RELATIONS
Includes employee recognition lunch, service awards, and wellness committee expenses.
- 6281 5K RUN EXPENSES
- 6283 SILVER SCREEN FILM SERIES
- 6291 FEMA STORM DAMAGE ACCOUNT REIMBURSEMENT
- 6299 QUALITY CONTROL TESTING
- 7301 CHEMICALS AND CLEANING
Includes paints, mixes, thinners, chlorine, commercial chemicals, pesticides, fire extinguisher recharge, intoximeter supplies, fingerprint powder, soaps, hand cleaners, janitorial and cleaning supplies, floor oils, floor waxes, toilet paper and hand towels.
- 7302 SMALL TOOLS
Includes small tools and instruments under \$250 cost including utensils and items subject to loss and rapid depreciation such as drafting instruments, flashlights, wrenches, hammers, axes, shovels, dishes and glassware, staplers, hoses, sprinklers, fire extinguishers, screwdrivers, etc.
- 7303 HORTICULTURAL SUPPLIES
Includes seeds, plants, flowers, shrubs, trees, flower pots, boxes, fertilizer, plant foods, etc.
- 7304 GENERAL SUPPLIES
Includes books, pamphlets and manuals used for instruction, information, or general purposes, such as printed reports, maps, blue line, recreational activity supplies and materials, microfilm, slides, training film, cassette tapes, CDs, preprinted forms, soda for city hall soda machines, and printing devices.
- 7305 STREET AND SIDEWALK MAINTENANCE
Includes concrete, asphalt, tar, rock, caulking or other materials for repair of cracks, potholes, or minor repairs. Does not include widening, reconstruction, overlay, or new paving of streets or sidewalks.

**CITY OF CREVE COEUR
CHART OF ACCOUNTS****OPERATING EXPENSES (Cont'd)**

7306	MEMORIALS AND PLAQUES Includes flowers, wreaths, and various mementos to deceased or retiring city officials or member of immediate families, as set by city policy.
7307	GASOLINE, PROPANE, MILEAGE Includes mileage expenses.
7308	WEARING APPAREL AND LINENS Includes special occupational accessories, boots and shoes, safety glasses, gloves, helmets, sheets, blankets and prisoner uniforms.
7309	FOOD FOR PRISONERS Includes all costs associated with the feeding of prisoners.
7310	SNOW REMOVAL SUPPLIES Includes all costs associated with supplies and acquisition of salt for snow removal activities.
7311	STREET SIGNS Includes blank signs, printed signs, brackets, and poles.
7312	OFFICE SUPPLIES Includes office stationery and supplies, printer, copier, fax paper and toner and items of office equipment or furniture costing less than \$250 per item.
7313	RANGE SUPPLIES Includes ammunition, targets and other expendable target range supplies.
7314	CRIME PREVENTION Includes all supplies and information required for Neighborhood Watch and D.A.R.E. programs.
7315	SPECIAL EVENTS Includes invitation golf tournament, appreciation dinner, Creve Coeur Days Banquet, etc.
7316	HOLIDAY DECORATION I270/OLIVE BLVD
7317	SLAIT WELLNESS EXPENSES
7318	SMALL STORMWATER PROJECTS
7320	DEPRECIATION EXPENSE
7322	IMPROVEMENTS - DEPR EXPENSE
7324	EQUIPMENT - DEPR EXPENSE
7331	COMPUTER HARDWARE
7332	COMPUTER SOFTWARE
7370	SEWER LATERAL TAX REFUND
8310	FOOD FOR RESALE
8315	SANDWICHES AND HOT DOGS
8316	BEER
8317	COFFEE, TEA AND SOFT DRINKS
8319	SNACKS
8321	MISCELLANEOUS FOOD SUPPLIES
8323	GOLF CLUB MERCHANDISE
8324	GOLF BALL MERCHANDISE
8325	GOLF APPAREL MERCHANDISE
8326	GOLF BAG MERCHANDISE
8327	MISCELLANEOUS GOLF MERCHANDISE
8401	TIF I LOAN PAYABLE
8402	TIF II LOAN PAYABLE
8403	TRUSTEE PAYMENTS

**CITY OF CREVE COEUR
CHART OF ACCOUNTS****OPERATING EXPENSES (Cont'd)**

- 8410 DEBT INTEREST PAYMENT
Includes interest paid on inter-fund loan debt between the General Fund and the Enterprise Fund.
- 9315 SEWER LATERAL REIMBURSEMENT
- 9401 TRANSFER TO GENERAL FUND FROM PUBLIC SAFETY FUND
- 9403 TRANSFER TO OTHER FUNDS
- 9406 TRANSFER TO ENTERPRISE FUND FROM GENERAL FUND

CAPITAL OUTLAY AND CAPITAL IMPROVEMENTS

- 9501 BUILDINGS AND IMPROVEMENTS
Includes all expenditures for materials or contracts covering new acquisitions or construction, or additions to or major repairs of existing facilities.
- 9502 VEHICLES
Includes automobiles, trucks, tractors and attachments including radios.
- 9503 EQUIPMENT
Includes machinery, instruments, apparatus, mowers, boats, etc. which cost \$250 or more and have a life expectancy of 1 year or more.
- 9504 OFFICE EQUIPMENT
Includes desks, lamps, tables, cabinets, etc., which may cost more than \$250.
- 9505 OFFICE MACHINES
Includes adding machines, calculators, typewriters, computers and software, etc., any item which may cost more than \$250.
- 9506 PARK DEVELOPMENT PROJECTS
Includes landscaping, seeding, grading, sprinkling, and construction of athletic facilities, playgrounds, or park buildings. Also includes cost of related engineering, architecture or planning.
- 9507 TECHNOLOGY IMPROVEMENTS
- 9508 BEAUTIFICATION PROJECTS
Includes forestry or beautification projects NOT related to a park.
- 9509 STORM WATER PROJECTS
This includes matching funds for joint MSD - City drainage improvements, equipment and materials directly used for drainage projects performed by force account. Also includes related cost for engineering studies.
- 9510 STREET OVERLAY/REPAIR
Includes overlay or slurry seal of streets; also major repairs on a concrete street, also paving or repaving of sidewalks. Also includes related cost for engineering and right-of-way acquisition.
- 9512 STREETS/SIDEWALK CONSTRUCTION
Includes reconstruction, construction or widening of streets. Also includes related cost such as engineering and right-of-way acquisition.
- 9513 REPORTS AND FEASIBILITY STUDIES
- 9514 DEBT SERVICE
- 9515 BOND ISSUANCE COSTS
- 9516 CAPITAL EQUIPMENT
- 9521 LAND/R.O.W. ACQUISITION
- 9522 CONSTRUCTION COSTS



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Actual Revenue and Expenditures: The actual revenue and expenditures incurred in previous fiscal years.

Accrual Basis: Indicates revenues as recorded when they are earned (whether or not cash is received at the time and expenditures are recorded when goods and services are received, whether cash disbursements are made at the time or not.

ADA: American Disabilities Act of 1990.

Adopted Budget: Refers to the budget amounts as originally approved by the City Council at the beginning of the year and also to the budget document which consolidates all beginning-of-the-year operating appropriations and new capital project appropriations.

Appropriation: The legal authorization made by the City Council to the department, offices, and agencies of the City which approves their budgets and allows them to make expenditures and incur obligations for specific purposes within the amounts approved.

ARPA: American Rescue Plan Act.

Assessed Valuations: A valuation set upon real estate and certain personal property by the County Assessor as a basis for levying property taxes.

Assets: Property owned by the City which has monetary value.

Balanced Budget: Budget in which budgeted revenues are equal to or exceed budgeted appropriations.

BRDG: Bio Research & Development Growth (BRDG) Park at the Danforth Center.

Budget: A plan of financial operation embodying an estimate or proposed revenue and expenditures for a given year. It is the primary means by which most of the expenditure and service delivery activities of the City are controlled.

Budget Appropriation: The immediate previous fiscal year budget appropriation.

Budget Calendar: The schedule of key dates or milestones which the City departments follow in the preparation, adoption and administration of the budget.

Budget Message: The opening section for the budget which provides the City Council and the public with a general summary of the most important aspects of the budget, changes from the current and previous fiscal years, and the views and recommendations of the City Administrator.

Budgeted Revenue: The immediate previous fiscal year budgeted revenue.

Capital: An asset item with a value of \$250 or more.



Capital Improvement Fund: A fund created for the purpose of setting forth major capital projects identified for funding within the new fiscal year.

Capital Improvements: Expenditures which result in the acquisition of land, construction costs for streets, sidewalks or curbs, or improvements to land or buildings.

Capital Improvement Program: A long-range plan for providing capital improvements to the City's infrastructure.

Capital Outlays: Expenditures for equipment, vehicles or machinery that results in the acquisition or addition to fixed assets. Normally has a value of \$250 or more.

Cash Basis: Indicates transactions are recognized only when cash is increased or decreased.

Cash Management: The management of cash necessary to pay for government services while investing temporary cash excesses in order to earn interest revenue. Cash management refers to the activities of forecasting the inflows and outflows of cash, mobilizing cash to improve its availability for investment, establishing and maintaining banking relationships, and investing funds in order to achieve the highest interest and return available for temporary cash balances.

CDBG: Community Development Block Grant.

Chart of Accounts: A listing of all City revenue and expenditure accounts with account descriptions.

CIP: Capital Improvement Program.

Consolidated Omnibus Budget Reconciliation Act (COBRA): Federal legislation requiring group health plans to offer covered employees and dependents the opportunity to purchase continued group health coverage under certain circumstances.

DARE: Drug Abuse Resistance Education (DARE) is a drug awareness program that is taught to grade school students in six Creve Coeur schools, by a specially trained Creve Coeur Police Officer. The principle behind this program is that when a child is educated about the dangers of drug use, they will make intelligent decisions to avoid drug use.

Debt Service Payment: The payment required for repayment of a general obligation debt owed by a public entity which consists of interest and principal.

Depreciation: (1) Expiration in the service life of capital assets attributable to wear and tear, deterioration, action of the physical elements, inadequacy or obsolescence. (2) As an expense during a particular period. Governmental accounting shows depreciation only in the Proprietary Funds.

Economic Activity Taxes (EATS): Taxes which are generated from an economic activity such as, sales tax or utility gross receipt taxes.



Employee's Retirement Fund: A fund created for the purpose of accounting for all employee pension transactions, clearly delineating these transactions from General Fund activities.

Employee Benefits: These include social security, retirement, group health, dental and life insurance, worker's compensation, and disability insurance.

Employee Pension Fund Board of Trustees: A committee consisting of five members and two ex-officio members charged with review of the City's Employee Pension Fund investment policy, investment managers, annual actuarial audit, and pension fund enhancement recommendations.

Encumbrance: An amount of money committed and set aside, but not yet expended, for the purpose of acquiring specific goods or services.

Estimated Requirements: The estimated budget appropriation for the new fiscal year.

Estimated Revenue: The estimated budgeted revenue for the new fiscal year.

Expenditures: An actual payment made by City warrant (check) or by inter-fund transfer for internal City bills.

Fair Labor Standards Act (FLSA): Federal legislation regulating minimum wage, overtime, record keeping, child labor standards and prohibiting sexual discrimination in pay. 1985 amendments applied FLSA to state and local governments.

Fees: A general term used for any charge levied by government associated with providing a service, permitting an activity or imposing a fine or penalty. Major types of fees include business and non-business licenses, fines, and user charges.

Finance Committee: A committee consisting of seven members and one City Council liaison, as required by City Charter, section 9.4 and 9.6, charged with review of the City's Annual Budget, Audit and Capital Improvement Program and other matters so directed by the City Council.

Fiscal Year: The period used for the accounting year. The City of Creve Coeur has a fiscal year of July 1 through the following June 30.

Fund Balance: The amount left over after the expenditures are subtracted from revenues. Each fund begins and ends each fiscal year with a positive or negative fund balance.

General Fund: A fund created to account for all financial resources for the general operating revenue and expenditures of the City.

General Obligation Debt: Debt owed by a public entity which is secured unconditionally by the full faith, credit and taxing powers of the public entity.

GFOA: Government Finance Officers Association.



Intergovernmental Revenues: Revenue collected and reimbursed by other governments, primarily the State and County governments.

I-9: Employment eligibility verification form required by the Immigration and Naturalization Service under the Federal Immigration Reform and Control Act of 1986 of all newly hired or rehired employees.

ISTEA: Intermodal Surface Transportation Efficiency Act of 1991.

LAGERS: Local Government Employees Retirement System.

Missouri Neighborhood Improvements District Act: Sections 67.453 through 67.475 RSMo. Authorize the establishment of general obligation debt for the purpose of performing identified improvements in a given subdivision or neighborhood within the City limits when petitioned by the affected property owners requesting such an action be taken on their behalf.

Modified Accrual: The method under which revenues and other financial resource increments are recognized when they become susceptible to accrual, which is when they become both "measurable" and "available" to finance expenditures of the current period. "Available" means collection in the current period or soon enough thereafter to be used to pay the liabilities of the current period.

MSD: Metropolitan St. Louis Sewer District.

Neighborhood Watch: The Neighborhood Watch Program is another part of the Community Oriented Policing Program. Established in 1989, it assists and educates residents and business people of the community in the principles and concerns of pro-active crime prevention.

Object Classification: Indicates the type of expenditure being made, i.e. personnel services, operating expense and capital outlays.

Objective (departmental): For departments under the City Administrator, departmental objectives for the upcoming year are prepared and submitted along with the department's budget request. The proposed objectives are reviewed by the City Administrator and are considered in budget negotiations.

Operating Budget: The annual budget and process which provides a financial plan for the operation of government and the provision of services for the year.

Operating Expenses: Expenditures for services of outside vendors pertaining to the general operation of the City where a service may be purchased in conjunction with a supply for operational purposes. Included in this classification are non-departmental expenditures for general insurance.

Operation Gateway: Operation Gateway is a metropolitan traffic enforcement program that involves state, county and municipal law enforcement agencies from Missouri and Illinois. These agencies conduct high visibility traffic enforcement on designated dates, sponsor traffic safety programs, and support traffic legislation through the Missouri Division of Highway Safety.



Personnel Services: Compensation to City employees in the form of salaries, wages, overtime, health insurance, pension and other benefits.

PILOTS: Payments in lieu of taxes.

Projected Expenditures and Revenues: The projected expenditures and revenues that are anticipated by the close of the current budget year.

Property Tax: An annual tax on the values of certain types of personal or business wealth, represented by real or personal property.

Proposed Budget: The recommended City budget submitted by the City Administrator to the City Council in June of each year.

REJIS: Regional Justice Information System.

Revised Budget: Budget figures which include budget amendments made, by City Council resolution, in the following fiscal period.

School Resource Officer (SRO): This is a program, under the department's Community Oriented Policing Program, which places a Police Officer in schools to deal with law enforcement issues that arise on a day to day basis and teach citizenship as it relates to law enforcement issues.

Special Purpose Funds: These funds are used to account for the proceeds of specific revenue sources (other than major capital projects) that are legally restricted to expenditures for specific purposes.

Tappmeyer Homestead Foundation: This is a not-for-profit corporation whose purpose is to promote and support the preservation, maintenance and renovation of the Tappmeyer family residence as a municipal resource of the City and for the benefit of the community at large. The Tappmeyer Homestead Foundation is promoted through efforts focused on public relations and education, and through fundraising activities which provide financial support.

Tax Increment Financing (TIF) District Fund: A fund created for the purpose of increasing real property values through the physical improvement of a specific redevelopment area as authorized by Missouri Statute RSMo. 99.800 - 99.865.

Trust and Agency Funds: Funds used to account for assets held by the City in a trustee capacity or as an agent for individuals, private organizations and other governmental units. The City's fiduciary funds include the City's Pension Trust Fund, Escrow and Court Bond funds and the Employee Deferred Compensation Fund. Agency funds are custodial in nature (assets equal liabilities) and do not involve measurement of results of operations.



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Finance Committee

May 10, 2023

Honorable Mayor and Members of City Council
City of Creve Coeur
300 N. New Ballas Rd.
Creve Coeur, MO 63141

Dear Mayor Hoffman and City Council,

On April 25, 2023 and May 9, 2023, a quorum of the Finance Committee members met via a Zoom meeting to review the proposed Operating Budget for FY 2023-2024. Also present were Council Liaison Joe Martinich, Finance Director Lori Obermoeller, City Administrator Mark Perkins, Assistant City Administrator Sharon Stott. The Finance Committee regards the review sessions to fully satisfy Charter requirements and recommends the proposed Operating Budget to Council for adoption. We offer the following comments for your consideration:

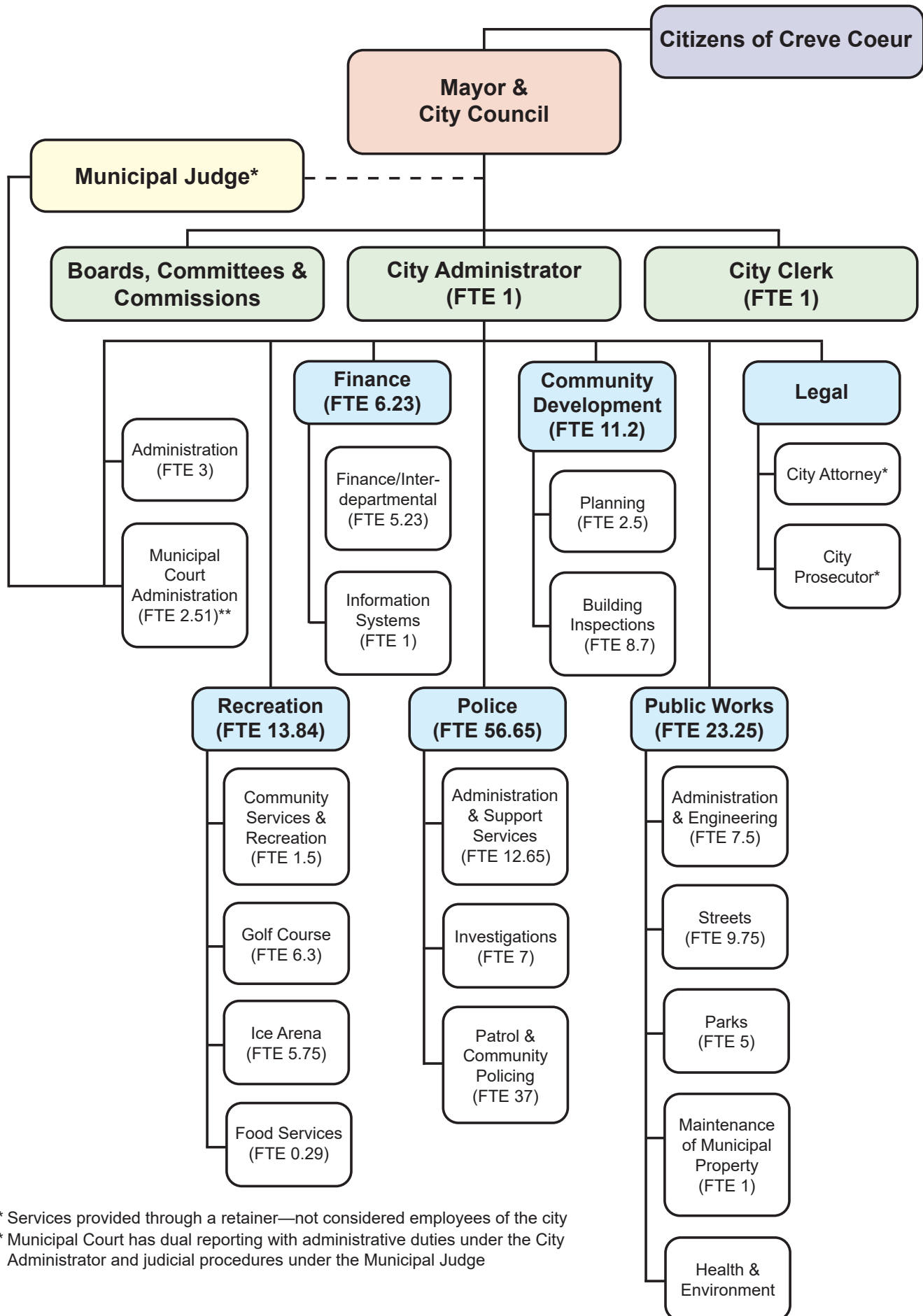
1. Revenues. City revenues had been flat for many years, but have been strong the past two years. Therefore, no new revenue sources are recommended at this time, but will need to be reviewed in the future. Two revenue sources for future consideration are the Use Tax and amending the current Business License Fees.

Respectfully,



Betty J. Kagan

Organizational Chart



* Services provided through a retainer—not considered employees of the city

** Municipal Court has dual reporting with administrative duties under the City Administrator and judicial procedures under the Municipal Judge

**AN ORDINANCE AUTHORIZING THE ISSUANCE OF A CONDITIONAL USE
PERMIT FOR A 19,244 SQUARE-FOOT COLLEGES, UNIVERSITIES, AND
PROFESSIONAL SCHOOLS USE, GRAND CANYON UNIVERSITY, LOCATED AT
721 EMERSON ROAD, WITHIN THE CREVE COEUR CENTER DEVELOPMENT**

WHEREAS, under Section 405.370(C), Colleges, Universities, and Professional Schools in the "CB", Core Business zoning district require the issuance of a conditional use permit as provided in Section 405.1070, Conditional Use Permits; and

WHEREAS, Ted Bernstein, of Orbis Education, submitted an application for a conditional use permit for a 19,244 square foot Colleges, Universities, and Professional Schools use, Grand Canyon University, at 721 Emerson Road, within Creve Coeur Center; and

WHEREAS, a public hearing was held by the Creve Coeur Planning and Zoning Commission on Monday, June 5, 2023, beginning at 6:00 p.m. or immediately following the close of the previous public hearing, on said application for the conditional use permit as provided by Section 405.1070(D)(2); and

WHEREAS, notice of publication for said public hearing had been previously published at least 15 days prior to the hearing, in the St. Louis Countian, a newspaper of general circulation in the City of Creve Coeur; and

WHEREAS, the Planning and Zoning Commission reviewed and, by a 4-0 vote, recommended approval of the conditional use permit, subject to the conditions contained herein, at its meeting on June 5, 2023; and

WHEREAS, all parties desiring to be heard, either for or against said application, were given an opportunity to be heard, and a copy of the proposed ordinance has been made available for public inspection prior to its consideration by the Council; and this Bill having been read by title in open meeting two times before final passage by the City Council, and

WHEREAS, the City Council finds that the application and evidence presented clearly indicate that the proposed conditional use, when subject to certain conditions set forth herein:

1. Will contribute to and promote the community welfare and convenience at the specific location.
2. Will not cause substantial injury to the value of neighboring property.
3. Meets the applicable provisions of the City's Comprehensive Plan and any applicable neighborhood or sector plans and complies with other applicable zoning district regulations and provisions of this Chapter, unless good cause exists for deviation therefrom.
4. Will be compatible with the surrounding area and thus will not impose an excessive burden or have a substantial negative impact on surrounding or adjacent users or on community facilities or services.
5. Will provide, if applicable, erosion control and on-site stormwater detention in accordance with the standards contained in this Chapter.
6. Will be compatible with the surrounding area and thus will not impose an excessive burden or have a substantial negative impact on surrounding or adjacent users or on community facilities or services.

NOW, THEREFORE, be it ordained by the City Council of the City of Creve Coeur, St. Louis County, Missouri, as follows:

Section 1: A Conditional Use Permit is authorized to be issued pursuant to Section 3 hereof for the operation of a colleges, universities, and professional schools use located at 721 Emerson Road, in the "CB" Core Business zoning district, within the Creve Coeur Center development, whose legal description is as follows:

TRACT I - Phases I and II:

A tract of land being CREVE COEUR CORPORATE CENTER, a subdivision according to the plat thereof recorded in Plat Book 238 Page 47 of the St. Louis County Records, in Section 3, Township 45 North, Range 5 East, St. Louis County, Missouri and being more particularly described as:

Beginning at a point on the East right-of-way line of Interstate Highway 1-270 (formerly I-244), being the Southwest corner of property conveyed to Sir Lion of Creve Coeur, Inc. by deed recorded in Book 6383 Page 1075 of the St. Louis County Records; thence Eastwardly along the South line of Sir Lion of Creve Coeur, Inc. property South 89 degrees 16 minutes 00 seconds East 205.26 feet to the West line of Emerson Avenue 50 feet wide; thence Southwardly along said West line of Emerson Avenue, 50 feet wide, South 0 degrees 09 minutes 00 seconds West 938.67 feet to a point; thence North 89 degrees 14 minutes 10 seconds West 245.18 feet along the North line of Emerson Terrace, a subdivision according to the plat thereof recorded in Plat Book 38 Page 37 of the St. Louis County Records to a point; thence North 02 degrees 21 minutes 36 seconds West 500.10 feet to a point on aforesaid East right-of-way line of Interstate I-270 (formerly I-244); thence Northwardly along said East right-of-way line North 04 degrees 50 minutes 05 seconds East 261.96 feet and North 12 degrees 59 minutes 10 seconds East 181.96 feet to the point of beginning.

Section 2: The Conditional Use Permit granted shall be subject to all applicable statutes, ordinances, rules and regulations, and the following conditions:

1. The Conditional Use Permit shall be for the operation of an approximately 19,244 square foot Colleges, Universities, and Professional Schools establishment, NAICS 611310, at 721 Emerson Road, within the Creve Coeur Center development.
2. Hours of operation shall be 8:00 AM to 6:00 PM Monday through Friday. Additional business hours may be permitted with the Zoning Administrator's approval.
3. All signs and banners shall be in conformance with Article VIII, Sign Regulations, of the Zoning Code and require permit approval.
4. Any future enlargement, extension, expansion, or alteration in the use of the structures or site must be approved by the City Council upon receipt of the recommendation of the Planning and Zoning Commission as an amendment to the Conditional Use Permit before a Building Permit for the enlargement, expansion or alteration may be issued.
5. Failure to comply with any one or all of the conditions of this permit shall be adequate cause for the revocation of said permit by the City Council, provided, however, no permit shall be revoked without prior notice to the owner of the intention of the City Council to revoke this permit and reasonable time granted to the owner to correct or remedy any such breach of conditions, except for repeated breaches or violations.
6. No conditional use permit granted by the City Council shall be valid for a period longer than one year from the date it grants the conditional use permit, unless within such period:

(1) a building permit is obtained and construction is begun; or (2) if a building permit is not required, an occupancy permit is obtained, and the use of the building commenced. The City Council may grant extensions to the one (1) year period of not more than one hundred and eighty (180) days each, without notice or hearing, provided that a written request for such extension is filed by the original applicant and approved by the City Council prior to the date the conditional use permit is scheduled to expire.

7. Any transfer of ownership or lease of the property shall include in the transfer or lease agreement a provision that the purchaser or lessee agrees to be bound by the approved Conditional Use Permit for the property and the conditions herein set forth, and written confirmation thereof signed by the new owner or lessee shall be filed with the City at the time of such transfer or lease. Failure to comply with this provision shall not excuse anyone from these conditions.

Section 3: The City Administrator of the City of Creve Coeur is hereby authorized and directed to issue a Conditional Use Permit in accordance with the provisions of this ordinance, said permit to expressly provide for the conditions and stipulations hereinabove set out in Section 2 of this ordinance. Exercise of the rights granted pursuant to the issued permit shall constitute acceptance of all conditions and stipulations set forth herein.

Section 4: This ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter.

ADOPTED THIS ____ DAY OF _____, 2023.

NICOLE GREER
PRESIDENT OF CITY COUNCIL

APPROVED THIS ____ DAY OF _____, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



city of CREVE COEUR

300 North New Ballas Road • Creve Coeur, Missouri 63141

(314) 432-6000 • Fax (314) 872-2539

APPLICATION TO PLANNING AND ZONING COMMISSION
#23-016: A CONDITIONAL USE PERMIT FOR A 19,244 SQUARE FOOT
COLLEGES, UNIVERSITIES, AND PROFESSIONAL SCHOOLS USE, NAICS
611310, LOCATED WITHIN THE CREVE COEUR CENTER DEVELOPMENT
AT 721 EMERSON ROAD

FOR THE MEETING OF: Monday, June 5, 2023

LOCATION: 721 Emerson Road, Zoned CB – Core Business District

REQUEST: Ted Bernstein, of Orbis Education, has submitted an application for a Conditional Use Permit for Grand Canyon University, a Colleges, Universities, and Professional Schools use (NAICS 611310), to be located within Creve Coeur Center development at 721 Emerson Road within Creve Coeur Corporate Center in the "CB" Core Business zoning district. The proposed Accelerated Bachelor's in Nursing Program would move into the existing 19,244 square foot space with no exterior changes.

ADDITIONAL INFORMATION:

Under Section 405.250, Table A of the Zoning Code, NAICS 611310 requires the issuance of a conditional use permit in the "CB" zoning district subject to the recommendation of the Planning and Zoning Commission and approval of the City Council.

Key Issues:

- Does the request further the goals and/or implement the Comprehensive Plan?
- Is the request consistent with the required findings for a conditional use permit?
- Does the request follow the Design Guidelines?

Creve Coeur 2030 Plan References

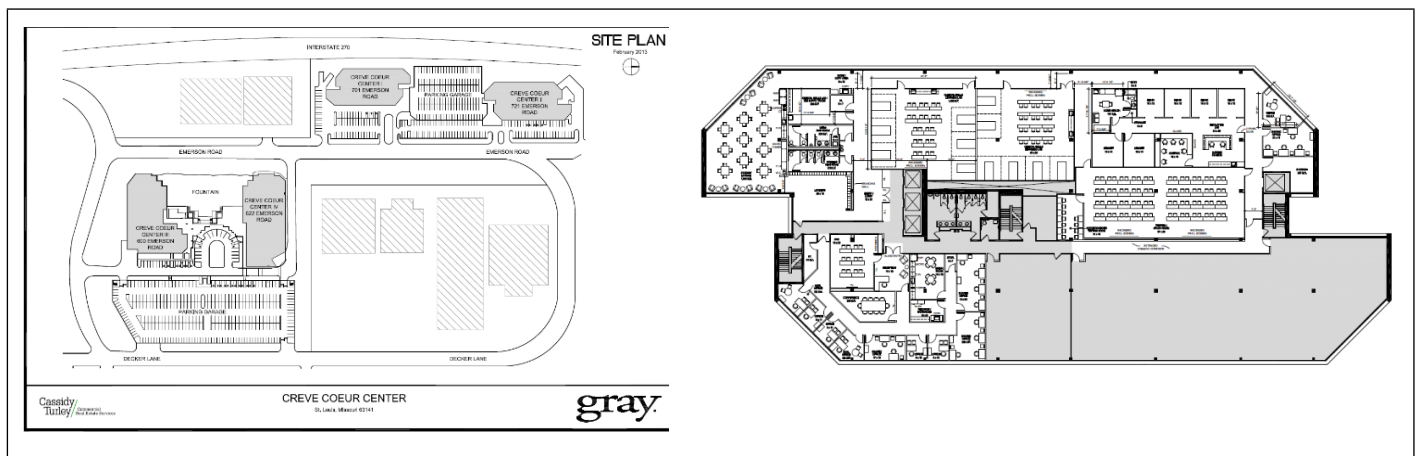
- Mixed Use District
- Design Guidelines

Zoning Code References

- Section 405.370: CB-Core Business District
- Section 405.470: Conditional Uses

APPLICANT: Ted Bernstein
Orbis Education Services
301 Pennsylvania Parkway
Indianapolis, IN 46280

OWNER'S REPRESENTATIVE: Ellen Mills
Cushman & Wakefield
600 Emerson Road, Suite 111
St. Louis, Missouri 63141



REPORT PREPARED BY: Bethany L. Moore, City Planner
DATE: 5/31/2023
ATTACHMENTS: Applicant's Materials received May 5, 2023
Draft Ordinance

PROPOSAL

The applicant is proposing a Grand Canyon University location on the fifth floor of building II within the Creve Coeur Center development. Grand Canyon University will provide onsite post-secondary education including testing and training, ancillary activities for healthcare education, and office spaces for administrative and executive uses. Specifically in the St. Louis area, Grand Canyon University will provide accelerated nursing degrees to students with bachelor's degrees in conjunction with Mercy Healthcare. The applicant selected the location based on its proximity to Mercy's hospital and medical facilities where students will be doing their clinical training. Grand Canyon University plans to have hours from 8:00 AM to 6:00 PM Monday through Friday, with approximately 12-15 full time employees and 10-12 part time employees. The applicant plans to enroll 48 students per starting period at full capacity but will most likely start out with smaller class sizes as the program. This is an online program, and their facility requirements are regulated by state guidelines. Classes are all online and students only attend the facility for testing and for simulated clinical practice, which is observed by faculty. In a semester only one cohort would ever be scheduled to attend the facility at any given time. The maximum number of students enrolled each session is 3 cohorts of 24 students each per state requirements. No more than 72 students will be onsite at one time either for testing or other activities. No exterior changes are proposed in connection with this request.

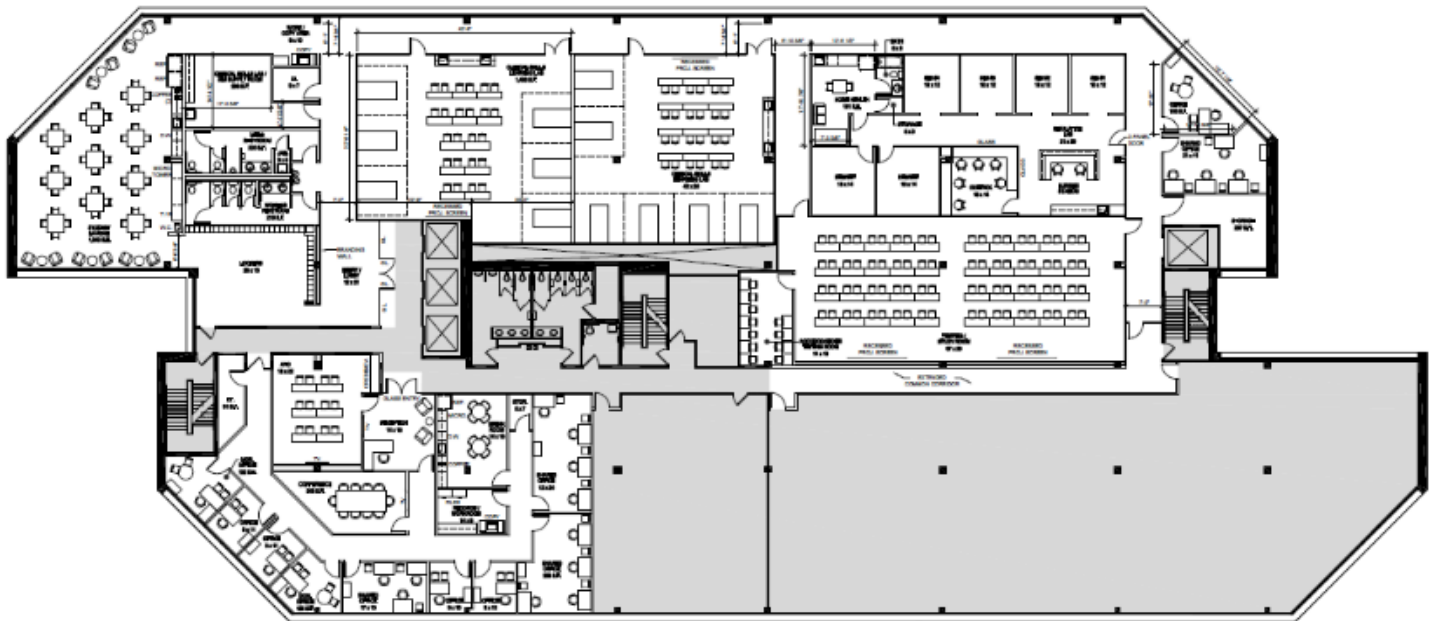


Figure 1: Proposed Floor Plan

LAND USE AND ZONING OF SURROUNDING PROPERTIES

The adjacent zoning and land uses are as follows:

DIRECTION	USE	ZONED	SEPARATED BY
North	Commercial	CB-Core Business	N/A
South	Commercial	CB-Core Business	N/A
East	Commercial	CB-Core Business	Emerson Road
West	Residential	PC-Planned Community	I-270

COMPREHENSIVE PLAN REVIEW

Creve Coeur 2030 Plan

The Creve Coeur Corporate Center is within the Mixed Use District (MU) and overlapping Central Business District (CBD) Place Type of the Creve Coeur 2030 Plan. This area is designed to create an intense, urban thoroughfare setting along Olive Boulevard on large development parcels and accommodate numerous land uses including “day to day” retail and service businesses utilized by Creve Coeur’s residents and workers while allowing for increased density and new land uses (p. 58-9.). Staff believes the proposed use does not present any conflicts with the goals of the comprehensive plan.

Parking

The Creve Coeur Center development consists of four buildings. Buildings I and II share parking spaces and buildings III and IV share parking spaces. For the purpose of this Conditional Use Permit, the parking requirements for buildings I and II were reviewed for compliance with Section 405.820 *Required Off-Street Parking Spaces*. For office developments, the gross leasable floor area used for calculating parking requirements is 85% of the gross floor area of the entire building. Building I has a gross floor area of 123,861 square feet and building II has a gross floor area of 154,820 square feet. 85% of the gross floor area for those two buildings is 236,879 square feet. Both buildings have over 15,000 square feet of gross leasable floor area so their parking is calculated at 3.3 parking stalls per 1,000 feet of gross leasable floor area. The required number of parking stalls for this complex is 782 where 933 are available on site. Neither of these two buildings are above 70% capacity per the submitted rent roll.

Parking regulations for colleges, universities, business schools and technical/vocational schools are discussed under Section 405.820(H)(10)(b) *Required Off-Street Parking Spaces*. One (1) space for every two (2) students based on the maximum design capacity of the school plus one (1) space for every employee. The maximum design capacity of the school is 92 total including students and faculty with a maximum of 72 students at a time leaving a maximum of 20 faculty at a time. Based on the above parking calculations for this use, 56 parking spaces are required. According to the documentation submitted by the applicant, The Creve Coeur Center development has a total of 933 parking spaces shared between Creve Coeur Center building I and Creve Coeur Center building II. Staff does not anticipate any parking concerns based on the review of existing parking spaces.

CONCLUSION AND RECOMMENDED CONDITIONS OF APPROVAL

Staff finds that the proposal is not inconsistent with the Comprehensive Plan and satisfies the Zoning Regulations for conditional uses. After discussion with the applicant, if the Planning and Zoning Commission finds that the Application is in conformance with the purposes and regulations of the Comprehensive Plan and Zoning Code, it may vote on a recommendation to the City Council with any changes discussed and made by separate actions.

The following are the recommended conditions of approval for this proposal.

1. The Conditional Use Permit shall be for the operation of an approximately 19,244 square foot Colleges, Universities, and Professional Schools establishment, NAICS 611310, at 721 Emerson Road, within the Creve Coeur Center development.
2. Hours of operation shall be 8:00 AM to 6:00 PM Monday through Friday. Additional business hours may be permitted with the Zoning Administrator's approval.
3. All signs and banners shall be in conformance with Article VIII, Sign Regulations, of the Zoning Code and require permit approval.
4. Any future enlargement, extension, expansion, or alteration in the use of the structures or site must be approved by the City Council upon receipt of the recommendation of the Planning and Zoning Commission as an amendment to the Conditional Use Permit before a Building Permit for the enlargement, expansion or alteration may be issued.
5. Failure to comply with any one or all of the conditions of this permit shall be adequate cause for the revocation of said permit by the City Council, provided, however, no permit shall be revoked without prior notice to the owner of the intention of the City Council to revoke this permit and reasonable time granted to the owner to correct or remedy any such breach of conditions, except for repeated breaches or violations.
6. No conditional use permit granted by the City Council shall be valid for a period longer than one year from the date it grants the conditional use permit, unless within such period: (1) a building permit is obtained and construction is begun; or (2) if a building permit is not required, an occupancy permit is obtained, and the use of the building commenced. The City Council may grant extensions to the one (1) year period of not more than one hundred and eighty (180) days each, without notice or hearing, provided that a written request for such extension is filed by the original applicant and approved by the City Council prior to the date the conditional use permit is scheduled to expire.
7. Any transfer of ownership or lease of the property shall include in the transfer or lease agreement a provision that the purchaser or lessee agrees to be bound by the approved Conditional Use Permit for the property and the conditions herein set forth, and written confirmation thereof signed by the new owner or lessee shall be filed with the City at the time of such transfer or lease. Failure to comply with this provision shall not excuse anyone from these conditions.

ACTION AND MOTION

The following is an example of an appropriate motion for this application:

"I move to recommend approval of a Conditional Use Permit for a Grand Canyon University establishment within the Creve Coeur Corporate Center development at 721 Emerson Road, subject to the conditions discussed in the Staff Report and Draft Ordinance for the meeting of June 5, 2023" (conditions may be added, eliminated, or modified by preceding motion).

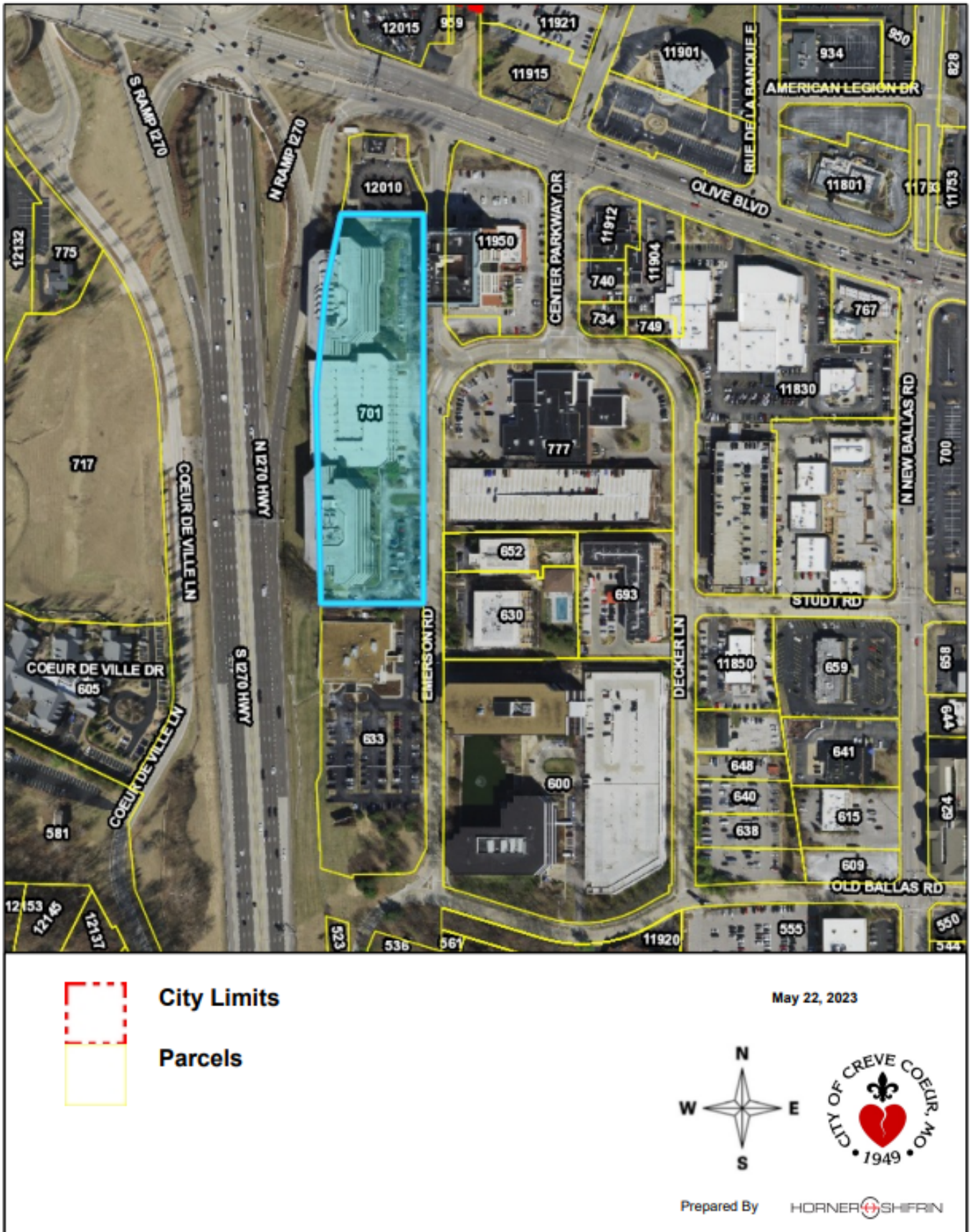
APPENDIX 1: COMPREHENSIVE PLAN

Included and attached by reference. See body of report for specific excerpts.

APPENDIX 2: ZONING CODE

Included and attached by reference. See body of report for specific excerpts.

APPENDIX 3: AERIAL MAP



APPENDIX 4: SITE PHOTOGRAPHS	
	Description:
	Description:



city
of

CREVE COEUR

PLANNING DIVISION

File # _____

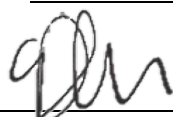
300 North New Ballas Road, Creve Coeur, Missouri 63141

Tel. (314) 872-2501 • Fax (314) 872-2505

PLANNING AND ZONING COMMISSION AGENDA APPLICATION CONDITIONAL USE PERMIT

PLEASE COMPLETE FRONT AND BACK PAGES

Applicant:	Applicant's Representative (if applicable):
Ted Bernstein <i>Name</i> Orbis Education Services <i>Company (If Applicable)</i> 301 Pennsylvania Parkway <i>Address</i> Indianapolis, IN 46280 <i>Address</i> Telephone # 317-965-0062 Fax # 317-429-0165 Email: ted.bernstein@orbisedcuation.com <i>Ted Bernstein</i> <i>Applicant's Signature</i>	<i>Name</i> <i>Company (If Applicable)</i> <i>Address</i> <i>Address</i> Telephone # _____ Fax # _____ Email: _____ <i>Applicant's Representative's Signature</i>

Property Information:	Owner's Acknowledgement (if different from applicant):
721 Emerson Road <i>Address</i> Creve Coeur, MO 63141 <i>Address</i> Creve Coeur Center II <i>Development Name (if any)</i> CB - Core Business District <i>Current Zoning</i> <i>Prior CUP Approvals (if known)</i> _____ _____	Ellen Mills <i>Name</i> Cushman & Wakefield on behalf of Emerson Rd LLC <i>Company (If Applicable)</i> 600 Emerson Road, Suite 111 <i>Address</i> St. Louis, MO 63141 <i>Address</i> Telephone # 314-993-1882 Fax # NA Email: ellie.mills@cushwake.com  <i>Owner's Signature</i>

Description of Requested Use (attach additional sheets as needed)

General Description of Business: It will be a not-for profit nursing school offering an accelerated bachelor's degree program

See attached letter for additional information.

Gross Floor Area – Existing and Proposed: _____

Number of Seats (for restaurant only): _____

Number of Employees at the busiest shift: 84 including students

Hours of Operation: Monday-Friday 8am-6pm

Current or Most Recent Use of the Property: _____

Will the applicant apply for a liquor license: Yes ☐ No ☒

Rationale

Please describe in detail, on an attached sheet, the reasons why you believe the request for a conditional use permit should be approved and what steps are being taken to lessen any impacts on surrounding residences and businesses. An explanation of the building and landscape designs (if changes are proposed) should also be included.

Submittal Checklist

☒	Rationale	☐	Building elevations for new construction
☐	Site plan	☐	Photographs of existing structures
☐	Access and parking plan; (may be shown on site plan)	☐	Materials samples
☐	Landscape plan	☐	Legal Description in Word format
☒	Floor plan	☐	Fees: \$250 (non-refundable) \$2000 (refundable deposit)
☐	Electronic copies of all materials	☐	Other items as requested by staff

Preferred Public Hearing Date: Monday, June 5th, 2023.

****See Planning & Zoning Commission schedule and confirm available meeting dates with Planning Division staff****

Office Use Only

____ All Sections Complete

____ All Documents, incl. e-Copies

____ Fees Paid

Received By: _____

Date: _____

Revised: 7/22



4/12/23

Planning and Zoning Commission
City of Creve Coeur
300 North New Ballas Road
Creve Coeur, MO 63141

Re: CUP for Orbis Education/Grand Canyon University
721 Emerson Road
Creve Coeur, MO 63141

Dear City Planner,

Orbis Education in Partnership with Grand Canyon Education ("GCU") is planning to offer GCU's Accelerated Bachelor's in Nursing Degree program in Creve Coeur. The demand for qualified nurses in the local community continues to increase. This partnership provides a pathway for individuals to become bachelors prepared nurses in as little as fifteen months.

The nursing degree we will be offering is a hybrid online program where all classwork is conducted online (didactic) and offsite (clinical). Students come in for weekly testing sessions, clinical skills training and simulations. The balance of the student learning will take place via rotations through the Mercy Hospital system and their facilities.

Our hours of operation are M-F, 8am-6pm however given the hybrid nature of the program students are not onsite every day and when they are onsite, they are not there all day.

Our goal is to enroll 48 students per start, once operating in a steady state environment, however it may take time to get to that level. Our staff will be comprised of administrative personal, full time and adjunct faculty. At full capacity we will have 12-15 full time and 10-12 part time employees. Recently, we have implemented a hybrid remote work policy that allows employee flexibility and will further reduce the number of hours each individual will be onsite while maintaining onsite presence to maximize student success outcomes.

We selected this location as it is close to many of the hospital and medical facilities where the students will be doing their clinical training. It also has easy highway access and several fast-casual food option within close proximity.

We believe our use is compatible with the adjacent uses and businesses in the area while at the same time helping to reduce the local nursing shortage that is putting a strain on the hospital systems. The students who attend these programs have historically given back to the community by volunteering and participating in charitable activities. The positive impact to the local businesses, hospitals and the city will go beyond what can be described in this letter.



If you would like to learn more about GCU's nursing program and or Orbis Education, please visit to the following websites: [Accelerated BSN \(ABSN\) Degree Program - Earn in 16 Months | GCU](#) and <https://orbiseducation.com/>

Please do not hesitate to reach out if you have any questions or need additional information.

Thank you,

Ted Bernstein

Ted Bernstein
Orbis Education
VP, Site Planning, Construction and Development

**CREVE COEUR CENTER
STACKING PLAN**

28-Apr TENANT INFORMATION CHART CREVE COEUR CENTER I 701 Emerson											
5th	500 Clark, Richardson and Biskup Consulting Engineers, Inc. 27,971 sf 1/31/2024								27,971	Lease Expiration Date Color Codes VACANT MTM 2023 2024 2025 2026 2027 2028+ Building Space	
4th	400 Intelliteach 24,223 sf 3/31/2024					475 Clark, Richardson and Biskup Consulting Engineers, Inc. 4,105 sf 4/30/2024			28,328		
3rd	300 Vacant 26,119 sf								26,119		
2nd	201 Kiefer Bonfanti & Co., LLP 7,320 sf 11/30/2024	275 Vacant 2,424 sf	220 Vacant 1,401 sf	222 Vacant 964 sf	Conference Room 583 sf	224 Vacant 1,272 sf	244 Edward Jones 940 sf 2/28/2026	250 WSP, Inc. 5,996 sf 5/31/2027	260 Community Mortgage 981 sf 1/31/2026		21,298
1st	100 Vacant 2,384 sf	110 Vacant 1,077 sf		Lobby 1,288 sf		120 Intelliteach 6,639 sf 3/31/2024		140 Vacant 6,314 sf	130 Intelliteach 3,643 sf 3/31/2024		20,145
								Total Building RSF	123,861		
								Total Leased RSF	81,906		
								RSF Available	41,955		
								% Occupancy	66.13%		

Lease Expiration Date
Color Codes
VACANT
MTM
2023
2024
2025
2026
2027
2028+
Building Space

28-Apr TENANT INFORMATION CHART CREVE COEUR CENTER II 721 Emerson											
Roof	Sprint Spectrum Roof Antenna Flat Monthly Rate M-M (9/30/2031)										
6th	600 Vacant 27,317 sf								27,317	Lease Expiration Date Color Codes	
5th	500 ORBIS/GCU (Future) 19,244 SF est. 12/31/2034					500B Synchrony 3,000 sf MTM	575 Vacant 5,446 sf		27,690	VACANT	
4th	400 CBIZ 17,298 sf 4/30/2027					425 Vacant 6,937 sf		450 DSV 3,782 sf 8/31/2025	28,017	MTM 2023 2024 2025 2026 2027 2028+ Building Space	
3rd	300 Vacant 26,595 sf								26,595		
2nd	200 Vacant 22,157 sf								22,157		
1st	100 Caliber Homes 2,963 SF 12/31/2026	120 Vacant 2,625 SF	Building Conference Room 613 sf	Building Cafeteria 1,372 sf		150 NECA 2,160 sf 6/30/2027	Lobby 1,800 sf		9,930		
BSMT	L10L Vacant Storage - 1,342 sf	LL10D Vacant Storage - 225 sf	L10E - WSP/Golder 703sf 5/31/2027	Storage - 2,367 sf		L10B Vacant Storage- 1,603 sf	L10M Vacant Storage 151 sf	L10G Building 3,930 sf	L10H Building 2,502 sf	L10N Vacant 151 sf	12,994
GAR	Metropolitan Fiber (MCI) 120 sf MTM									120	
Total Building RSF										154,820	
Total Leased RSF										86,373	
RSF Available										69,447	
% Occupancy										55.14%	

Lease Expiration Date
Color Codes
VACANT
MTM
2023
2024
2025
2026
2027
2028+
Building Space

701/721 Garage	754
701 Surface	68
Shared	53
721 Surface	38
721 Exec Garage	20
Total	933



5TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

19,412 R.S.F.
SQUARE FOOTAGE IS APPROXIMATE
AND MUST BE FIELD VERIFIED

LEGEND

- EXISTING PARTITION
- NEW PARTITION
- PARTIAL HEIGHT PARTITION
- NEW DOOR
- NEW PAIR OF DOORS
INDICATES ACTIVE LEAF
- EXISTING DOOR
- EXISTING DOOR TO BE REMOVED
- EXISTING PARTITION TO BE REMOVED

Authorization Block

The signature below acknowledges review
and approval of this preliminary suite
layout. Any changes to this plan
requires additional architectural services.

signature

date

GRAY DESIGN GROUP

Gray Design Group, Inc. © 2023
Mo - Architectural Corporation No. 000553

9 Sunnen Drive, Suite 110
Saint Louis, Missouri 63143
Telephone 314.646.0400
www.graydesigngroup.com

Contact: Danielle Finch
Produced By: Danielle Finch
Reviewed By: Laurie Williams

No.	Description	Date
	Tenant Review	02.03.23
	Tenant Comments	02.13.23
	Tenant Comments	02.20.23
	Tenant Comments	03.10.23

GRAND CANYON UNIVERSITY

Preliminary Space Plan For:

721 Emerson Rd. - Suite 500
Creve Coeur, MO 63141

SPACE PLAN

gray

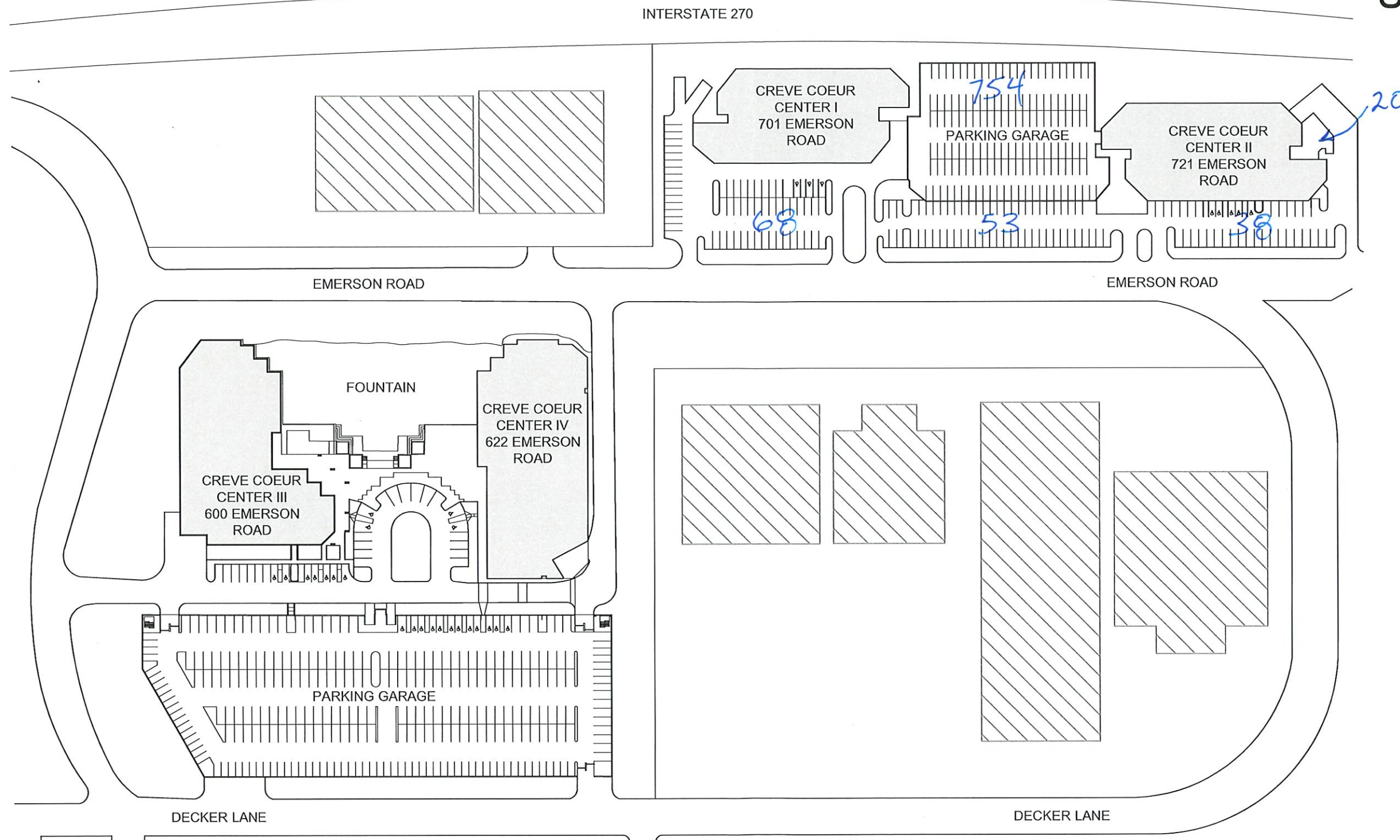
NOT FOR
CONSTRUCTION

Job: 27123020.00

P1R3

SITE PLAN

February 2013

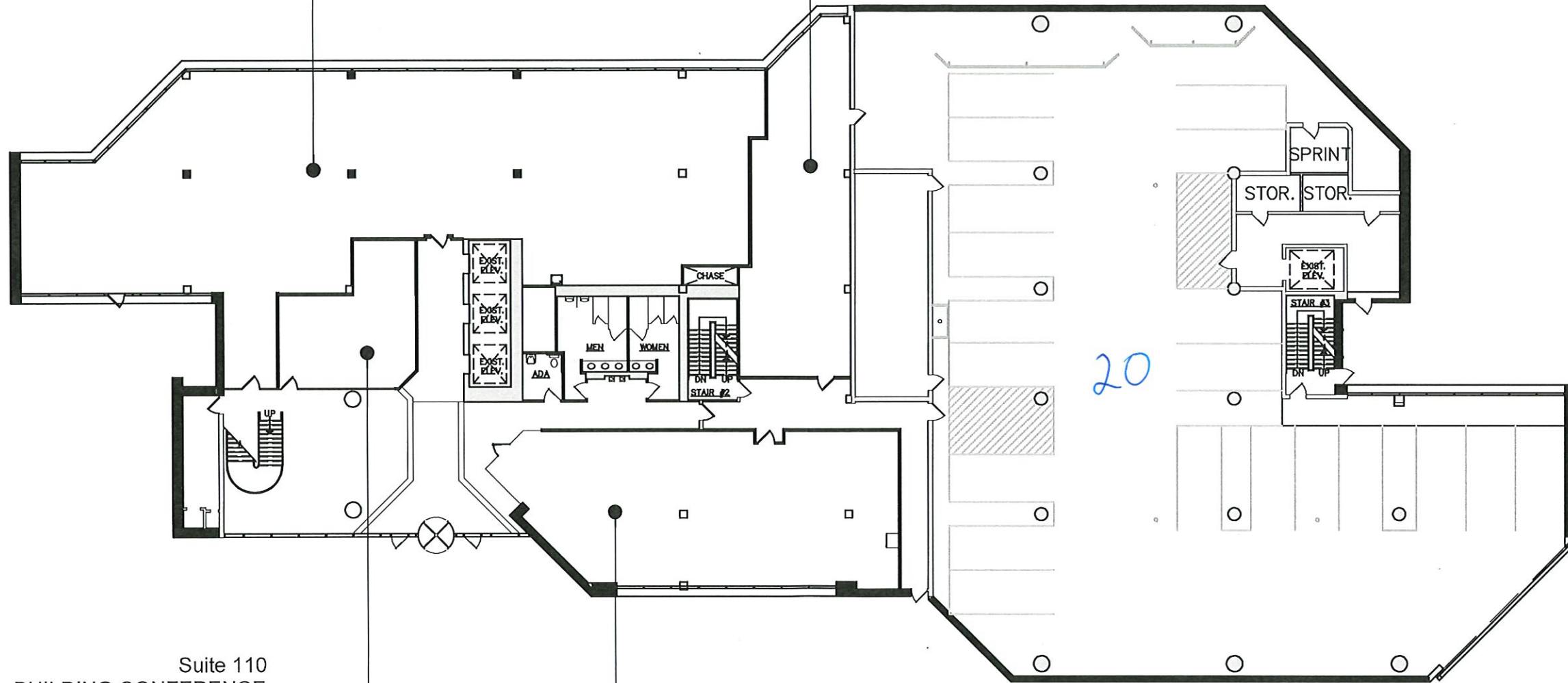


Suite 100
CALIBER HOME LOANS
5,588 S.F.
Expires: 11.30.22

Suite 130
BUILDING CAFE
1,372 S.F.
Expires TBD

1st Floor

March 2022



Suite 110
BUILDING CONFERENCE
613 S.F.
Expires TBD

Suite 150
NECA 2,160 S.F.
Expires 06.30.27

Square Footage: Rentable

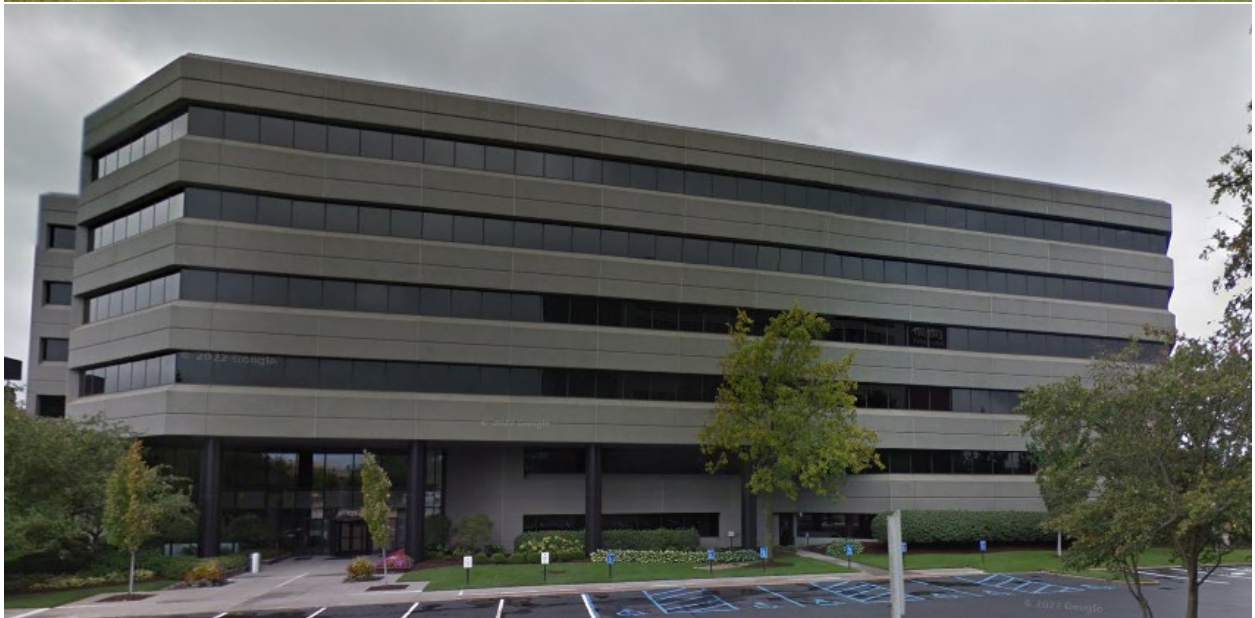
Note: The square footages shown have been provided by others and have not been field verified.



CREVE COEUR CENTER II

721 Emerson Road
St. Louis, Missouri 63141







TRACT I - Phases I and II:

A tract of land being CREVE COEUR CORPORATE CENTER, a subdivision according to the plat thereof recorded in Plat Book 238 Page 47 of the St. Louis County Records, in Section 3, Township 45 North, Range 5 East, St. Louis County, Missouri and being more particularly described as:

Beginning at a point on the East right-of-way line of Interstate Highway 1-270 (formerly I-244), being the Southwest corner of property conveyed to Sir Lion of Creve Coeur, Inc. by deed recorded in Book 6383 Page 1075 of the St. Louis County Records; thence Eastwardly along the South line of Sir Lion of Creve Coeur, Inc. property South 89 degrees 16 minutes 00 seconds East 205.26 feet to the West line of Emerson Avenue 50 feet wide; thence Southwardly along said West line of Emerson Avenue, 50 feet wide, South 0 degrees 09 minutes 00 seconds West 938.67 feet to a point; thence North 89 degrees 14 minutes 10 seconds West 245.18 feet along the North line of Emerson Terrace, a subdivision according to the plat thereof recorded in Plat Book 38 Page 37 of the St. Louis County Records to a point; thence North 02 degrees 21 minutes 36 seconds West 500.10 feet to a point on aforesaid East right-of-way line of Interstate I-270 (formerly 1-244); thence Northwardly along said East right-of-way line North 04 degrees 50 minutes 05 seconds East 261.96 feet and North 12 degrees 59 minutes 10 seconds East 181.96 feet to the point of beginning.

AN ORDINANCE OF THE CITY OF CREVE COEUR, MISSOURI, REGARDING CHANGES TO RETIREMENT PLANS FOR CITY EMPLOYEES.

WHEREAS, the City currently maintains a frozen defined benefit retirement plan for employees hired before June 1, 2006 (the Legacy Plan); and

WHEREAS, the City provides retirement benefits for its eligible employees hired on or after June 1, 2006 under the Missouri Local Government Employees Retirement System (LAGERS), pursuant to the provisions of Sections 70.600 through 70.755, RSMo; and

WHEREAS, the City also sponsors and makes contributions under a defined contribution plan for the benefit of employees, which plan is identified as MissionSquare Retirement, City of Creve Coeur – 401a Plan (the DC Plan); and

WHEREAS, the City Council has been evaluating potential changes related to the aforesaid retirement plans, including:

- cost of living adjustments (COLAs) to benefits paid pursuant to the Legacy Plan
- closing the Legacy Plan as to active employees, and causing such employees to cease to be participants in the Legacy Plan and instead be eligible for retirement benefits with LAGERS
- changing the benefit structure for future retirees pursuant to LAGERS
- transferring the administration and assets of the Legacy Plan from the current Board of Trustees to the board of LAGERS
- ceasing to make contributions to the DC Plan

WHEREAS, the City has complied with the notice and filing requirements of Section 105.675 RSMo regarding the aforesaid changes to the Legacy Plan; and

WHEREAS, the Pension Board of the Legacy Plan has approved the transfer of the administration and assets of that Plan to the board of LAGERS; and

WHEREAS, LAGERS has indicated it is willing to accommodate the aforesaid changes; and

WHEREAS, the current employees who were hired before June 1, 2006 voted in favor of closing the Legacy Plan to them and gaining eligibility under LAGERS; and

WHEREAS, all persons who presented themselves before the City Council and desiring to be heard were given an opportunity to be heard and a copy of the proposed ordinance has been made available for public inspection prior to its consideration by the City Council; and the Bill was read by title in open meeting two times before final passage by the City Council; and

WHEREAS, the City Council has determined that the changes approved in this Ordinance are in the best interests of its retirees and employees/future retirees, and the City as an employer, and thus in the best interests of the public;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI, as follows:

Section 1. The Amended and Restated Defined Benefit Retirement Plan for Employees of the City of Creve Coeur attached hereto as **Exhibit 1** is hereby approved, thereby providing for COLAs under that Legacy Plan (in Section 4.04) and facilitating the transfer of administration and assets of the Plan to the board of LAGERS. The City Administrator is authorized to execute the Amended and Restated Plan and the City Clerk is authorized to attest thereto. The agreement as executed shall be in the form attached hereto as **Exhibit 1** subject to final changes consistent with the provisions and intent of this Ordinance, and necessary, desirable, convenient or proper in order to carry out the matters herein authorized. The City Administrator and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient or proper in order to carry out the intent of this Ordinance, the matters herein authorized, and the rights and duties of the City under the Amended and Restated Plan.

Section 2. The Legacy Plan shall be closed effective August 31, 2023 as to all active employees who are Participants in the Legacy Plan, and any subsequently rehired employee who would otherwise thereby have become a Participant in the Legacy Plan, causing all such persons to cease to be such Participants and instead become members or potential members in LAGERS through the City's participation therein under Sections 70.600 et seq RSMo. The City elects that 100% of prior employment with the City be considered for prior service credit in computing benefits and contributions under LAGERS.

Section 3. Effective September 1, 2023, the benefit structure under LAGERS for future retirees shall be changed to Benefit program L-6 in accordance with Section 70.655.1 RSMo, with a 4% employee contribution, whereby a member with credited service covered by benefit program L-6 shall receive an allowance for life equal to two percent of the member's final average salary multiplied by the number of years of such credited service. The City hereby accepts the legal obligation to fund the elected Benefit program now and in the future, and that it has the financial ability to do so. The Director of the Finance Department and her designees are authorized to deduct from the wages or salaries of each employee member the employee contributions required as a result of this election and Section 70.705 RSMo and to promptly remit such contributions to LAGERS, along with the employer contributions required by Sections 70.705, 70.730 and 70.735 RSMo.

Section 4. The Joinder Agreement between the City, LAGERS, and the Board of Trustees of the Defined Benefit Retirement Plan for Employees of the City of Creve Coeur, Missouri, regarding transfer of administration and assets of the Legacy Plan attached hereto as **Exhibit 2** is hereby approved. The City Administrator is authorized to execute the Joinder Agreement and the City Clerk is authorized to attest thereto. The agreement as executed shall be in the form attached hereto as **Exhibit 2** subject to final

changes consistent with the provisions and intent of this Ordinance, and necessary, desirable, convenient or proper in order to carry out the matters herein authorized. The City Administrator and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient or proper in order to carry out the intent of this Ordinance, the matters herein authorized, and the rights and duties of the City under the Joinder Agreement.

Section 5. The City agrees to hold LAGERS harmless from any liability with respect to these transactions, apart from those obligations imposed on LAGERS by Sections 70.600 - 70. 755 RSMo, provided the transactions are completed according to the terms contained herein.

Section 6. That the City Administrator and his designees are hereby authorized and directed to take all actions, sign all documents, and to do any and all things and take any and all actions required to effectuate this Ordinance.

Section 7. The City Clerk shall provide a certified copy of this Ordinance to the LAGERS board of trustees within 10 days after enactment hereof.

Section 8. Effective August 31, 2023, the DC Plan shall be frozen, and no further contributions or participants shall be added.

Section 9. This ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter.

ADOPTED THIS _____ DAY OF _____, 2023.

NICOLE GREER
PRESIDENT OF CITY COUNCIL

APPROVED THIS ____ DAY OF _____, 2023.

ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK

BILL NO. 6071

ORDINANCE NO. _____

CERTIFICATION

I hereby certify that the above Ordinance No. _____ is a true and correct copy of an Ordinance that was duly enacted by the City Council of the City of Creve Coeur, Missouri.

Date

Kellie Henke, City Clerk



MEMORANDUM

DATE: June 20, 2023

TO: Mark Perkins, City Administrator

FROM: Lori Obermoeller, Director of Finance

SUBJECT: Pension Changes

In 2017, all Creve Coeur employees hired after June of 2006 were enrolled in the Missouri Local Government Employees Retirement System (LAGERS). Employees hired prior to June 2006 stayed in the City's Legacy Pension Plan.

At the time of joining LAGERS, there was also a strong interest in having LAGERS assuming responsibility for administration of the Legacy Plan, as the State Legislature had recently adopted legislation allowing LAGERS to handle administration of closed public defined benefit plans. However, transferring administration of the Creve Coeur Legacy Plan to LAGERS was not practical at that time.

There is now an opportunity to transfer administration of the Plan to LAGERS, thereby reducing the city's administrative costs and financial risk. The 23 active employees in the Legacy plan would be transferred to a LAGERS benefit with their previous service credit.

After considerable discussion with the City Council, Pension Board and Finance Committee over the past several months, the City Council requested staff to prepare the necessary legislation to close the Legacy Retirement Plan and transfer administration to LAGERS. Therefore, the attached Memo, Resolution and Joinder Agreement were submitted and approved by the Pension Board on May 31, 2023. The Joinder Agreement now needs to be approved by City Council.

Prior to the transfer of the administration of the Legacy Plan to LAGERS, the City Council indicated its desire to provide a cost-of-living adjustment to retirees, who have not received a COLA since 2002. The City Council asked staff to draft legislation providing for a COLA of 0.75% for each year of retirement since 2002, and 0.5% annually going forward. Attached is a red-lined copy of the Plan document changes to address the COLA now and in the future.

During the budget work sessions, City Council also directed staff to move forward with changing the current LAGERS benefit program from LT-8 (65) to L-6, thereby providing a more competitive retirement benefit to facilitate employee retention and recruitment. The attached ordinance addresses this benefit change as well as the intent to close the Legacy Pension Plan, stop the MissionSquare 401a city contribution to the Legacy Employees, move the current employees to LAGERS, add two types of COLAs to the Legacy Plan and to move the administration of the Legacy Plan to LAGERS.

Staff has had 2 informational meetings with Legacy Pension Plan employees explaining to them the changes. All 23 employees were asked to vote on whether they supported the changes and 100% have responded positively to the changes.

Staff is recommending the City Council approve and execute these agreements.

**Defined Benefit Retirement Plan for Employees
of the City of Creve Coeur**

Amended and Restated Effective _____, 2023

(Includes Changes Through Restatement Ord 5347, Ord 5642, 5656, 5734, _____)

Ordinance Nos.

**2131, 2147, 2157, 2295, 3067, 4008, 4038, 4072, 5067, 5072, 5112, 5203, 5267, 5347,
5642, 5656, 5734, _____.**

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Introduction

The Retirement Plan for Employees of the City of Creve Coeur (hereinafter the "Plan") is hereby amended and restated by the City of Creve Coeur, Missouri (hereinafter the "City").

The rights and benefits of Participants who are Active Participants in the Plan on or after June 26, 2001, the effective date of the restatement approved by Ordinance 2131, shall be determined as provided in this amended and restated Plan. The rights and benefits of any Participant who was not an Active Participant on or after June 26, 2001, but who is entitled to benefits under the Plan, shall be determined in accordance with the applicable provisions of the Plan in effect at the time such Participant separated from service, except as required by applicable law or regulation or except as specifically provided or changed by subsequent amendments.

It is intended that the Plan qualify under Sections 401(a) of the Code. Except as otherwise provided, the Plan and all matters relating thereto shall be governed, construed and administered in accordance with the applicable laws of the United States and the State of Missouri.

This Plan is a governmental plan under section 414(d) of the Code. This Plan was amended and restated pursuant to Ordinance No. 2131 effective June 26, 2001 and subsequent amendments pursuant to Ordinance Nos. 2147, 2157, 2295, 3067, 4008, 4038, 4072, 5067, 5072, 5112, 5203, and 5267, 5347, 5642, 5656, 5734, and .

Effective May 23, 2006, the Plan shall be known as the Defined Benefit Retirement Plan for Employees of the City of Creve Coeur and shall only apply to Participants who were Active Participants as of that date or, as provided above, to Participants who were not Active Participants as of that date but who were entitled to benefits under the Plan at that time, current Employees at that time who became Participants under Section 2.01 of the Plan, and Participants who again became Active Participants pursuant to Section 2.02(a) of the Plan. Persons who became new Employees of the City after the foregoing effective date, including pursuant to Section 2.02(b) of the Plan, shall not be eligible to become a Participant of the Plan.

Effective July 1, 2011, per Ordinance 5203, Active Participants must make required Employee Contributions as provided herein to meet Compensation and Credited Service requirements.

Effective as of the date of the 2023 amendment and restatement hereof, this Plan as hereby restated shall only apply to Persons receiving Benefits under this Plan and to Persons who are vested hereunder but whose employment with the City has terminated. Otherwise, this Plan shall be closed and all other Participants as of that date shall no longer be eligible to be a Participant in the Plan.

|

ARTICLE I

Definitions

The following terms used in the Plan have the meanings ascribed to them in Article I unless a different meaning is plainly required by the context. Some of the words and phrases used in the Plan are not defined in this Article I, but, for convenience, are defined as they are introduced into the text. Words in one gender should be deemed to include the other gender. Nouns and pronouns stated in the singular should be deemed to include the plural and the plural should be deemed to include the singular whenever appropriate. Any headings used herein are included for ease of reference only, and are not to be construed so as to alter any of the terms of the Plan.

- 1.01 Accrued Benefit means the amount of the monthly Retirement Benefit a Participant has earned as of the applicable determination date and shall be determined as provided in Article III and Article IV, as applicable.
- 1.02 Actuarial Equivalent or Actuarial Equivalence means a benefit which is of equal value at the date of determination to the benefit for which it is to be substituted. For all purposes other than lump sum benefits, Actuarial Equivalence shall be based upon an interest rate of eight percent (8%) and a mortality table constructed from eighty-five percent (85%) of the male rates and fifteen percent (15%) of the female rates from the 1971 Group Annuity Mortality Table.

For lump sum benefits, Actuarial Equivalence shall be based on the annual rate of interest on 30-year Treasury securities, as specified by the Secretary of Treasury, for the second month preceding the Plan Year in which the determination is made. For lump sum benefits, Actuarial Equivalence shall also be based on the 1983 Group Annuity Mortality Table converted to a unisex basis by assuming fifty percent (50%) males. Effective for distributions with annuity starting dates on and after July 1, 2008, Actuarial Equivalence shall be based on the applicable interest rate and applicable mortality table. Applicable interest rate means the interest rate prescribed under Code Section 417(e)(3)(C) (as it reads effective on and after January 1, 2008) as in effect for the second month prior to the calendar year in which the determination is made and the applicable mortality table means the mortality table prescribed under Code section 417(e)(3)(B) (as it reads effective on and after January 1, 2008).

As of the LAGERS Administration Effective Date, Actuarial Equivalence shall be determined by the board of LAGERS.

- 1.03 Beneficiary means a person or entity designated as such by a Participant, on a form provided by the Board of Trustees, to receive benefits payable upon the Participant's death. If no person designated as Beneficiary survives the Participant, the Beneficiary shall be the Participant's estate.

- 1.04 Board of Trustees means the committee comprised of a City Council member (to be nominated by the Mayor and ratified by the City Council), one (1) City Finance Committee member (to be designated by the Finance Committee), two (2) Plan Participants (to be elected by vote of Participants), three (3) residents of the City (to be nominated by the Mayor and ratified by the City Council and one or more of such residents may be members of the City Finance Committee), the City Administrator (ex-officio, nonvoting) and the City Finance Director (ex-officio, nonvoting).

Effective for members appointed after the September 12, 2001, each member of the Board of Trustees, other than the City Administrator and Finance Director, shall serve for a term of three (3) years, up to a maximum of three (3) consecutive terms. In the event of the resignation or removal of a member, the new member's term shall be established to complete the unexpired term of the former member. In no event shall any member of the Board of Trustees serve for more than nine (9) consecutive years.

As of the LAGERS Administration Effective Date, the Board of Trustees shall mean the board of LAGERS and the prior committee shall in due course be dissolved.

- 1.05 City means City of Creve Coeur, Missouri.
- 1.06 City Council means the City Council of the City of Creve Coeur, Missouri.
- 1.07 Code means the Internal Revenue Code of 1986 as amended from time to time. All references to specific Code sections are deemed to be references to such sections as they may be amended or superseded.
- 1.08 Compensation.¹
- (a) Compensation means the Participant's earnings during employment with the City. Earnings shall include wages and salary, and longevity pay, but shall not include bonuses, commissions, overtime pay, expense allowances, pay in lieu of vacation, holiday pay and other similar items. Earnings include any amount which is not includable in the gross income of the Employee under Sections 125(a)(8), 402(h), 403(b) or 457 of the Code. Only employees last hired before August 1, 2004 are entitled to longevity pay. Notwithstanding any other provision of this Plan, no employee last hired on or after August 1, 2004 is entitled to longevity pay.

Compensation of each Participant taken into account under the Plan for determining all benefits provided under the Plan for any determination period shall not exceed the limit on Compensation prescribed in Section 401(a)(17) of the Code (the "Section 401(a)(17) Limit"). For Plan Years beginning before January 1, 2002, the limit is one hundred fifty thousand dollars (\$150,000), as adjusted for increases

¹ Version effective as of July 1, 2002

in the cost of living in accordance with Section 401(a)(17)(B) of the Code. For Plan Years beginning on or after January 1, 2002, the Section 401(a)(17) Limit shall be two hundred thousand dollars (\$200,000) as adjusted for increases in the cost of living in accordance with Code Section 401(a)(17)(B). The cost of living adjustment in effect on January 1 of any calendar year shall apply to any determination period beginning in such calendar year. For this purpose, the "determination period" is any period not exceeding twelve (12) months over which Compensation is determined. If a determination period consists of fewer than twelve (12) months, the Section 401(a)(17) Limit will be multiplied by a fraction, the numerator of which is the number of months in the determination period, and the denominator of which is twelve (12).

For Plan Years beginning before January 1, 1997, in determining the Compensation of a Participant for purposes of this limitation, the rules of Section 414(q)(6) of the Code shall apply, except in applying such rules, the term "family" shall include only the Spouse of the participant and any lineal descendant of the Participant who has not attained the age of nineteen (19) years before the close of the year. If, as a result of the application of such rules, the adjusted Section 401(a)(17) Limit is exceeded, then the limitation shall be prorated among the affected individuals in proportion to each such individual's Compensation as determined under this Section prior to the application of this limitation. This paragraph shall not apply in calculating Compensation for Plan Years beginning on and after January 1, 1997.

If Compensation for any prior determination period is taken into account in determining a Participant's benefits accruing in the current Plan Year, the Compensation for the prior determination period is subject to the adjusted 401(a)(17) Limit in effect for that prior determination period. For benefits accruing in Plan Years beginning on or after January 1, 1994 and before January 1, 2002, with respect to determination periods beginning before the first day of the first Plan Year beginning on or after January 1, 1994, the Section 401(a)(17) Limit is one hundred and fifty thousand dollars (\$150,000). For benefits accruing in Plan Years beginning on or after January 1, 2002 with respect to determination periods before such date, the Section 401(a)(17) Limits is two hundred thousand dollars (\$200,000).

- (b) Final Average Compensation means the monthly average of a Participant's Compensation over the sixty (60) consecutive months out of the last one hundred twenty (120) months of employment immediately preceding the applicable determination date which produces the highest average. If a Participant does not have the requisite amount of service described above, Final Average Compensation shall be determined on the basis of his entire period of employment as an Employee. In making such calculation, Compensation paid in any month after June 30, 2011 in which a Participant does not make required Employee Contributions shall be disregarded.

- 1.09 Early Retirement Age means the date on which the Participant first attains age fifty (50) and has completed at least twenty (20) years of Credited Service. Early Retirement Date means the date the Participant elects to receive his Retirement Benefits under the Plan where such date is the first day of any month coinciding with or following the Participant's attainment of his Early Retirement Age but is prior to the Participant's attainment of his Normal Retirement Age.
- 1.10 Employee means a person employed by the City.
- 1.10.1 Employee Contributions refer to contributions required to be made by Participants pursuant to Article X.
- 1.11 Entry Date means the date an Employee may enter the Plan. The Entry Date shall be the July 1 coinciding with or next following the date the Employee satisfies the eligibility requirements set out in Section 2.01 of the Plan.
- 1.12 Full-Time Employee means a person duly employed by the City in a position for which employment with the City is at least 35 hours per seven-day work period.
- 1.12.1 LAGERS means the Missouri Local Government Employees Retirement System.
- 1.12.2 LAGERS Administration Effective Date means the date the City delegates and cedes to LAGERS all duties and responsibilities of operating the Plan in accordance with Section 70.621 RSMo.
- 1.13 Late Retirement Date means the first day of the month coinciding with or immediately following the date a Participant retires, where such date is after his Normal Retirement Date.
- 1.14 Military Leave means leave granted by the City to enable an Employee to serve in the armed forces of the United States of America.
- 1.15 Normal Retirement Age means (a) for a Participant who is a uniformed police officer, the date the Participant attains age fifty-five (55), and (b) for any other Participant, the date the Participant attains age sixty-five. Normal Retirement Date means the first day of the month coinciding with or next following the date the Participant attains his Normal Retirement Age. A Participant shall be one hundred percent (100%) vested in his Accrued Benefit upon the attainment of Normal Retirement Age.
- 1.16 Participant means any Employee who becomes eligible to participate in the Plan pursuant to Article II and who continues to be entitled to any benefits under the Plan. An Active Participant means any Participant who is a Full-Time Employee of the City on a determination date. An Inactive Participant means any Participant

who has ceased to be a Full-Time Employee but who continues to be an Employee of the City.

- 1.17 Plan means Defined Benefit Retirement Plan for Employees of the City of Creve Coeur as it may from time to time be amended.
- 1.18 Plan Year means the twelve (12) consecutive month period beginning on July 1 and ending on the next following June 30.
- 1.19 Retirement Benefit or Benefit means the amount to which a Participant shall become entitled, is entitled to or is receiving under this Plan, pursuant to Articles III or IV.
- 1.20 Spouse means the person to whom the Participant is legally married at the relevant time.
- 1.21 Trust Fund means all sums of money or other property held by the Trustee for the purpose of providing benefits under the Plan.
- 1.22 Trustee means the Board of Trustees or successors thereto appointed to administer the Trust Fund as stated in Section 1.04.
- 1.23 Unreduced Early Retirement Age means the date that the sum of the Participant's age and years of Credited Service equals eighty-five (85). In determining the sum of a Participant's age and Credited Service, completed years and completed months of both age and Credited Service shall be used. Unreduced Early Retirement Date means the date the Participant elects to receive his Retirement Benefits under the Plan where such date is the first day of any month coinciding with or following the Participant's attainment of his Unreduced Early Retirement Age but is prior to the Participant's attainment of his Normal Retirement Age.
- 1.24 Year of Service and other service measurements under the Plan shall be determined utilizing the special definitions of this Section.
 - (a) Continuous Service means a period of time commencing on the day the Employee is first employed or reemployed by the City (whichever is applicable) and ending on the date the Employee ceases to be employed by the City.
 - (b) A Period of Severance means the period of time commencing on a Termination Date and ending on the date the Employee again performs an hour of service with the City as a Full-Time Employee.
 - (c) Termination Date means:

- (i) The date the Employee resigns, retires, dies, or is discharged from employment with the City, or
- (ii) The date the Employee ceases to be a Full-Time Employee.

Absences from employment while an Employee is on an authorized leave of absence, Military Leave, or absences which are authorized uses of sick leave or Family Medical and Leave Act leave or vacation leave shall not be treated as a Termination Date or Period of Severance for purposes of the Plan.

- (d) Credited Service means all years and completed months of service as a Full-Time Employee of the City. Credited Service shall include:
 - (i) The first two (2) months of any leave of absence authorized by the City; or
 - (ii) Any period of absence under a Military Leave to the extent such period is required to be credited as Credited Service under applicable Federal or State law.

Notwithstanding the foregoing, as to any Participant who is a DROP Participant pursuant to Article XII, the crediting of Years of Service, Continuous Service and Credited Service shall be subject to Article XII; furthermore, Credited Service shall not include any month after June 30, 2011 during which a Participant does not make required Employee Contributions.

ARTICLE II

Service

2.01 Eligibility Requirements. Each Employee who was a Participant in the Plan immediately prior to June 26, 2001 shall continue to be a Participant subject to the terms and conditions of this Plan. Each other Employee shall become a Participant in this Plan on the Entry Date coinciding with or next the date he meets each of the following requirements:

- (a) He is a Full-Time Employee;
- (b) He has attained age twenty-one (21); and
- (c) He has completed two (2) Years of Continuous Service.

No person who becomes a new Employee of the City after May 23, 2006, including pursuant to Section 2.02(b), shall be eligible to become a Participant in the Plan.

Effective as of the date of the 2023 amendment and restatement hereof, this Plan as hereby amended shall only apply to Persons receiving Benefits under this Plan and to Persons who are vested hereunder but whose employment with the City has terminated. Otherwise, this Plan shall be closed and all other Participants as of that date shall no longer be eligible to be a Participant in the Plan.

2.02 Participation after a Termination Date.

- (a) A Participant who had a Termination Date prior to the time he became vested in any portion of his Accrued Benefit shall again become an Active Participant in the Plan on the Entry Date that coincides with or next follows the date he subsequently resumes employment as a Full-Time Employee, if such employment occurs within five years of such Termination Date.
- (b) A Participant described in subsection (a) who does not resume employment as a Full-Time Employee within five years of his Termination Date will be treated, upon subsequent reemployment as a new employee subject to the participation requirements of Section 2.01.

Effective as of the date of the 2023 amendment and restatement hereof, a Participant who had Termination Date prior to becoming vested shall not be eligible to again become an Active Participant in the Plan.

2.03 Inactive Participants. Subject to Section 2.04, an Inactive Participant shall not be credited with Credited Service or Compensation for the period he is an Inactive Participant but shall continue to be credited with years of Continuous Service until employment with the City ceases.

2.04 Disregard of Credited Service. If a Participant has a Termination Date prior to vesting in any portion of his Accrued Benefit, Credited Service earned before such Termination Date shall not be taken into account unless the Participant resumes employment as a Full-Time Employee within five (5) Years of his Termination Date and then completes an additional five years of Continuous Service.

2.05 Vesting in Accrued Benefit. A Participant shall become 100% vested in his Accrued Benefit upon completion of eight (8) years of Credited Service. A Participant who has not completed eight (8) years of Credited Service shall become vested in his Accrued Benefit according to the following schedule:

Sum of Participant's Age as of Last Birthday and years of Credited Service	Vested Percentage
Less than 50	0%
50	50%
51	60%
52	70%
53	80%
54	90%
55 and above	100%

2.06 Uniform Services Employment and Reemployment Rights Act of 1994. Notwithstanding any provision of this Plan to the contrary, effective December 12, 1994 contributions, Benefits and Credited Service with respect to qualified military service will be provided in accordance with Section 414(u) of the Code. Effective January 1, 2007, in the case of a Participant who dies while performing qualified military service (as defined in Code section 414(u) and any related legislation or guidance) and while his reemployment rights are protected by the Uniformed Services Employment and Reemployment Rights Act of 1994, for purposes of determining eligibility for any additional benefits to which a Participant's survivors would have become entitled if he had been employed by the Employer on his date of death (including computation of a Participant's vested percentage, but excluding benefit accruals relating to the period of such qualified military service) such Participant will be deemed to have resumed employment prior to his or her death and then to have terminated employment on account of death.

2.07 Employee Contributions. Credited Service shall not include any month after June 30, 2011 during which a Participant does not make a required Employee Contributions.

ARTICLE III

Retirement Benefits

- 3.01 Normal Retirement Benefit. A Participant who retires on his Normal Retirement Date shall be entitled to a monthly Retirement Benefit commencing on his Normal Retirement Date equal to the product of: (a) one and seven tenths percent (1.7%) of the Participant's Final Average Compensation multiplied by (b) the Participant's Credited Service, not to exceed thirty (30) years.

Notwithstanding the foregoing, for those Employees who were Active Participants in the Plan on June 30, 2001, item (a) above shall be two percent (2%) of the Participant's Final Average Compensation. The preceding sentence shall not apply to those Employees who were Active Participants in the Plan on June 30, 2001 but who filed a timely and proper election with the Plan Administrator on forms provided by the Plan Administrator to instead participate in the City of Creve Coeur Employees' Money Purchase Pension Plan. The foregoing election was timely filed if it was received by the Plan Administrator on or before July 31, 2001.

Notwithstanding the above, for those Employees hired before July 1, 1994, the foregoing Normal Retirement Benefit shall be no less than the benefit formula in effect prior to that date.

- 3.02 Early Retirement Benefit.

- (a) In lieu of his Normal Retirement Benefit, a Participant who retires after attaining his Early Retirement Age may elect to receive a monthly Early Retirement Benefit commencing on his Early Retirement Date equal to his Accrued Benefit as of his Early Retirement Date, reduced so that the benefit will be the Actuarial Equivalent to his benefit as if payable starting at his Normal Retirement Date.
- (b) A Participant who retires after attaining his Unreduced Early Retirement Age may elect to receive a monthly Early Retirement Benefit commencing on his Unreduced Early Retirement Date equal to his Accrued Benefit as of such Unreduced Early Retirement Date. There shall be no reduction for commencement of such benefits prior to the Participant's Normal Retirement Date.

- 3.03 Late Retirement Benefit. A Participant who retires after his Normal Retirement Date shall be entitled to receive a monthly Late Retirement Benefit commencing on his Late Retirement Date equal to his Accrued Benefit as of his Late Retirement Date, which shall be determined in the same manner as the Normal Retirement Benefit, but taking into account his Compensation and Credited Service after his Normal Retirement Date.

- 3.04 Cost of Living Increase for Certain Retirees. For all Benefits payable pursuant to Article III on or after January 1, 2002, the monthly Retirement Benefit for each Participant or Beneficiary of a Participant who first retired or received payment of such Benefit prior to January 1, 2001 shall be increased effective January 1, 2002 by one and seventy-five one hundredth percent (1.75%) multiplied by the number of full years since the retiring Participant's actual Early, Late or Normal Retirement Date which triggered the payment of Benefits. Notwithstanding the foregoing, Participants who received a cash-out of their Accrued Benefit pursuant to Section 5.03, shall not be eligible for the Benefit described in the preceding sentence.

For all Benefits payable pursuant to Article III or IV of the Legacy Plan on or after September 1, 2023, the amount of the monthly Retirement Benefit paid for August 2023 for each Participant or Beneficiary of a Participant who first retired or received payment of such Benefit prior to January 1, 2023 shall be increased for purposes of subsequent payments by seventy-five one hundredth percent (0.75%) multiplied by the number of full years since the later of January 1, 2002 or the retiring Participant's actual Early, Late or Normal Retirement Date which triggered the payment of Benefits. Notwithstanding the foregoing, Participants who received a cash-out of their Accrued Benefit pursuant to Section 5.03, shall not be eligible for the Benefit described in the preceding sentence.

For all Benefits payable pursuant to Article III or IV of the Legacy Plan on or after October 1, 2024, the monthly Retirement Benefit for each Participant or Beneficiary of a Participant who has received at least twelve monthly Benefit payments shall be increased effective October 1, 2024 and subsequently each year effective October 1 by fifty one hundredth percent (0.50%). Notwithstanding the foregoing, Participants who received a cash-out of their Accrued Benefit pursuant to Section 5.03, shall not be eligible for the Benefit described in the preceding sentence.

3.05 Minimum Benefits.

(a) If the aggregate of Benefit payments made to a Participant, his Spouse and Beneficiary is less than the Employee Contributions made by the Participant together with interest credited thereon, taking into account such Benefit payments, at an annual rate of return of 5%, the excess of such amount over the aggregate of such Benefit payments shall be payable to the Participant's Beneficiary as an additional death benefit.

(b) If upon termination of employment with the City a Participant has no vested Benefit, the Participant or his Beneficiary shall receive payment of his total Employee Contributions together with interest credited thereon at an annual rate

of return of 5% through the last day of the month preceding such termination date, as soon as practicable.

ARTICLE IV

Benefits upon Termination of Employment

- 4.01 Deferred Normal Retirement Benefit. A Participant who separates from service before his Normal Retirement Date but after completing eight (8) years of Credited Service shall be entitled to a monthly Retirement Benefit commencing on his Normal Retirement Date equal to the product of: (a) one and seven tenths percent (1.7%) of the Participant's Final Average Compensation multiplied by (b), the Participant's Credited Service, not to exceed thirty (30) years.

If the Participant has not completed eight (8) years of Credited Service, the monthly Retirement Benefit shall be the amount obtained in the preceding paragraph multiplied by the applicable percentage set forth in Section 2.05. Any portion of such Benefit which is not vested shall be forfeited.

Notwithstanding the foregoing, for those Employees who were Active Participants in the Plan on June 30, 2001, item (a) above shall be two percent (2%) of the Participant's Final Average Compensation. The preceding sentence shall not apply to those Employees who were Active Participants in the Plan on June 30, 2001 but who filed a timely and proper election with the Plan Administrator on forms provided by the Plan Administrator to instead participate in the City of Creve Coeur Employees' Money Purchase Pension Plan. The foregoing election was timely filed if it was received by the Plan Administrator on or before July 31, 2001.

Notwithstanding the above, for those Employees hired before July 1, 1994, the foregoing Deferred Normal Retirement Benefit shall be no less than the benefit formula in effect prior to that date.

- 4.02 Deferred Early Retirement Benefit. A Participant entitled to the Deferred Normal Retirement Benefit described above who separated from service prior to attaining his Early Retirement Age may elect to receive the Benefit commencing at any time after age sixty-two (62). The amount of such Benefit shall be actuarially reduced as determined by LAGERS to reflect early commencement.
- 4.03 Reemployment Adjustment. In the event a Participant who has separated from service with a right to a Deferred Normal Retirement Benefit is reemployed as a Full-Time Employee prior to the commencement of such benefits, the Benefits payable with respect to a Participant after subsequent separation from service shall be equal to the greater of:

(a) The Deferred Normal Retirement Benefit to which he was entitled under the Plan at the time of his prior separation from service, based on his previous Credited Service and Final Average Compensation, and

(b) The Deferred Normal Retirement Benefit to which he is entitled under Section 4.01 above based on his total Credited Service (including Credited Service earned before his reemployment) and his Final Average Compensation determined at the time of his subsequent separation from service.

Section 4.03 shall not apply to any such Person reemployed after the LAGERS Administration Effective Date.

- 4.04 Cost of Living Increase for Certain Terminated Employees with Vested Accrued Benefits. For all benefits payable pursuant to Article IV on or after January 1, 2002, the monthly Retirement Benefit for each Participant or Beneficiary of a Participant who first received payment of such Benefit prior to January 1, 2001 shall be increased effective January 1, 2002 by one and seventy-five one hundredth percent (1.75) multiplied by the number of full years since the individual's attaining the Early or Normal Retirement Date which triggered the payment of Benefits. Notwithstanding the foregoing, Individuals who receive a cash-out of their accrued Benefit pursuant to Section 5.03, shall not be eligible for the Benefit described in the preceding sentence.

For all Benefits payable pursuant to Article III or IV of the Legacy Plan on or after September 1, 2023, the amount of the monthly Retirement Benefit paid for August 2023 for each Participant or Beneficiary of a Participant who first retired or received payment of such Benefit prior to January 1, 2023 shall be increased for purposes of subsequent payments by seventy-five one hundredth percent (0.75%) multiplied by the number of full years since the later of January 1, 2002 or the retiring Participant's actual Early, Late or Normal Retirement Date which triggered the payment of Benefits. Notwithstanding the foregoing, Participants who received a cash-out of their Accrued Benefit pursuant to Section 5.03, shall not be eligible for the Benefit described in the preceding sentence.

For all Benefits payable pursuant to Article III or IV of the Legacy Plan on or after October 1, 2024, the monthly Retirement Benefit for each Participant or Beneficiary of a Participant who has received at least twelve monthly Benefit payments shall be increased effective October 1, 2024 and subsequently each year effective October 1 by fifty one hundredth percent (0.50%). Notwithstanding the foregoing, Participants who received a cash-out of their Accrued Benefit pursuant to Section 5.03, shall not be eligible for the Benefit described in the preceding sentence.

ARTICLE V

Form and Payment of Retirement Benefits

- 5.01 Normal Form of Benefit. Unless a Participant elects an optional form of payment, the Benefits described in Article III and Article IV shall be payable in the form of a Ten Years Certain and Life Annuity, as described in Section 5.02(a). A Participant may elect an optional form of benefit in lieu of the normal form by electing such form in writing no more than 60 days before payment of his Benefits is to commence. The Participant will be provided with a written explanation of the various forms of benefits and the effect of an election of a specific form of benefit within a reasonable period before benefits are to commence.

As of the LAGERS Administration Effective Date, Participants must follow LAGERS procedures regarding initiation of benefit and election of form of benefit.

- 5.02 Forms of Benefit. Benefits payable in a form other than that described in (a) below shall be the Actuarial Equivalent thereof:
- (a) Ten Years Certain and Life Annuity -- Under this form of benefit, payment of monthly installments shall continue for the Participant's lifetime. If the Participant dies before one hundred twenty (120) monthly installments have been paid, such benefit will be payable to the Participant's Beneficiary until a total of one hundred twenty (120) monthly installments have been paid. If, upon the Participant's death, there is no living designated Beneficiary, the commuted value of the unpaid installments shall be paid to the Participant's estate. If, after the Participant's death, the designated Beneficiary also dies prior to completion of payment of the 120 monthly installment payments, the commuted value of the unpaid installments shall be paid to the designated Beneficiary's estate.
 - (b) Joint and Survivor Annuity -- Under this form of benefit, which is available only if the Participant's Spouse is the designated annuitant, payment of monthly installments will be made for the lifetime of the Participant. If the Participant predeceases his Spouse, payment in an amount equal to fifty percent (50%), sixty-six and two-thirds percent (66-2/3%) or one hundred percent (100%), of the Participant's benefit will continue to the Spouse for life. The Participant shall elect the applicable percentage at the time he or she elects this form of benefit.
 - (c) Life Annuity -- Under this form of benefit (also referred to as a straight-life annuity), payment of monthly installments will continue for the lifetime of the Participant and will cease upon his death.

- (d) Joint and Survivor Annuity with Spousal Pop-up - Under this form of benefit, which is only available to Participants commencing monthly benefits on or after March 8, 2021 and only if the Participant's Spouse is the designated annuitant, payment of monthly installments will be made for the lifetime of the Participant. If the Participant predeceases his Spouse, payment in an amount equal to fifty percent (50%), sixty-six and two-thirds percent (66-2/3%) or one hundred percent (100%), of the Participant's benefit will continue to the Spouse for life. The Participant shall elect the applicable percentage at the time he or she elects this form of benefit. If the Spouse predeceases the Participant, then commencing with the month following the month in which the Spouse's death occurred, the amount of the monthly benefit payable to the Participant will change to the monthly amount that would have been payable to the Participant if he or she had initially elected the Life Annuity form of payment.

As of the LAGERS Administration Effective Date, Section 5.02 shall not apply to Persons not then receiving payments of benefits, and forms of benefits shall be made available in accordance with Section 70.660 RSMo.

- 5.03 Cash-out of Accrued Benefit. (A) Notwithstanding any other provisions of the Plan, a Participant who separates from service or retires with a vested Accrued Benefit shall be paid the Actuarial Equivalent of such benefit in a single sum, provided that such Actuarial Equivalent does not exceed (1) for distributions prior to March 28, 2005, five thousand dollars (\$5,000) or (2) for distributions on or after March 28, 2005 one thousand dollars (\$1,000).

Effective for distributions on and after March 28, 2005, a Participant who separates from service or retires with a vested accrued benefit the single sum actuarial equivalent of which exceeds one thousand dollars (\$1,000) but does not exceed five thousand dollars (\$5,000) may elect, within such election period as prescribed by the Plan Administrator, to be paid the actuarial equivalent of such benefit in a single sum. A participant who does not elect and receive a single sum payment pursuant to this provision on or before the last day of the election period prescribed by the Plan Administrator shall no longer be entitled to a distribution pursuant to this section. However, at such time as the Participant is eligible to start receiving benefit payments without regard to this section, the Participant will again become eligible to elect, within the period prescribed by the Plan Administrator, to receive a distribution pursuant to this section, provided the lump sum actuarial equivalent of the Participant's vested accrued benefit is still greater than one thousand dollars (\$1,000) and not greater than five thousand dollars (\$5,000).

For purposes of this section, if the present value of the Participant's vested accrued benefit is zero, the Participant shall be deemed to have received a distribution of such vested benefit on the date his employment with the employer ends.

If a Participant who has received a single sum payment hereunder resumes employment covered under the Plan, such Participant's later Benefits hereunder shall not include Credited Service attributable to his prior period of employment.

- (B) [See 8/26/2019 Ordinance 5656 regarding one time option for single sum payments.]

5.04 Commencement of Benefits.

- (a) Unless the Participant elects otherwise in writing, the payment of Benefits under the Plan to a Participant shall commence no later than the sixtieth (60th) day after the close of the Plan Year in which the last of the following occurs:
- (1) The Participant attains Normal Retirement Age;
 - (2) The tenth (10th) anniversary of the Participant's initial participation in the Plan; or
 - (3) The Participant terminates service with the City.
- (b) Notwithstanding the above, distribution of benefits must commence not later than the April 1 of the calendar year following the calendar year in which the Participant attains age seventy and one half (70 1/2) or retires, whichever is later. Further, the Plan will adhere to requirements regarding minimum distributions under applicable law.
- (c) As of the LAGERS Administration Effective Date, Participants must follow LAGERS procedures regarding initiation of benefit and election of form of benefit. LAGERS will make monthly benefit payments on the first day of each month for such month.

5.05 Methods of Distribution.²

All distributions will be made in accordance with applicable law. All distributions required under this Section shall be determined and made in accordance with Section 401(a)(9) of the Code as in effect on January 1, 2002 or as hereafter amended and the regulations thereunder, including the incidental death benefit requirements of Code Section 401(a)(9)(G) as such sections apply to plans maintained by governmental entities. With respect to distributions made under the Plan on or after January 1, 2002 and before January 1, 2006 the Plan shall apply the minimum distribution requirements of Code Section 401(a)(9) in accordance with Proposed Treasury Regulations issued July 27, 1987 thereunder. With respect to distributions made after December 31, 2005, the plan shall apply the minimum

² Version effective as of July 1, 2002, as amended in 2023.

~~distribution requirements of Code Section 401(a)(9) in accordance with the Final Treasury Regulations issued June 15, 2004 thereunder.~~

- ~~(b) Distribution of benefits, if not made in a single sum, shall be made over one of the following periods (or a combination thereof): 1) the life of such Participant; 2) the lives of such Participant and a designated Beneficiary; 3) a period not extending beyond the life expectancy of such Participant or 4) a period not extending beyond the life expectancy of such Participant and a designated Beneficiary.~~
 - ~~(c) If the distribution of the Participant's interest has begun in accordance with the preceding paragraph and the Participant dies before his entire interest has been distributed to him, the remaining portion of such interest shall be distributed at least as rapidly as under the method of distribution used as of his date of death.~~
 - ~~(d) If the Participant dies before distribution commences, his or her entire interest will be distributed no later than the date specified below:
 - ~~(1) Payments of any portion of such interest to the Participant's surviving Spouse shall be made over the life or life expectancy of such surviving Spouse commencing no later than December 31 of the Calendar year in which the Participant would have attained age seventy and one half (70 ½) or, if later, December 31 of the calendar year containing the first anniversary of the Participant's death except to the extent an election is made to receive a distribution of the surviving Spouse's entire interest no later than December 31 of the calendar year containing the fifth anniversary of the Participant's death.~~
 - ~~(2) Distribution of the entire interest of a Beneficiary other than the Participant's surviving Spouse shall be made no later than December 31 of the calendar year containing the fifth anniversary of the Participant's death except to the extent an election is made to receive distributions over the life or life expectancy of such designated Beneficiary commencing no later than December 31 of the calendar year containing the first anniversary of the Participant's death; ———~~~~
- ~~Such election must be made by the Participant (or his designated Beneficiary or surviving Spouse, if the Participant dies without having made such an election) on or before the earlier of the date by which distribution must commence absent such election and the date distribution must commence assuming such election has been made.~~

~~If the Spouse dies before payments begin, subsequent distributions are required under this subsection (except for subsection (d)(2)) as if the surviving Spouse was the participant.~~

~~(e) For the purpose of this Section, distribution of a Participant's interest is considered to begin on the Participant's required beginning date (or, if the last sentence of subsection (d) applies, the date distribution is required to begin to the surviving Spouse pursuant to subsection (d)). If distribution in the form of an annuity irrevocably commences to the Participant before the required beginning date, distribution is considered to commence on the date it actually commences.~~

~~(f) Any amount paid to a child shall be treated as if it had been paid to the surviving Spouse if such an amount will become payable to the surviving Spouse when the child reaches the age of majority.~~

~~(g) For purposes of this Section, any distribution required under the incidental death benefit requirements of Section 401(a) of the Code shall be treated as a distribution required under Section 401(a)(9) of the Code.~~

~~(h) If a Participant elects an optional form of benefit that provides a survivor benefit to a person other than a surviving Spouse, the survivor benefit shall be limited so that the value of the annuity payable during the Participant's lifetime shall not be less than fifty-one percent (51%) of the value of the Participant's Accrued Benefit calculated at his Retirement Date.~~

5.06 Termination for Cause. Notwithstanding the above, a Participant who has a Termination Date due to termination for cause shall not be entitled to Benefits under the Plan except for a return of Employee Contributions as provided herein. A termination for cause shall be deemed to occur if the reason for termination was the Participant's embezzlement, dishonesty, fraud or for any other felony in connection with the affairs of the City. For this purpose, termination may be through discharge or resignation.

The Board of Trustees shall make the determination whether to apply the provisions of this Section, taking into account the outcome of any criminal proceedings. Such determination shall be final, binding and conclusive on all concerned. This Section shall not be operative in the event the Plan is terminated.

All Participants in similar situations shall be treated in a uniform and consistent manner for purposes of this Section.

ARTICLE VI

Pre-retirement Death Benefits

6.01 Eligibility for Death Benefit. A death benefit, determined under Section 6.02 below shall be payable with respect to a Participant:

- (a) Who separated from service on or after attaining his Early Retirement Age but postponed commencement of benefits, or
- (b) Who continues in employment with the City after his Normal Retirement Date, or
- (c) Who is actively employed with the City, is vested under the Plan, and has not reached his Normal Retirement Age under the Plan;

if such Participant dies before payment of his benefit commences.

As of the LAGERS Administration Effective Date, subsections (b) and (c) shall be replaced by LAGERS standard death benefit provisions.

6.02 Amount of Death Benefit.

- (a) If a Participant described in Section 6.01(a) or 6.01(b) dies after electing the Joint and Survivor form of payment, the death benefit payable to his surviving Spouse shall be a monthly annuity payable for life equal to two-thirds (2/3) of the amount of the monthly benefit which would have been payable to the Participant under that benefit form if the Participant's benefits had commenced on the first day of the month preceding his date of death.
- (b) If a Participant described in Section 6.01(a) or 6.01(b) dies without electing the Joint and Survivor form of payment, the death benefit payable to his designated beneficiary shall be 120 monthly payments, each of which is equal to the amount of monthly benefit which would have been payable to the Participant if the Participant's benefits had commenced on the first day of the month preceding his date of death.
- (c) For a Participant described in Section 6.01(c), the death benefit payable to his surviving Spouse shall be a monthly annuity of the amount that would have been payable to such surviving Spouse if such Participant had:
 - (1) Separated from service on his date of death;

- (2) Survived to the date he would first have been eligible to retire and commence benefits under the Plan;
- (3) Retired with the 66 2/3% Joint and Survivor Annuity form at such date; and
- (4) Died immediately thereafter.

In computing the benefit hereunder, only Compensation and Credited Service actually earned by the Participant prior to date of death shall be taken into account.

- 6.03 Cash-out of Accrued Benefit. Notwithstanding any other provision of the Plan, in the event the actuarial equivalent of the death benefit does not exceed five thousand dollars (\$5,000), payment of such benefit shall be in the form of a single sum. In the event the actuarial equivalent of the death benefit exceeds such amount, at the option of the surviving Spouse or Beneficiary, payment of such equivalent benefit may be in lieu of the benefits otherwise payable under this Article VI.
- 6.04 Time of Payment. Payments of the death benefits described in Section 6.01(a) or Section 6.01(b) shall commence on the first day of the month coinciding with or next following the Participant's death. Payments of the death benefit described in Section 6.02(c) shall commence on the first day of the month in which the Participant would first have been eligible to retire and commence benefits under the Plan. However, at the election of the surviving Spouse, commencement of payments may be postponed to a date which is no later than the first day of the month in which the Participant would have attained his Normal Retirement Age under the Plan. If such payments are postponed, the amount of the payment shall be determined as if the Participant separated from service on his date of death, survived to the date the surviving Spouse elects to commence benefits, retired with a 66 2/3% Joint and Survivor annuity form at such date, and died immediately thereafter.
- 6.05 Mandatory Survivor Benefits on Behalf of Participants Who Die In Qualified Military Service. Effective January 1, 2007, the death benefit paid with respect to a Participant who dies in Qualified Military Service shall be determined as provided in Section 2.06.

ARTICLE VII

Limitations on Benefits

- 7.01 Limitation on Annual Benefit.³

³ Version effective as of July 1, 2007

- (a) Notwithstanding any other provision of the Plan, the annual benefit to which a Participant is entitled under the Plan shall not, in any limitation year, be in an amount which would exceed the applicable limitations under Code section 415 and regulations thereof, including, effective July 1, 2007, the final regulations thereunder issued April 5, 2007 as such Code section and regulations apply to plans maintained by governmental entities. As of January 1 of each calendar year commencing on or after January 1, 2002, the dollar limitation as determined by the Commissioner of Internal Revenue for that calendar year shall become effective as the maximum permissible dollar amount of benefit payable under the Plan during the limitation year ending within that calendar year.

The application of the provisions of this article shall not cause the maximum permissible benefit for any participant to be less than the Participant's accrued benefit under all the defined benefit plans of the Employer or a predecessor employer as of the end of the last limitation year beginning before July 1, 2007 under provisions of the plans that were both adopted and in effect before April 5, 2007. The preceding sentence applies only if the provisions of such defined benefit plans that were both adopted and in effect before April 5, 2007 satisfied the applicable requirements of statutory provisions, regulations, and other published guidance relating to Code section 415 in effect as of the end of the last limitation year beginning before July 1, 2007, as described in Section 1.415(a)-1(g)(4) of the Income Tax Regulations.

- (b) The increased limitations of Code section 415(b) effective on and after January 1, 2002 shall apply solely to Employees participating in the Plan who have at least one hour of service on or after January 1, 2002.
- (c) The term "limitation year" is the 12-month period used for application of the limitations under Code section 415 and, unless a different 12-month period has been elected by the Employer in accordance with rules or regulations issued by the Internal Revenue Service or the Department of Labor, shall be the calendar year.
- (d) For purposes of applying the adjustments required under Code section 415(b)(2), the "applicable interest rate" is the annual rate of interest on 30-year Treasury Securities as specified by the Commissioner of Internal Revenue for the second month preceding the first day of the calendar quarter in which the determination is made and "applicable mortality table" is the table prescribed by the Secretary of the Treasury as described in Code section

415(b)(2)(E)(v). Applicable interest rate means the interest rate prescribed under Code Section 417(e)(3)(C) (as it reads effective on and after January 1, 2008) as in effect for the limitation year in which the determination is made and the applicable mortality table means the mortality table prescribed under Code section 417(e)(3)(B) (as it reads effective on and after January 1, 2008).

7.02 Adjustment for Early or Late Commencement. The dollar limitation under Section 7.01 shall be modified as follows to reflect early or late commencement of benefits.

- (a) If the Participant's Benefit commences prior to age sixty-two (62), the dollar limitation shall be the actuarial equivalent of Section 7.01 above, payable at age sixty-two (62), as determined above, reduced for each month by which benefits commence before the month in which the Participant attains age sixty-two (62). The interest rate for determining actuarial equivalence shall be the greater of the interest rate assumption under the Plan or an assumption of five percent (5%) per year. Provided, however, that the reduction under this subsection shall not reduce the dollar limitation below: (i) \$75,000 if the benefit begins at or after age fifty-five (55) or (ii) if the benefit begins before age fifty-five (55), the actuarial equivalent of the \$75,000 limitation at age fifty-five (55). For years beginning before 12/31/96, this subsection (a) shall not reduce the dollar limitation of Section 7.01 for qualified police to an amount less than \$50,000 as adjusted by the Secretary of Treasury. Effective for years after 12/31/96, in the case of a qualified participant as defined in Code Section 415(b)(2)(H) this subsection (a) shall not apply. This adjustment shall also not apply in the case of survivor benefits as described in Code Section 415(b)(2)(I).
- (b) If the Participant's Benefit commences after age sixty-five (65), the dollar limitation shall be the Actuarial Equivalent of Section 7.01 above payable at age sixty-five (65), based on the lesser of the interest rate assumption under the Plan or on an assumption of five percent (5%) per year.

7.03 Reduction for Less Than 10 Years of Participation or Service.

- (a) Reduced Dollar Limitation. If a Participant is credited with fewer than ten (10) years of Plan participation, the dollar limitation of Code Section 415(b)(1)(A) referenced in Section 7.01, as it may be adjusted as specified in Section 7.02, shall be reduced by multiplying such amount by a fraction not to exceed one (1.0), the numerator of which is the Participant's number of years of participation (or part thereof) and the denominator of which is ten (10).

- (b) Limitation on Compensation and Benefits. If a Participant is credited with fewer than ten (10) years of service with the City, the compensation limit of Code Section 415(b)(1)(B) and annual ten thousand dollar (\$10,000) limitation of Code Section 415(b)(4) as referenced in Section 7.01 shall be reduced by multiplying such amounts by a fraction not to exceed one (1.0), the numerator of which is the Participant's number of years of service and the denominator of which is ten (10).
- (c) Change in Benefit Structure. To the extent provided in regulations, the reductions set out herein shall be applied separately with respect to each change in the benefit structure of the Plan.

In no event shall the reductions set out in (a) and (b) above result in a limitation or amount which is less than one-tenth (1/10) of such limitation or amount determined without regard to this Section 7.03.

- 7.04 Combined Plan Limits. For tax years beginning on or before December 31, 1999, in addition to the preceding limitations, in the event an individual is a participant in both a defined benefit and a defined contribution plan subject to Section 415 of the Code maintained by the City, the limitations of Section 415(e) of the Code shall apply. Any adjustment necessary to satisfy such limitations will be made in the benefits provided under this Plan, except that the benefit already accrued under this Plan will be reduced.

ARTICLE VIII

Plan Administration

- 8.01 Plan Administration. The Board of Trustees shall be the plan administrator, and shall be the named fiduciary having the authority to control and manage the operation and administration of the Plan. As of the LAGERS Administration Effective Date, the Board of Trustees shall mean the board of LAGERS and the prior committee shall in due course be dissolved.
- 8.02 Powers and Duties of the Board of Trustees with Respect to Plan Administration. The Board of Trustees shall have the power and the duty to take all action and to make all decisions necessary or proper to carry out the Plan. Such powers and duties shall include the following:
- (a) To require any person to furnish such information as it may request for the purpose of the proper administration of the Plan as a condition to receiving any benefits under the Plan;
 - (b) To make and enforce such rules and regulations and prescribe the use of such forms as it shall deem necessary for the efficient administration of the Plan;
 - (c) To, in its discretion, interpret all Plan provisions and to determine all questions arising under the Plan, including the power to determine the eligibility of Employees, Participants and all other persons to participate in or to receive benefits under the Plan and to determine the amount of benefits payable under the Plan and to remedy any ambiguities, inconsistencies or omissions. The determinations and findings of the Board of Trustees shall be conclusive, final and binding on all parties;
 - (d) To provide a full and fair review to any Participant whose claim for benefits has been denied in whole or in part;
 - (e) To designate other persons to carry out any duty or exercise any power which would otherwise be a fiduciary responsibility of the Board of Trustees under the terms of the Plan;
 - (f) To direct payments to or on behalf of Participant in accordance with the terms of the Plan;
 - (f) Subject to the provisions of any group annuity contract, to determine the manner in which the funds of the Plan shall be disbursed pursuant to the Plan; and

- (g) To make an annual report of the activities of the Plan to the City Council. As of the LAGERS Administration Effective Date, such reports shall no longer be made.

8.03 Powers and Duties with Respect to the Trust. The Board of Trustees shall have the following powers and duties with respect to the performance of its duties as Trustee:

- (a) To receive all contributions hereunder and apply such contributions as hereinafter set forth. The Board of Trustees shall have the custody of and safely keep all cash, securities, property and investments, including any insurance company contracts, received or purchased in accordance with the terms hereof.
- (b) Subject to any limitations that may be contained elsewhere in the Plan, to take control and management of the Trust Fund and shall hold, sell, buy, exchange, invest and reinvest the corpus and income of the Trust Fund. All contributions paid to the Board of Trustees under the Plan shall be held and administered by the Board of Trustees as a single Trust Fund and the Board of Trustees shall not be required to segregate and invest separately any part of the Trust Fund representing accruals or interests of individual Participants in the Plan.
- (c) To invest and reinvest the funds of the Trust Fund in any property, real, personal or mixed, wherever situated, and whether or not productive of income or consisting of wasting assets, including, without limitation, common and preferred stock, bonds, notes, debenture, leaseholds, mortgages (including without limitation, any collective or part interest in any bond and mortgage or note and mortgage), certificates of deposit, and oil, mineral or gas properties, royalties, interests or rights (including equipment pertaining thereto), without being limited to the classes of property in which trustees are authorized by law or any rule of court to invest trust funds and without regard to the proportion any such property may bear to the entire amount of the Trust Fund.
- (d) To invest and reinvest all or any portion of the Trust Fund collectively with funds of other retirement plan trusts exempt from tax under Section 501(a) of the Code, including, without limitation, power to invest collectively with such other funds through the medium of one or more common, collective or commingled trust funds which have been or may hereafter be established and maintained by the Board of Trustees, the instrument or instruments establishing such trust fund or funds, as amended from time to time, being made part of this Trust so long as any portion of the Trust fund shall be invested through the medium thereof.

- (e) To sell or exchange any property or asset of the Trust Fund at public or private sale, with or without advertisement, upon terms acceptable to the Board of Trustees, and in such manner as the Board of Trustees may deem wise and proper. The proceeds of any such sale or exchange may be reinvested as is provided hereunder. The purchaser of any such property from the Board of Trustees shall not be required to look to the application of the proceeds of any such sale or exchange.
- (f) To mortgage, pledge, lease or otherwise dispose of the property of the Trust Fund without securing any order of court therefor, without advertisement, and to execute any instrument containing any provisions which the Board of Trustees may deem proper in order to carry out such actions. Any such lease so made by the Board of Trustees shall be binding, notwithstanding the fact that the term of the lease may extend beyond the termination of the Plan.
- (g) To participate in the reorganization, recapitalization, merger or consolidation of any corporation wherein it may own stock or securities, and may deposit such stock or other securities in any voting trust, or with the depositories designated thereby, and may exercise any subscription rights or conversion privileges, and generally may exercise any of the powers of any owner with respect to any stock or other securities or property comprising the Trust Fund.
- (h) To vote, through any duly authorized officer or proxy, any share of stock which the Board of Trustees may own from time to time.
- (i) To retain in cash, and keep unproductive of income, such funds as from time to time it may deem advisable. The Board of Trustees shall not be required to pay interest on any such cash in its hands pending investment, nor shall the Board of Trustees be responsible for the adequacy of the Trust Fund to discharge any and all payments under the Plan. All persons dealing with the Board of Trustees are released from inquiry into the decision or authority of the Board of Trustees to act.
- (j) To hold stocks, bonds, or other securities in its own name as Board of Trustees, with or without the designation of said trust estate, or in the name of a nominee selected by it for the purpose, but said Board of Trustees shall nevertheless be obligated to account for all securities received by it as part of the corpus of the trust estate herein created, notwithstanding the name in which the same may be held.
- (k) To consult with legal counsel concerning any questions which may arise with reference to the construction of this Plan, its duties hereunder, or any action which it proposes to take or not to take.

- (l) To employ such counsel, accountants and other agents as it shall deem advisable. The Board of Trustees may charge the compensation of such counsel, accountants and other agents and compensation for its services in such amounts as may be agreed upon from time to time by the Employer and the Board of Trustees, and any other expenses necessary in the administration of this Plan against the Trust Fund to the extent they are not paid by the Employer.
 - (m) To designate a bank or trust company as depository of the funds or property of the Trust, to the extent such designation is not inconsistent with existing contracts.
- 8.04 Administrative and Professional Assistance. The Board of Trustees may employ counsel, accountants, actuaries and such clerical or other services as it may require in carrying out the provisions of the Plan or in complying with other requirements imposed by law.
- 8.05 Delegation and Reliance. To the extent permitted by law, the Board of Trustees and any person to whom it may delegate any duty or power in connection with administering the Plan, the City, and the officers thereof, shall be entitled to rely conclusively upon, and shall have no liability for any action taken in good faith in the reliance upon any actuary, counsel, accountant or other professional advisor selected by the Board of Trustees. Further, to the extent permitted by law, neither the Board of Trustees, nor the City, nor the respective officials, employees and agents thereof, shall be liable for any act or omission regarding the administration of the Plan. The Board of Trustees shall defend, indemnify and hold harmless any person protected from liability pursuant hereto.
- 8.06 Expenses of the Plan. Administrative expenses of the Plan, such as actuarial, consulting and legal services, shall be paid directly by the Trust Fund to the extent such payments are permitted by law. Such expenses may, in the discretion of the City, be paid directly by the City.
- 8.07 Claims Procedure. The claims procedure hereunder shall be as provided herein:
- (a) Claim. A Participant or Beneficiary or other person who believes that he is being denied a benefit to which he is entitled (hereinafter referred to as "Claimant") may file a written request for such benefit with the Board of Trustees setting forth his claim.
 - (b) Response to Claim. The Board of Trustees shall respond within ninety (90) days of receipt of the claim. However, upon written notification to the Claimant, the response period may be extended for an additional ninety (90) days for reasonable cause. If the claim is denied in whole or in part, the Claimant shall be provided with a written opinion using non-technical language setting forth:

- (1) The specific reason or reasons for denial;
 - (2) The specific references to pertinent Plan provisions on which the denial is based;
 - (3) A description of any additional material or information necessary for the Claimant to perfect the claim and an explanation of why such material or such information is necessary;
 - (4) Appropriate information as to the steps to be taken if the Claimant wishes to submit the claim for hearing; and
 - (5) The time limits for requesting a hearing.
- (c) Request for Hearing. Within sixty (60) days after the receipt by the Claimant of the written opinion described above, the Claimant may request in writing that the Board of Trustees hold a hearing to review its determination.

The Claimant or his duly authorized representative may review the pertinent documents and submit issues and comments in writing for consideration to the Board of Trustees. If the Claimant does not request a hearing for review of the determination within such sixty (60) day period, he shall be barred from challenging the determination.

- (d) Review and Final Decision. The Board of Trustees shall hold the hearing to review its determination within sixty (60) days after receipt of a Claimant's request for review; provided, however, that for reasonable cause such period may be extended to no more than one hundred twenty (120) days. After considering all materials presented by the Claimant and other evidence, the Board of Trustees will render a written opinion, written in a manner calculated to be understood by the Claimant setting forth the specific reasons for the decision and containing specific references to the pertinent Plan provisions on which the decision is based. The decision of the Board of Trustees shall be subject to judicial review as provided by law for contested administrative cases, based upon the record of the hearing before the Board of Trustees, with appropriate deference to its expertise.
- (e) As of the LAGERS Administration Effective Date, subsections (a) – (d) shall be replaced by procedures determined by LAGERS.

ARTICLE IX

Amendment or Termination

- 9.01 Right to Terminate. It is expected that the City will continue this Plan and payment of the contributions therefore indefinitely, but continuance of this Plan is not assumed as a contractual obligation of the City and the right is reserved by the City at any time to reduce, suspend or discontinue its contributions hereunder or to terminate the Plan. As of the LAGERS Administration Effective Date, the City shall not have authority to reduce, suspend or discontinue contributions hereunder or to terminate the Plan.
- 9.02 Right to Amend. Except as limited in this Section, the City, through action of the City Council, shall have the right to amend this Plan as it applies to the City at any time and to any extent that it may deem advisable. Any amendment hereunder shall not vest in the City any interest or control over the funds accumulated in accordance with this Plan nor the benefits provided hereunder prior to the satisfaction of all liabilities of the Plan. As of the LAGERS Administration Effective Date, the City shall not have the right to amend the Plan other than to adopt amendments required by law.
- 9.03 Notice of Termination. The City shall notify affected Participants in writing that the Plan is to be terminated. The Board of Trustees shall have the responsibility to perform the duties specified in this Article IX.
- 9.04 Allocation of Assets. If the Plan is terminated in its entirety, the respective equitable shares of the Plan assets allocable to Participants hereunder shall be set aside and thereafter held as a separate fund. The amount of each separate share shall be determined on the basis of calculations furnished by an actuary.
- 9.05 Payments of Benefits. In the event of the termination of the Plan, Plan assets held under the Trust shall first be applied to return Employee Contributions to the respective contributors or their successors and the remaining assets shall then be applied to provide for the payment of benefits as stated below for the following classes in order of priority listed, taking into account such return of Employee Contributions:
- (a) to the benefits of Participants who are currently retired and receiving benefits:
 - (b) to the accrued benefits of Participants who are not currently receiving benefits but who were eligible to retire immediately under the Plan prior to its termination;

- (c) to the accrued benefits of Participants, not included in (a) and (b), whose sum of age and Credited Service is at least fifty (50) or who have at least eight (8) years of Credited Service on the Plan termination date;
- (d) to the accrued benefits of Participants, not included in (a), (b) and (c).

Such portion of the Trust Fund may be applied as of the date of termination to the purchase of annuities or it may be applied at any time after the date of termination to the payment of benefits or the purchase of annuities or may be handled, allocated, used, or applied in any equitable or nondiscriminatory way or combination of ways which the Board of Trustees shall determine to be appropriate; provided, however, that the assets of such portion of the Trust Fund shall be first allocated to thereafter be similarly allocated in order to the next lower class and so on successively until all liabilities under the Plan have been satisfied. If the assets of such portion of the Trust Fund are insufficient to satisfy the total liabilities of any one class, allocation will be made for the benefit of each of the persons in such unsatisfied class in the proportion that the then liability on his account as included in the class bears to the then total liabilities to all persons included in such class.

If any balance remains, as the result of erroneous actuarial assumptions, after providing pensions for all persons included in such priority classes, such balance shall, subject to any charge by the Trustee, be returned to the City.

9.06 Restriction on Distribution of Benefits.

- (a) Notwithstanding any other provision of the Plan, if the Plan is terminated at any time within the ten (10) year period within the Restricted Period and if the full current costs of the Plan during such period have not been funded, the City contributions which may be used to provide Benefits for each of the twenty five (25) highest paid Employees of the City whose anticipated annual Retirement Benefit exceeds one thousand five hundred dollars (\$1,500) shall not exceed the largest of:
 - (1) The contributions which would have been applied to provide the benefits for the Employee if the Plan had not been amended to substantially increase the extent of possible discrimination in favor of such Employees,
 - (2) Twenty thousand dollars (\$20,000),
 - (3) Twenty percent (20%) of the Employee's first fifty thousand dollars (\$50,000) of average annual compensation (within the meaning of Treasury Regulation Section 1.415(c)-2(d)(4), averaged over five (5)

years) multiplied by the number of years between the commencement of the Restricted Period and the earliest of the following dates whichever may be applicable:

- (A) The date of termination of the Plan;
 - (B) The date the Benefit becomes payable; or
 - (C) The date of the failure to meet the full current costs of the Plan.
- (b) If contributions by the City are sufficient at a later date to meet the full current costs of the Plan, retirement income payments which would have been payable but for this Section shall be paid in a lump sum to the retired Participant or his Beneficiary.
- (c) For purposes of this subsection, Restricted Period means the ten (10) year period commencing on: 1) the effective date of any amendment to the Plan prior to June 26, 2001 which substantially increased the extent of possible prohibited discrimination as to benefit under the Plan, or 2) the effective date of any subsequent amendment to the Plan which similarly increases the extent of possible discrimination.

The above provisions shall apply only to the extent required by Section 401(a)(4) of the Code and the regulations thereunder.

9.07 Repayment of Restricted Amounts.

Notwithstanding the above, the Board of Trustees, to the extent permitted by law and this Plan, may authorize payment of a Participant's entire Benefit in the form of a lump sum, provided that:

- (a) The Participant enters into an agreement with the Trustee providing for repayment of the amount which would be restricted under Section 9.06 in the event there is a termination of the Plan during the applicable period, and
- (b) The Participant guarantees such repayment by delivering to an acceptable depository either:
 - (1) Property having a fair market value equal to one hundred twenty-five percent (125%) of the amount which would have to be repaid if the Plan had terminated on the date the lump sum was paid, or

- (2) Cash, money market account, certificate of deposit or such other cash equivalent asset which equals one hundred percent (100%) of such amount.

The Participant must further agree that if the fair market value of deposited property declines to less than one hundred ten percent (110%) of the amount to be repaid, he or she shall deliver additional property to the depository such that the total value of all property so deposited is increased to one hundred twenty-five percent (125%) of the amount to be repaid.

Property or assets shall be held in the depository until the Board of Trustees provides notification that no obligation of repayment exists. The amount to be repaid may be adjusted to take into account the decrease in the restriction as the applicable ten (10) year period elapses.

9.08 Vesting Upon Plan Termination.

Upon Plan termination or a complete discontinuance of contributions, a Participant's Accrued Benefit, to the extent then funded, shall be nonforfeitable.

ARTICLE X

Funding of the Plan

10.01 Establishment of Trust. For the purpose of funding the Benefits provided for herein, the City has established a Trust Fund. The City and Employees shall contribute funds into the Trust Fund for the purpose of distributing to Participants and their Beneficiaries the corpus and income of the fund accumulated by the Trust in accordance with the Plan. The Trustee shall receive, hold in trust and disburse the assets of the Trust Fund in accordance with the provisions of the Plan and Trust.

10.02 Contributions.

(a) City Contributions. The City shall make such contributions to the Trust Fund as are required to keep the Plan qualified under Section 401 of the Code and any other relevant section of the Code or any successors thereto, subject to its right to amend or discontinue the Plan and discontinue contributions.

(b) Employee Contributions. Effective July 1, 2011, Active Participants (excluding DROP Participants, and effective July 1, 2019 excluding Active Participants with at least 30 years of Credited Service, starting the beginning of the first full month on or after they attain 30 years of Credited Service) shall make Employee Contributions as follows in order to meet the requirements for Credited Service and Compensation hereunder:

(1) As of July 1, 2011, required Employee Contributions shall be one percent (1%) of base wages including any longevity pay.

(2) On each July 1 thereafter, required Employee Contributions shall increase by a step of one-half of one percent (0.05%)(i.e. on July 1, 2012 the amount shall be 1.5%), to a maximum required amount of three percent (3%). Effective July 1, 2019 required Employee Contributions shall increase to a required amount of four percent (4%) of base wages including any longevity pay.

(3) Employee Contributions shall be deducted and withheld from compensation otherwise payable to the Employee and shall be paid by the City to the Trust no later than ten (10) business days after each payroll period. Employees required to make Employee Contributions shall sign forms, authorize payroll withholding, and designate Beneficiary as directed by the Plan Administrator.

(4) The Trustee shall maintain records of Employee Contributions for each Participant.

(5) All such Contributions are designated Employee Contributions and are paid by the City and considered to be “picked up” by the City pursuant to Internal Revenue Code section 414(h). Employees do not have the option of receiving cash in lieu of such “picked up” Contributions.

(c) Limits. All Benefits will be paid from the Trust and neither the City nor the Trustee shall be liable to Participants or their Beneficiaries if the Trust corpus shall be insufficient to provide for the payment of Benefits. The City shall have no liability with respect to the administration of the Trust or of the funds, securities or other assets paid over to the Trustee, and each Participant or other Beneficiary shall look solely to the Trust Fund for any payments of Benefits under the Plan.

10.03 Funding Standards. The City intends to contribute, but does not guarantee to do so, funds hereunder in amounts actually necessary for the funding of the Plan, taking into account required Employee Contributions. The City may from time to time contribute amounts greater than such minimum. A funding standard account shall be established and maintained so that it may be determined if the City has complied with minimum funding standards. As of the LAGERS Administration Effective Date, the City shall contribute funds necessary for the funding of the Plan as determined by LAGERS, subject to final resolution of any appeal of such determination.

10.04 Changes in Funding Medium or Method. The Board of Trustees reserves the right to change the medium and method of funding at any time at its discretion and without the consent of any person or organization.

10.05 Purchase of Annuities. If restricted non-transferable annuities from an insurance company are purchased to provide the benefits of the Participants, any dividends or other credits generated under any such annuity contract shall be applied to reduce the amount of future contributions by the City.

10.06 No Diversion. No part of the corpus or income of the Trust Fund shall be used for, or diverted to, purposes other than for the exclusive benefit of Participants or their Beneficiaries, at any time prior to the satisfaction of all liabilities with respect to Participants and their Beneficiaries under the Plan and Trust. The City intends that the Plan shall meet the requirements of the Code pertaining to the qualification of employee pension plans. Under no circumstances shall the City have any vested right, title or interest in any assets in the Trust Fund nor shall any such assets revert to the City or inure to its benefit in any way prior to satisfaction of all liabilities of the Plan. Any Participant with a vested Benefit hereunder shall only be entitled to Benefits to the extent funded, including as funded by their own contributions. There may be no reversion of Trust Funds or a return of employer contributions to the City except for those permitted by statute.

- 10.07 Treatment of Forfeitures. Any forfeitures arising hereunder shall be used to reduce future City contributions. Such forfeitures shall not be applied to increase the Benefits any Participant would otherwise receive under the Plan.
- 10.08 Return of Contributions. All contributions are made conditioned upon the continuing qualification of the Plan under Section 401 of the Code. Amounts contributed shall be returned under the following conditions:
- (a) If a contribution was made by a mistake of fact, the excess of the amount of such contribution over the amount that would have been contributed had there been no mistake of fact shall be returned to the contributor within one year after the payment of the contribution.
 - (b) If the City makes a contribution which is conditioned on initial qualification of the Plan under the Code and if the Plan does not so qualify, then such contribution shall be returned to the City within one year after the date of denial of qualification of the Plan.

ARTICLE XI

General Provisions

11.01 Non-Alienation.⁴ None of the Benefits or interests under the Plan are subject to the claims of creditors of Participants or Beneficiaries, and will not be subject to attachment, garnishment or any other legal process. Neither a Participant nor a Beneficiary may assign, sell, borrow on, or otherwise encumber any of his beneficial interest in the Plan and Trust Fund, nor shall any such Benefits be in any manner liable for or subject to the deeds, contracts, liabilities, engagements or torts of any Participant or Beneficiary. If a Participant or Beneficiary becomes bankrupt or attempts to anticipate, sell, alienate, transfer, pledge, assign, encumber or change any Benefit specifically provided for herein, or if a court of competent jurisdiction enters an order purporting to subject such interest to the claim of any creditor, then the Trustee shall hold or apply such Benefit to or for the benefit of such Participant or Beneficiary in such manner as the City may deem proper. Notwithstanding the foregoing, a Participant who (i) is a public safety officer as defined in Section 1204(9)(A) of the Omnibus Crime Control and Safe Streets Act of 1968, (ii) has separated from service with the Employer due to attainment of Normal Retirement Age and (iii) is entitled to a benefit pursuant to Section 3.01 and 3.03 may elect that an amount be deducted from his or her benefit payments to pay the premiums for coverage of the Participant, the Participant's spouse or the Participant's dependents (as defined in Code Section 152) under an accident or health insurance plan or qualified long-term care insurance contract (as defined in Code Section 7702B(b)). The Employer shall pay any amounts withheld from a Participant's benefit payments under this paragraph directly to the provider of the accident or health insurance plan or qualified long-term care insurance contract under such plan or contract. The Participant shall designate the amount to be deducted from his or her benefit payments, which amounts shall not exceed the lesser of three thousand dollars (\$3,000.00) or the amount required to pay such premiums. Elections pursuant to this paragraph shall be made in a time and manner established by the Employer and may only be changed in accordance with rules established by the Employer.

Notwithstanding the preceding, the Plan shall recognize a qualified domestic relations order [issued by a court of competent jurisdiction prior to July 1, 2023](#) as meeting the requirements of Section 414(p) of the Code. The plan administrator shall establish a procedure to determine the status of a domestic relations order as a qualified domestic relations order and to administer Plan distributions in accordance with such qualified orders.

⁴~~Version effective as of April 24, 2007~~

- 11.02 Substitute Payee. In the event a distribution is to be made to a minor or to any Participant or other Beneficiary who, in the opinion of the Board of Trustees, is incapable of properly using, expending, investing or otherwise disposing of such distribution, the Board of Trustees may, based on objective criteria, order the Trustee to make such distribution to a legal or natural guardian or other relative of such minor or to the court appointed guardian of any incompetent, or to any adult with whom such person temporarily or permanently resides. Such distribution shall fully discharge the Trustee, City and Plan from further liability.
- 11.03 Absence of Guarantee. Neither the Board of Trustees nor the City in any way guarantees the Trust Fund from loss or depreciation. Except as required by applicable law, the City does not guarantee any payment to any person. The liability of the Board of Trustees to make any payment under the Plan will be limited to the assets held in the Trust which are available for that purpose.
- 11.04 No Contract. This Plan shall not be deemed to constitute a contract between the City and any Participant or to be a consideration or an inducement for the employment of any Participant or Employee. Nothing contained in this Plan shall be deemed to give any Participant or Employee the right to be retained in the service of the City or to interfere with the right of the City to discharge any Participant or Employee at any time regardless of the effect which such discharge shall have upon such individual as a Participant in the Plan.
- 11.05 Missing Persons. If after making reasonable efforts (including mailing a notice to the last known address of the Participant or other payee under the Plan), the Trustee or insurance company is unable to locate a Participant or to ascertain the identity of, or to locate any other person to whom payment is due under the Plan, such payment and all subsequent payments otherwise due shall be forfeited twenty-four (24) months after the date such payment first became due; provided, however, that any payment so forfeited shall be reinstated retroactively no later than sixty (60) days after the date on which the Participant or other payee is located or identified.
- 11.06 Direct Rollover. This section applies to distributions made on or after January 1, 2002. Notwithstanding any provision of the Plan to the contrary that would otherwise limit a distribution, a distributee may elect, at the time and in the manner prescribed by the plan administrator, to have any portion of an eligible rollover distribution paid directly to an eligible retirement plan specified by the distributee in a direct rollover.
- (1) Eligible Rollover Distribution means any distribution of all or any portion of the balance to the credit of the distributee, except that an eligible rollover distribution does not include: any distribution that is one of a series of substantially equal periodic payments (not less frequently than annually) made for the life (or life expectancy) of the distributee or the joint lives (or joint life expectancies) of the distributee and the distributee's designated Beneficiary, or for a specified period of ten (10) years or more; any distribution to the extent

such distribution is required under section 401(a)(9) of the Code; and for distributions made before January 1, 2002, any portion of any distribution that is not includable in gross income (determined without regard to the exclusion for net unrealized appreciation with respect to employer securities).

- (2) Eligible Retirement Plan means an individual retirement account described in section 408(a) of the Code, an individual retirement annuity described in section 408(b) of the Code, an annuity plan described in section 403(a) of the Code, an annuity contract described in Section 403(b) of the Code, an eligible plan under Section 457(b) of the Code that is maintained by a state, political subdivision of a state, or any agency or instrumentality of a state or political subdivision of a state that agrees to separately account for amounts transferred into such plan from this Plan, or a qualified trust described in Section 401(a) of the Code, that accepts the distributee's eligible rollover distribution.

Effective January 1, 2008, the term eligible retirement plan shall also include a Roth IRA as described in IRC Section 408A. Effective January 1, 2010, for the purpose of a distribution to a distributee who is a non-spouse beneficiary, eligible retirement plan shall only include an individual retirement account described in Code section 408(a), an individual retirement annuity described in IRC Section 408(b), or a Roth IRA described in IRC Section 408A (collectively, "IRA") that is established on behalf of the non-spouse beneficiary and that will be treated as an inherited IRA pursuant to the provisions of IRC Sections 402(c)(11) and 408(d)(3)(C)(ii).

- (3) Distributee means an Employee or former Employee. In addition, the Employee's or former Employee's surviving Spouse and the Employee's or former Employee's Spouse or former spouse who is the alternate payee under a qualified domestic relations order, as defined in section 414(p) of the Code, are distributees with regard to the interest of the Spouse or former spouse. Notwithstanding any provision of this Section to the contrary, effective as of January 1, 2010, the term distributee shall also include a non-spouse beneficiary of a deceased Participant.
- (4) Direct Rollover means a payment by the Plan to the eligible retirement plan specified by the distributee.

Article XII

Deferred Retirement Option Program

AS OF JULY 1, 2023 THIS SECTION IS NO LONGER APPLICABLE.

~~12.01 Deferred Retirement Option Program. Subject to the provisions of this Article XII, the Deferred Retirement Option Program (hereinafter referred to as the "DROP"), an eligible Participant of the Plan, may elect to participate (the "DROP Participant"), deferring receipt of Retirement Benefits while continuing employment with the City of Creve Coeur. Upon termination of employment, the DROP Participant shall receive the total DROP benefits, as provided Section (c) below, and begin to receive distribution of monthly Retirement Benefits as previously determined pursuant to the Participant's election under Article V.~~

~~(a) Eligibility of Participant to Participate in the DROP. A Participant is eligible to participate in the DROP if the following conditions are met:~~

~~(1) The Participant has met the requirements to receive a Normal or an unreduced Early Retirement Benefit under the Plan.~~

~~(2) An election to participate is made on or following the date on which the Participant is eligible for a Normal or an unreduced Early Retirement Benefit, the Participant elects to participate within the time limits contained in Section (b)(1) below, the election complies Section (b) below and otherwise complies with the election process established by the plan administrator.~~

~~(b) Participation in the DROP.~~

~~(1) The term DROP Period means the period beginning on September 1, 2001 and ending on August 31, 2008. The term DROP Participation Period means a period not to exceed 72 months. Notwithstanding the foregoing, during the period from August 1, 2004 to August 31, 2006, an eligible Participant (including an existing DROP Participant) may elect on a form provided by the Plan Administrator to participate in the DROP for a DROP Participation Period that exceeds 36 months in total but is less than or equal to 60 months. Notwithstanding the foregoing, an eligible participant (including an existing DROP Participant) may elect on a from provided by the Plan Administrator to participate in the DROP for a DROP Participation Period that exceeds 36 months in total but is less than or equal to 72 months. The term DROP Period shall also mean the period beginning on January 1, 2009 and ending on December 31, 2011, and for that period the term DROP~~

~~Participation Period shall mean a period not to exceed 36 months.~~

- ~~(2) During the DROP Period, an eligible Participant may elect to participate in the DROP for a DROP Participation Period.~~
- ~~(3) The beginning date of the DROP Participation Period shall be the first day of January, April, July or October subsequent to the date of election to participate, or as soon as administratively practical thereafter, and shall not exceed the maximum length of time permitted for a DROP Participation Period as provided in (b)(1), above.~~
- ~~(4) In order to elect to participate in the DROP, the Participant shall submit on forms prescribed by the plan administrator:
 - ~~(i) A written election to participate in the DROP, which must contain an election of the beginning and end dates of the DROP Participation Period which period must satisfy the limitation stated in paragraph (b)(1).~~
 - ~~(ii) A letter of deferred resignation of employment executed by the electing Participant and acceptable to the plan administrator and the Employer establishing the deferred resignation of employment date, which will be the same date as the end date of the DROP Participation Period. On forms required by the plan administrator, the Participant may change the deferred resignation of employment date and the end date of the DROP Participation Period within the limitations of paragraph (b)(1), provided that both dates continue to be identical with each other.~~
 - ~~(iii) A properly completed DROP application for Retirement Benefits under Article III of this Plan and form of Retirement Benefit payment election, and~~
 - ~~(iv) Any other forms required by the plan administrator.~~~~
- ~~(5) The DROP Participant shall be a retiree under the Plan for calculation of his or her Retirement Benefit, but not for the purposes of employment with the Employer, and the availability of employee benefits and programs related thereto, unless any such benefit or program shall expressly limit such eligibility.~~
- ~~(6) Election to participate in the DROP, once approved by the plan administrator, is irrevocable.~~

~~(c) — Benefits Payable Under the DROP.~~

- ~~(1) — Effective with the date of DROP participation, the DROP Participant's normal or unreduced Early Retirement Benefit, including Credited Service and Final Average Compensation and the effective date of retirement for purposes of calculation of the Retirement Benefit shall be fixed. The DROP Participant shall not be required to continue to make Employee Contributions. Such monthly normal or unreduced early Retirement Benefits, based upon the election made by the DROP Participant, and interest shall accrue monthly in the Trust Fund for the benefit of the DROP Participant. Interest shall be credited at an annual rate of return of 5%. Interest calculations shall be administered in accordance with rules prescribed by the plan administrator and interest distributions shall be credited using the 30 day month/360 day year method of calculation.~~
- ~~(2) — The Retirement Benefit and interest thereon shall continue to accrue in the DROP until the established termination date of the DROP, or until the DROP Participant terminates employment or dies prior to such date. Although individual DROP accounts shall not be established, a separate accounting of each DROP Participant's accrued benefits under the DROP shall be calculated and provided to DROP Participants annually by the plan administrator.~~
- ~~(3) — At the conclusion of the DROP Participant's DROP and termination of employment with the Employer, the Trustee shall distribute the DROP Participant's total accumulated DROP benefits, as soon as administratively practical, subject to the following provisions:~~
 - ~~(i) — The Trustee shall receive verification from the Employer that such DROP Participant has terminated employment as provided in (b)(4)(ii).~~
 - ~~(ii) — The terminated DROP Participant or if deceased, such DROP Participant's Beneficiary, shall elect on forms provided by the plan administrator to receive payment of the DROP benefits in accordance with one of the options listed below. For a DROP Participant or Beneficiary who fails to elect a method of payment within 30 days of termination of the DROP, the Trustee will pay a lump sum as provided in (a), below, as soon as administratively practical.~~
 - ~~a. — Lump Sum. All accrued DROP benefits, plus interest, less withholding taxes remitted to the Internal Revenue Service, shall be paid to the DROP Participant or Beneficiary.~~

- b. ~~Direct Rollover. All accrued DROP benefits, plus interest, shall be paid from the DROP directly to the custodian of an eligible retirement plan as defined in Section 402(c)(8)(B) of the Internal Revenue Code. However, in the case of an eligible rollover distribution to the surviving Spouse of a deceased Participant, an eligible retirement plan is an individual retirement account or an individual retirement annuity as described in Section 402(c)(9) of the Internal Revenue Code.~~
 - c. ~~Ten Year Certain and Life Annuity. If the named beneficiary predeceases the DROP Participant, the remaining benefits in the DROP will be paid to the surviving spouse, or if there is no surviving spouse, then to the estate of the DROP Participant.~~
 - d. ~~Joint and Survivor Annuity with surviving Spouse only.~~
 - e. ~~Monthly Distribution. The account balance shall be distributed in a monthly amount paid monthly, until the DROP account is depleted, over an annual period to be selected by the DROP Participant or the surviving Spouse, less withholding taxes remitted to the Internal Revenue Service. Such selection once made, cannot be changed, unless changed to Option (a), above. The rate of interest to be factored into such distribution period shall be 5% computed on the same terms as described in (c)(1) above.~~
- (iii) ~~The form of payment selected by the DROP Participant or surviving Spouse shall comply with the minimum distribution requirements per section 401(a)(9) of the Internal Revenue Code.~~
 - (iv) ~~Subsequent to the month of termination or death, the accrual of interest on the accumulated DROP balance shall cease, except as provided in the distribution option described in (e) above.~~
 - (4) ~~The accrued benefit of any DROP Participant and any contributions accumulated under such program, shall not be subject to assignment, execution, attachment, or to any legal process whatsoever, except for federal income tax levies.~~
- (d) ~~Effect of Death upon DROP Benefits.~~
- (1) ~~The monthly Retirement Benefit accrued for the benefit of the DROP Participant during the month of a DROP Participant's death, shall be the final monthly benefit credited for such DROP Participant.~~

- ~~(2) Eligibility to participate in the DROP terminates upon the death of the DROP Participant. If the DROP Participant dies on or after the effective date of enrollment in the DROP, but prior to the first monthly benefit being credited to the DROP, Retirement Benefits shall be paid as provided in Section V of the Plan.~~
- ~~(e) Administration of the DROP. The plan administrator shall make such rules as are necessary for the effective and efficient administration of the DROP.~~
- ~~(f) The Plan benefits payable to any surviving Spouse or Beneficiary of a DROP Participant, under any provision of this Plan other than this Article XII, shall be determined by the form of benefit payment elected by the DROP Participant at the time he or she elected participation in the DROP.~~

IN WITNESS WHEREOF, this amended and restated Plan is hereby executed on the _____ day of _____, 2023_____.

CITY OF CREVE COEUR

By _____

Mark Perkins, City Administrator

ATTEST:

Kellie Henke~~Deborah Ryan,~~
MRCC
City Clerk

EXHIBIT A
JOINDER AGREEMENT

Joinder Agreement

WHEREAS, the City of Creve Coeur, Missouri (“City”), is an employer in the Missouri Local Government Employees Retirement System (“LAGERS”) and is the sponsor of the Defined Benefit Retirement Plan for Employees of the City of Creve Coeur, Missouri (the “Plan”), which is a plan that is similar in purpose to LAGERS within the meaning of Section 70.621.1 RSMo; and

WHEREAS, the Board of Trustees of the Plan (“Pension Board”) is the current governing body of the Plan; and

WHEREAS, the Plan is frozen, and the City by Resolution _____ and Pension Board by Resolution _____ have approved entry into an agreement whereby LAGERS assumes all duties and responsibilities of operating the Plan, effective no later than _____; and

WHEREAS, the current Pension Board for the Plan will dissolve, and LAGERS will assume all operational duties and responsibilities for the Plan, and the board of LAGERS shall become the governing board of the Plan in accordance with Section 70.621 RSMo; and

WHEREAS, the City agrees that assets of the Plan shall be transferred to LAGERS’ benefit reserve fund created pursuant to Section 70.715 RSMo upon the termination of the Plan in a manner consistent with state and federal law and regulations; and

WHEREAS, the City shall continue to have sole responsibility for full funding of the Plan including related expenses; and

WHEREAS, it is understood that in entering into this Agreement the City is also acting as agent for the Pension Board;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, the parties agree as follows:

1. The City of Creve Coeur, by and through the City Council, irrevocably delegates and cedes to LAGERS all duties and responsibilities of operating the Plan in accordance with Section 70.621 RSMo.
2. The board of LAGERS shall become the governing board of the Plan in accordance with Section 70.621 RSMo.
3. Assets of the Plan shall be transferred to LAGERS’ benefit reserve fund created pursuant to Section 70.715 RSMo upon the termination of the Plan in a manner consistent with state and federal law and regulations.

4. The City will timely make available to LAGERS staff all personnel and financial data necessary for the administration of the Plan including the original files for each active participant. Such original files will be sent to LAGERS.
5. In any case of a question as to the membership status, eligibility for benefits or the amount thereof, or any other question related to benefits under the existing Creve Coeur Defined Benefit Retirement Plan, the City agrees that LAGERS is to decide the question.
6. The City Administrator and the duly authorized designees of the City Administrator are hereby authorized, empowered, and directed to act on behalf of the City to take any and all actions required to continue the frozen statute of the Creve Coeur Employees' Retirement Plan and discontinue contributions to it as required herein.
7. The City, to the extent permitted by law, agrees to hold LAGERS harmless from any liability with respect to this transaction, apart from those obligations imposed on LAGERS by Sections 70.600 – 70.755 RSMo., provided the transaction is completed according to the terms contained herein.
8. The City, to the extent permitted by law, agrees to indemnify and to hold LAGERS harmless from any and all claims, liabilities, losses, damages, court costs, and reasonable expenses (including reasonable attorneys' fees) that LAGERS may incur or suffer as a result of any discrepancy between the amount or other feature of the benefit of a participant or beneficiary as determined by the City and communicated by the City to LAGERS, and the amount or other feature of the benefit of a participant or beneficiary in accordance with the Plan document as determined by LAGERS or as determined by a final decision of a court with jurisdiction over the matter.
9. LAGERS, to the extent permitted by law, agrees to hold the City harmless from any liability with respect to this transaction, apart from those obligations imposed on the City under its Charter, Code, and Ordinances, provided the transaction is completed according to the terms contained herein.
10. The City Administrator and the duly authorized designees of the City Administrator are hereby authorized and directed to take any and all actions required to place the foregoing resolutions into effect, and the City confirms it understands such actions must include amending applicable sections of the City Code, and revising relevant Ordinances, such actions are to be taken promptly in accordance with local, state, and federal laws and procedures.
11. This Agreement will be effective as of the date agreed upon by the City and LAGERS following the receipt by LAGERS of the Plan participant and beneficiary data requested

by LAGERS and the determination by LAGERS that such data are reasonably acceptable.

12. IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year last executed by a party below and acknowledge receipt of one copy of the contract.

CITY OF CREVE COEUR, MISSOURI

MISSOURI LOCAL GOVERNMENT
EMPLOYEES RETIREMENT SYSTEM

City Administrator Mark Perkins
Date: _____

Title: _____
Date: _____

ATTEST:

ATTEST:

City Clerk

Title: _____

APPROVED AS TO FORM:

City Attorney

BOARD OF TRUSTEES OF THE DEFINED
BENEFIT RETIREMENT PLAN FOR
EMPLOYEES OF THE CITY OF CREVE
COEUR, MISSOURI.

Title: _____
Date: _____

ATTEST:

Title: _____

APPROVED AS TO FORM:

City Attorney



MEMORANDUM

DATE: May 26, 2023

TO: Mark Perkins, City Administrator

FROM: Lori Obermoeller, Director of Finance

SUBJECT: Joinder Agreement

In 2017, all Creve Coeur employees hired after June of 2006 were enrolled in the Missouri Local Government Employees Retirement System (LAGERS). Employees hired prior to June 2006 stayed in the City's Legacy Pension Plan.

At the time of joining LAGERS, there was also a strong interest in having LAGERS assuming responsibility for administration of the Legacy Plan, as the State Legislature had recently adopted legislation allowing LAGERS to handle administration of closed public defined benefit plans. However, transferring administration of the Creve Coeur Legacy Plan to LAGERS was not practical at that time.

There is now an opportunity to transfer administration of the Plan to LAGERS, thereby reducing the city's administrative costs and financial risk. The 23 active employees in the Legacy plan would be transferred to a LAGERS benefit with their previous service credit.

After considerable discussion with the City Council, Pension Board and Finance Committee, the City Council has requested staff to prepare the necessary legislation to close the Legacy Retirement Plan and transfer administration to LAGERS. Therefore, the attached Resolution and Joinder Agreement have been drafted.

Prior to the transfer of the administration of the Legacy plan to LAGERS, the City Council has indicated its intention of providing a cost-of-living adjustment to retirees in the amount of 0.75% for each year of retirement since 2002, and 0.5% annually going forward.

Staff is recommending the Pension Board approve and execute these agreements.

RESOLUTION 2023-1

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE DEFINED BENEFIT RETIREMENT PLAN FOR EMPLOYEES OF THE CITY OF CREVE COEUR, MISSOURI, CONCURRING WITH THE ANTICIPATED APPROVAL BY THE CITY COUNCIL OF AN AGREEMENT WITH THE MISSOURI LOCAL GOVERNMENT EMPLOYEES RETIREMENT SYSTEM TO OPERATE THE RETIREMENT PLAN.

WHEREAS, Section 70.621 RSMo authorizes the Missouri Local Government Employees Retirement System ("LAGERS") to operate the City of Creve Coeur's Defined Benefit Retirement Plan for Employees of the City (the "Legacy Plan") pursuant to an approved agreement; and

WHEREAS, prior to approval of such agreement by the City Council, Section 70.621 RSMo requires a concurring resolution of the Board of Trustees of the Legacy Plan approving such agreement; and

WHEREAS, the Board of Trustees recognizes the benefits to plan participants of transferring responsibility for operation of the Legacy Plan from the Board to LAGERS; and

WHEREAS, this Resolution was considered at a public meeting after posting of required public notice and all persons who presented themselves at said meeting and desiring to be heard were given an opportunity to be heard and a copy of the proposed Resolution has been made available for public inspection prior to its consideration by the Board of Trustees; and

WHEREAS, the Board of Trustees has determined that it is fully and sufficiently informed on the matter and that the proposed Resolution is in the best interests of participants in the Legacy Plan; and

WHEREAS, the Board of Trustees recognizes that it will be dissolved in due course upon the completion of transfer of operational authority for the Legacy Plan to LAGERS;

NOW, THEREFORE, be it resolved by the Board of Trustees of the Defined Benefit Retirement Plan for Employees of the City of Creve Coeur, Missouri, as follows:

Section 1:

The Board of Trustees approves entering into an agreement with LAGERS substantially in the form of **Exhibit A** attached hereto, regarding the operation of the Legacy Plan and the Chairperson of the Board or his designee are hereby authorized and directed to enter into and execute that agreement. The agreement as executed shall be consistent with the provisions and intent of this Resolution with such changes as are determined by the executing officer to be necessary, desirable, convenient or proper in order to carry out the matters herein authorized. The Chairperson and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient, or proper in order to carry out the intent of this Resolution, the matters herein authorized, and the rights and duties of the Board under the agreements.

Section 2. The Board of Trustees shall be dissolved upon the completion of transfer of operational authority for the Legacy Plan to LAGERS pursuant to the approved agreement.

Section 3. This Resolution shall become effective immediately upon adoption.

ADOPTED BY VOTE OF 5 OF THE 6 MEMBERS OF THE BOARD OF TRUSTEES THIS 31st
DAY OF MAY, 2023.


MICHAEL KARASICK
CHAIRPERSON

SECRETARY

ATTEST:


KELLIE HENKE, CITY CLERK, MPCC



AN ORDINANCE AMENDING SECTION 405.390 PLANNED ZONING DISTRICTS OF THE ZONING ORDINANCE

WHEREAS, an application was made by the Director of Community Development for the City of Creve Coeur to amend Section 405.390 of the Zoning Ordinance which regulates Planned Zoning Districts; and

WHEREAS, the Planning and Zoning Commission of the City of Creve Coeur, Missouri has recognized the need for such regulations in the City Code of Ordinances as set forth herein, to more effectively implement the goals of the Comprehensive Plan and the purposes of the Zoning Code; and

WHEREAS, the Planning and Zoning Commission of the City of Creve Coeur, Missouri, held a public hearing thereon at the Creve Coeur Government Center on Monday, May 15, 2023 and continuing on Monday, June 5, 2023, beginning at 6:00 p.m., or immediately following the close of the previous public hearing; and

WHEREAS, the Planning and Zoning Commission reviewed and, by a vote of 5-0 recommended approval of the subject amendments as set forth herein at its meeting on Monday, June 5, 2023; and

WHEREAS, notice of said public hearing had previously been published at least 15 days prior to the hearing in the St. Louis Countian, a newspaper of general circulation in the City of Creve Coeur and otherwise posted and published in accordance with the Zoning Ordinance; and

WHEREAS, all persons who presented themselves at said meeting and desiring to be heard were given an opportunity to be heard and a copy of the proposed ordinance has been made available for public inspection prior to its consideration by the City Council; and the Bill was read by title in open meeting two times before final passage by the City Council; and

WHEREAS, the City Council being fully informed finds that amending the City Code of Ordinances would be in harmony with and bear a substantial relation to the public welfare, health, safety, comfort, and convenience of the citizens of the City of Creve Coeur and in the public interest.

NOW, THEREFORE, be it ordained by the City Council of the City of Creve Coeur, Missouri, as follows:

SECTION 1: Section 405.390 of the Zoning Ordinance, of the City of Creve Coeur's Code of Ordinances shall be amended as follows:

Section 405.390 Planned Zoning Districts

- A. Purpose.** The purpose of the Planned Zoning District is to allow a development project that is proposed on a single lot or multiple lots to be constructed in one (1) or more phases that is unable to meet the established zoning criteria due to project size, phasing, configuration, site conditions, or particular design features. The Planned Zoning District provides a mechanism to facilitate innovative design, solve problems on difficult sites, meet market niches, encourage housing in different forms and price ranges, promote well-designed developments, and encourage infill and redevelopment within the City.
- B. Objectives.** Through the flexibility of the Planned Zoning District, the City seeks to achieve the following objectives:
1. Fulfillment of the goals and objectives of the Comprehensive Plan;
 2. Creation of a more desirable environment than would be possible through application of conventional City land use regulations;
 3. Promotion of a creative approach to the use of land and related physical facilities resulting in better design and development including aesthetic amenities;
 4. Combination and coordination of architectural styles, building forms and building relationships;
 5. Preservation and enhancement of desirable site characteristics such as natural topography, vegetation and geologic features, preferably by means of natural erosion control and stormwater control best management practices;
 6. Use of design, landscape or architectural features consistent with the City's design guidelines; and
 7. Mutually desired elimination of obsolete or deteriorated structures or incompatible uses through redevelopment.
- C. Eligibility.** A development proposal shall be eligible for consideration under the planned zoning district process if the Zoning Administrator finds that it meets the following provisions:
1. Is located on one (1) or more lots totaling at least three (3) acres in size.
 2. Cannot be approved under the provisions of another Zoning District.

3. The subject property is zoned for the eligible type of planned zoning district pursuant to Section 405.390.F. In the event the existing zoning district is not eligible for the requested planned zoning district, an application to rezone to a qualifying zoning district must be submitted in conjunction with the planned zoning district application.
4. The proposed development must substantially comply with the provisions of this Section 405.390 and be generally consistent with the applicable provisions of the City's Comprehensive Plan.

D. Relationship Of Planned Districts to Zoning Map.

1. A mapped district. The planned zoning district designation shall not be attached to existing zoning districts as an overlay. The planned zoning districts, as detailed in this Section, are separate zoning districts and applied to a specific parcel or parcels of land following a public hearing and all other requirements of Section 405.1060 Zoning Changes and Text Amendments. Such designation shall be shown on the City Zoning Map.

E. Public Benefit. In connection with obtaining approval of a planned zoning district, public benefits are to be provided as determined by the City Council upon a recommendation of the Planning and Zoning Commission. Such public benefits to the City could include, but are not limited to, the following:

1. Provision of public or quasi-public parking facilities;
2. Provision of on-street and off-street pedestrian facilities linking surrounding business, office and residential uses;
3. Consolidation and/or elimination of overhead utility wires;
4. Inclusion of landscaped gardens, plazas or parks available for public use;
5. Provision of alternative street connections or the dedication of land for additional street right-of-way;
6. Fountains, statuary, public art;
7. Architectural distinction and significance that would make building(s) noteworthy;

8. Extensive use of high-quality building materials that would add to the assessed valuation of the structures.

F. *Types of planned zoning districts.* There are three (3) types of planned zoning districts:

1. Planned Residential Development (PRD). A Planned Residential Development shall be eligible for properties where the existing zoning district is zoned A, B, C, or D Single Family Residential or AR-Attached Residential.
2. Planned Commercial Development (PCD). A Planned Commercial Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
3. Planned Mixed-Use Development (PMD). A Planned Mixed-Use Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
4. *Planned Residential Development (PRD).* A "Planned Residential Development" shall mean a development on a plot of land, containing a limited mixture of uses and building types that is predominately residential, which may include single-family houses, clustered housing, townhouses, and multi-family dwellings. Small service-commercial uses that complement the area may be permitted if deemed compatible with the proposed residential uses and will not have a detrimental impact on the adjacent residential uses. Although no particular combination of the aforementioned uses is predetermined, all applications for PRD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria.* Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PRD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Housing densities expressed as dwelling units per acre for each housing type shall be compatible with the surrounding area.
- (2) The height of all buildings shall be compatible with the surrounding area. In addition, properties adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (3) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of at least twenty-five (25) feet on all sides that abut the single-family development. The buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.
- (4) Balances increased structure densities for the subject property with more cohesive and organized open space.
- (5) Improves on, or provides for, efficient circulation patterns, access controls and screening of parking facilities.
- (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (7) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (8) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.

- (9) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PRD.
- (10) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (11) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with the surrounding development.

5. *Planned Commercial Development (PCD)*. A "Planned Commercial Development" shall mean a development on a plot of land containing a mixture of commercial, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PCD is to provide sites for the development of a mixture of commercial uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PCD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PCD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PCD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development. The

buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.

- (3) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (4) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (5) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (6) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (7) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (8) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (9) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (10) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
- (11) Provides appropriate spacing and/or greenspace in or around the separate developments within the PCD.
- (12) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development

through undergrounding or innovative design of above ground facilities that is visually commensurate with surrounding development.

6. *Planned Mixed-Use Development (PMD)*. A "Planned Mixed-Use Development" shall mean a development on a plot of land containing a mixture of commercial, residential, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PMD is to provide sites for the development of a mixture of commercial and residential uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PMD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PMD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PMD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development, except if the abutting or adjoining proposed uses are residential of equal or less density relative to the existing residential uses then such buffer yard shall be twenty-five (25) feet. The buffer yard shall be landscaped and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning

and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.

- (3) If residential uses are proposed, provides for a mixture of housing types to meet market demands and encourage diversification.
- (4) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (5) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (7) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (8) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (9) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (10) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (11) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
- (12) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PMD.
- (13) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground

facilities that is visually commensurate with surrounding development.

G. *Submittal Requirements—Site Concept Plan.* Any application for a rezoning to a Planned Zoning District must be accompanied by a Site Concept Plan submitted in accordance with Section 405.1080 with the information listed below in approximate detail placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a preliminary plat showing the property subdivided into separate lots may also be submitted in accordance with Chapter 410 (as modified by approvals under this Section) in conjunction with the submittal of the Site Concept Plan, but in any event, must be submitted no later than in conjunction with the submittal of the applicable Site Development Plan(s).

- (1) The location of the parcel in relation to all surrounding and adjacent uses, buildings and zoning;
- (2) The location of the parcel in relation to major arterials and/or highways and any roadways or drives connecting the parcel to those major thoroughfares;
- (3) The boundaries, dimensions and area of the parcel;
- (4) The proposed use and development of the parcel including principal and accessory uses;
- (5) The location and size of each existing structure and building on the parcel;
- (6) The footprint of each proposed building or structure on the parcel;
- (7) The proposed setbacks from all perimeter property lines and buffer yards, if applicable;
- (8) The height and number of stories of all proposed buildings and structures;
- (9) The amount of land area covered by all proposed buildings, structures, drives and parking facilities;
- (10) The ratio of floor area to land area (FAR);
- (11) Approximate locations of existing and proposed utility easements and stormwater retention areas;

- (12) Existing and proposed contours at vertical intervals of not more than five (5) feet;
- (13) Two (2) section profiles through the site showing preliminary building form, existing natural and proposed final grade;
- (14) Preliminary plan for sanitation and drainage facilities;
- (15) Drawings shall contain the project name, proposed and existing street names, a reasonable and legible scale, north arrow and the date drawn.
- (16) A timeline showing the current approximation of when the planned development will be constructed in stages or units and a schedule for the development of stages or units stating the approximate beginning and completion time for each stage or unit.
- (17) A non-exhaustive outline of any proposed restrictive covenants that may be recorded with respect to property in the proposed planned zoning district.
- (18) A narrative addressing each of the standards set forth in Section 405.390(I) Review Criteria, Section 405.390(E) Public Benefit, the City's Comprehensive Plan, and such additional standards, if any, as may be applicable under the specific provisions of these planned zoning district regulations. The statement shall explain specifically how the proposed planned zoning district relates to and meets each such standard.
- (19) An economic analysis of any proposed direct impacts on public costs, such as from any improvements proposed for dedication to the public.
- (20) At the request of the Director of Community Development, a traffic impact analysis prepared by a Missouri registered traffic engineer depicting the project's impact on vehicular and pedestrian traffic along roadways adjacent to the planned zoning district and/or a traffic review focused on the vehicular and pedestrian circulation within the planned zoning district.
- (21) Any other information deemed necessary by the Zoning Administrator to fully understand the proposal.

A Site Development Plan shall then be submitted with applicable fees and escrow, for each specific building or phase within the project, for review and approval by the Planning and Zoning Commission. Such Site Development Plan

shall be submitted in advance of or in conjunction with an application for a building permit (and can be submitted concurrently with the Site Concept Plan) for one or more buildings or phases. Of primary importance in the review of a Site Development Plan will be a determination that the plan substantially complies with the Site Concept Plan approved for the total development or project.

H. *Submittal Requirements—Site Development Plan.* Each Site Development Plan must be submitted in accordance with Section 405.1080 with the information listed below placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a final plat must also be submitted in accordance with Chapter 410 (as modified by approvals under this Section).

1. All submissions to the City's Planning and Zoning Commission and City Council shall be properly sealed and signed by a licensed architect, professional engineer or land surveyor registered in the State of Missouri, as applicable, pursuant to laws and regulations established by the Missouri Board for Architects, Professional Engineers and Land Surveyors. An original seal, signature and print date shall appear on each page of one (1) original submittal set as evidence that the submitted material was prepared under the direction of a licensed architect, professional engineer or land surveyor, as applicable. All other submissions shall be copies of the original set.
2. Title block including name of the proposed project, name, address and phone number of preparers and project applicant or owner.
3. The location, dimensions and total area of the site.
4. The location, height, floor area, type of construction and intended use of each proposed building or structure.
5. Architectural elevations depicting size, shape and special design elements proposed as well as proposed exterior finish materials to be used.
6. A plan of the entire planned zoning district shall be drawn at a scale of 1" = 20' or larger bearing a minimum of two (2) surveyed points located in conformance with the Missouri Coordinate System ("State Plane Coordinates").

7. Two (2) cross sections at ninety degrees (90°) from each other through the proposed site and building(s).
 8. The number, location and dimensions of parking spaces, surface lot or structures and loading docks, in relation to the applicable parking regulations in Article VII, with means of ingress and egress. Layout of physically disabled parking and accessibility shall be included.
 9. The proposed traffic circulation pattern within the area of the development including the location and description of public improvements to be installed including any streets and access easements.
 10. The location and purpose of any existing or proposed dedication, easement or right-of-way (public or private) within the boundaries of the site.
 11. Location and dimensions of adjacent properties, abutting public rights-of-way and easements and utilities serving the site.
 12. Location of existing and proposed sewage treatment, stormwater runoff collection and detention and preliminary stormwater runoff calculations (amount of detention required and provided).
 13. Existing and proposed contour lines or elevations based on mean sea level datum at two (2) foot intervals and extending one hundred (100) feet beyond the property lines.
 14. Site coverage data in a percentage form of the planned zoning district (a ratio of non-impervious to impervious area).
 15. Ratio of floor area to site area of the planned zoning district (FAR).
 16. Location and height of all light poles and trash enclosures including detailed sketches or cut sheets.
 17. The proposed treatment of open spaces including existing and proposed landscaping.
- I. Review Criteria.* The Planning and Zoning Commission shall recommend to the City Council approval, approval with conditions or denial of a planned zoning district application primarily based upon satisfaction of Section 405.390(C), Eligibility and meeting the applicable design criteria in Section 405.390(F), Types of Planned Zoning Districts. Supplemental to these items, every application shall

also be reviewed for conformance with the standards set forth below, to the extent applicable:

1. The proposed development is in harmony with the general purpose and intent of this Chapter and is generally compatible with and implements the planning goals and objectives of the City including the Comprehensive Plan.
2. Streets or other means of access to the proposed development are suitable and adequate to carry anticipated traffic and will not overload the adjacent streets.
3. The internal circulation system of the proposed development encourages safe movement for vehicles and pedestrians.
4. Existing or proposed utility services are adequate for the proposed development.
5. Appropriate buffering is provided to protect adjacent land uses from light, noise and visual impacts.
6. Architecture and building materials are consistent with the character of the proposed development and compatible with areas of the City proximate thereto.
7. Landscaping is appropriate for the scale of development and consistent with any applicable City codes, ordinances and standards.
8. The proposed development preserves any significant architectural and environmental features of the property, to the extent reasonably possible.
9. Operating and delivery hours are compatible with the land uses adjacent to the planned zoning district.
10. The proposed uses are compatible with the area surrounding the proposed development and will not have a material net cumulative adverse impact on the surrounding area or the City as a whole.
11. The proposed development complies with all other applicable codes and ordinances.

12. The layout of structures and spaces adequately takes into account the potential for future subdivision of the development.
13. There is a demonstrated level of the public benefit to the City derived from the proposed development, per Section 405.390(E).

J. Review Procedure For A Planned Zoning District.

1. The application for a Planned Zoning District shall be reviewed and decided upon in accordance with the procedures for a zoning change established by Section 405.1060.
2. The Director of Community Development or his/her designee shall notify the applicant of any deficiencies and/or modifications necessary based on their review. The Planning and Zoning Commission may recommend, and the City Council may adopt modifications to the development standards set forth in Chapter 405 and Chapter 410 of the Code of Ordinances, City of Creve Coeur, Missouri, as part of its consideration and approval of the planned zoning district.
3. Approval of the Planned Zoning District is determined solely in the legislative discretion of the City Council which shall be codified within a separate planned zoning district ordinance.
4. Once approved by the City Council, the planned zoning district, including the associated site concept plan and the planned zoning district ordinance replaces all prior zoning regulations on the property and should be noted on the Zoning Map.
5. Any applicable time limitations shall be met, such as those pertaining to proposed wireless communications facilities and support structures under Section 67.5090 RSMo. et seq. and FCC Declaratory Ruling WT Docket No. 08-165, rel. 11-15-2009.1

K. Conditions Of Approval.

1. The City Council shall consider the same criteria as set forth for the Planning and Zoning Commission review (Section 405.390(I), Review Criteria) and may impose such conditions and limitations including, but not limited to, those recommended by the Planning and Zoning Commission,

as may be necessary or appropriate to prevent or minimize adverse effects upon other property and improvements in the vicinity of the planned zoning district, upon the City as a whole or upon public facilities and services.

These conditions may include, but are not limited to, conditions concerning use, construction, character, location, landscaping, screening, parking, maintenance, operational elements that would impact adjoining land uses and other matters relating to the purposes and objectives of these planned zoning district regulations. Such conditions shall be expressly set forth in the ordinance and depicted, as appropriate, on the associated Site Concept Plan authorizing the planned zoning district.

2. The ordinance approving a Planned Zoning District shall contain a legal description of the subject property, all imposed conditions of approval of the zoning and the approval of the Site Concept Plan. The ordinance and the approved site development plan(s) shall be recorded by the applicant in the office of County Recorder of Deeds. The applicant must present proof to the City of such recording before any permits may be issued.
 3. Following planned zoning district approval, the site concept plan and planned district ordinance, rather than any other provision of this Chapter, shall govern the use, parking, loading, sign, bulk, space and yard regulations applicable to the subject property and no other use or development, except temporary uses, shall be permitted within the area of the planned zoning district pursuant to the zoning district regulations otherwise applicable to such area.
- L. *Reapplication.* In the event the City Council denies an application for planned zoning district, no application for the same or substantially similar proposal will be accepted for a period of at least one (1) year from the date of denial by the City Council, unless the City Council affirmatively waives this restriction for good cause.
- M. *Final Building, Construction and Site Improvement Plans.* Once a planned zoning district and its included Site Concept Plan receives final approval by the City Council and the pertinent Site Development Plan has received approval by the Planning and Zoning Commission, further review of the final building, construction and site improvement plans by the Planning and Zoning Commission or the City Council will not be required, provided those final plans are consistent with and in substantial conformance with the approved planned zoning district and the approved site development plan.
- N. *Period of Validity.* The Site Concept Plans approved by the City Council in conjunction with the Planned Zoning District shall be valid for a period of up to

eight (8) years from the date of approval. After the eighth year, a site concept plan will no longer be valid unless an extension is granted as set forth below. The City of Creve Coeur may grant a single one-year extension prior to the expiration of the site concept plan upon written request of the applicant submitted to the City at least one hundred eighty (180) days prior to the expiration date and granted prior to the expiration date. Site Development Plans shall be valid for a period of twelve (12) months from the date of approval. Within such period a building permit shall be obtained, and substantial construction commenced. Substantial construction shall be deemed to consist of clearing the site, completion of footings, basement or building slab and inspection of such work. The Planning and Zoning Commission may grant extensions regarding the validity of a site development plan not exceeding twelve (12) months each upon written request of the original applicant prior to the expiration of such period and resubmission of the application if the application as resubmitted is substantially the same as the initially approved application. However, the Commission shall have the power in such cases to attach new conditions to their re-approval or to disapprove the reapplication. The validity of a site development plan cannot be extended if the site concept plan has ceased to be valid.

- O. *Building Permit Issuance.* A copy of the approved planned zoning district, the approved site concept plan, and each approved site development plan shall be retained in the records of the Department of Community Development and all building and occupancy permits issued by the City shall conform to the provisions of the approved planned zoning district, site concept plan, and site development plan.
- P. *Violations.* Failure to comply with any of the conditions and/or provisions of an approved planned zoning district plan shall constitute a violation of this Chapter, punishable as provided in Section 405.1150 of this Chapter. The City may seek judicial remedies to compel compliance.
- Q. *Amendments.* No amendments shall be made in the construction, development or use permitted under a planned zoning district except as follows:
 - 1. Minor amendments. During build-out of the planned zoning district, the Zoning Administrator may authorize minor adjustments to the approved site development plan when such adjustments appear necessary in light of technical or engineering considerations provided the project will remain in substantial conformance with the original approval.
 - 2. Major amendments. If the Zoning Administrator determines that the proposed amendment will result in a major change to the site concept plan or site development plan (not in substantial conformance with the original

approval) or any change to the list of permitted uses, the matter shall be subject to review as an amendment the Planned Zoning District. Amendments to the Site Concept Plan shall follow the same procedures as a new application under the provisions of these planned zoning district regulations.

Amendments to the Site Development Plan shall follow the provisions of Section 405.1080 subject to review and approval by the Planning and Zoning Commission.

SECTION 2: This ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter.

ADOPTED THIS ____ DAY OF _____, 2023.

NICOLE GREER
PRESIDENT OF CITY COUNCIL

APPROVED THIS ____ DAY OF _____, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



**APPLICATION TO PLANNING AND ZONING COMMISSION
#23-013: TEXT AMENDMENT TO MODIFY SECTION 405.390 PLANNED
ZONING DISTRICTS OF THE ZONING ORDINANCE**

FOR THE MEETING OF: Monday, June 5, 2023, 6:00 P.M.

LOCATION: Citywide

REQUEST: Jason Jaggi, Director of Community Development on behalf of the City of Creve Coeur, has submitted an application to amend Zoning Ordinance Section 405.390, Planned Zoning Districts. The submitted amendments include reducing the minimum site size for planned zoning districts, modifying the eligibility criteria, establishing a new mixed-use type of planned zoning district, and introducing the requirement for approval of a site concept plan to regulate the overall components of a development. The Planned Zoning Districts procedure provides an alternative approach to the traditional zoning ordinance standards for developments to allow flexibility due to circumstances with project size, phasing, configuration, site conditions or design features in exchange for a public benefit. Planned Zoning Districts have been established to implement the goals of the comprehensive plan, facilitate innovative design, solve problems on difficult sites and promote well-designed redevelopment that cannot be achieved under the traditional zoning and land use regulations.

ADDITIONAL INFORMATION: Text Amendments to the Zoning Ordinance require a public hearing and review by the Planning and Zoning Commission with final approval by the City Council.

APPLICANT: Jason Jaggi, AICP
Director of Community Development
City of Creve Coeur
300 North New Ballas Road
St. Louis, MO 63141

REPORT PREPARED BY: Jason Jaggi, AICP Director of Community Development
DATE: May 24, 2023
ATTACHMENTS: Revised Draft Amendments and Existing Section 405.390
Planned Zoning Districts; Draft Ordinance

Key Issues:

- Are the changes consistent with the purposes of the Zoning Code?
- Are the changes consistent with the objectives and strategies of the Comprehensive Plan?

Zoning Code References

- Section 405.390 Planned Zoning Districts
- Section 405.1060 Zoning Changes and Text Amendments

BACKGROUND

The Planning and Zoning Commission held a public hearing on May 15, 2023 to discuss amendments to the Planned Zoning District ordinance, found in Section 405.390 of the Zoning Ordinance. Comments and questions were discussed with staff and at the conclusion of the review, the Commission voted to continue this application to the June 5, 2023 meeting. No public comments were received at the meeting.

REVISIONS SINCE LAST MEETING

Staff has made one substantive change to the proposed amendments based on input received at the May 15th meeting. A requirement has been added to Section G “Submittal Requirements” to provide cost information on any improvements that would be dedicated to the public that would require future maintenance not under the responsibility of the developer and future property owners.

The following specific language has been included under Section G, #19 on Page 9 in the attached revised document:

(19) An economic analysis of any proposed direct impacts on public costs, such as from any improvements proposed for dedication to the public.

CONCLUSION AND ACTION

A draft ordinance has been prepared that includes all of the changes made to date. The Commission is requested to take comments from the public and discuss any further revisions at this meeting.

MOTION

If the Planning and Zoning Commission believes the proposed changes to Section 405.390 Planned Zoning Districts are appropriate, the following would be a suitable motion for this application:

“I move to recommend approval of the text amendments to Section 405.390 Planned Zoning Districts as shown on the attached draft ordinance as part of Application #23-013 at the meeting of June 5, 2023.”

APPENDIX 1: COMPREHENSIVE PLAN

Included and attached by reference. See body of report for specific excerpts.

APPENDIX 2: ZONING CODE

Included and attached by reference. See body of report for specific excerpts.

AN ORDINANCE AMENDING SECTION 405.390 PLANNED ZONING DISTRICTS OF THE ZONING ORDINANCE

WHEREAS, an application was made by the Director of Community Development for the City of Creve Coeur to amend Section 405.390 of the Zoning Ordinance which regulates Planned Zoning Districts; and

WHEREAS, the Planning and Zoning Commission of the City of Creve Coeur, Missouri has recognized the need for such regulations in the City Code of Ordinances as set forth herein, to more effectively implement the goals of the Comprehensive Plan and the purposes of the Zoning Code; and

WHEREAS, the Planning and Zoning Commission of the City of Creve Coeur, Missouri, held a public hearing thereon at the Creve Coeur Government Center on Monday, May 15, 2023 and continuing on Monday, June 5, 2023, beginning at 6:00 p.m., or immediately following the close of the previous public hearing; and

WHEREAS, the Planning and Zoning Commission reviewed and, by a vote of ____ recommended approval of the subject amendments as set forth herein at its meeting on Monday, June 5, 2023; and

WHEREAS, notice of said public hearing had previously been published at least 15 days prior to the hearing in the St. Louis Countian, a newspaper of general circulation in the City of Creve Coeur and otherwise posted and published in accordance with the Zoning Ordinance; and

WHEREAS, all persons who presented themselves at said meeting and desiring to be heard were given an opportunity to be heard and a copy of the proposed ordinance has been made available for public inspection prior to its consideration by the City Council; and the Bill was read by title in open meeting two times before final passage by the City Council; and

WHEREAS, the City Council being fully informed finds that amending the City Code of Ordinances would be in harmony with and bear a substantial relation to the public welfare, health, safety, comfort, and convenience of the citizens of the City of Creve Coeur and in the public interest.

NOW, THEREFORE, be it ordained by the City Council of the City of Creve Coeur, Missouri, as follows:

SECTION 1: Section 405.390 of the Zoning Ordinance, of the City of Creve Coeur's Code of Ordinances shall be amended to read as follows:

Section 405.390 Planned Zoning Districts

- A. Purpose.** The purpose of the Planned Zoning District is to allow a development project that is proposed on a single lot or multiple lots to be constructed in one (1) or more phases that is unable to meet the established zoning criteria due to project size, phasing, configuration, site conditions, or particular design features. The Planned Zoning District provides a mechanism to facilitate innovative design, solve problems on difficult sites, meet market niches, encourage housing in different forms and price ranges, promote well-designed developments, and encourage infill and redevelopment within the City.
- B. Objectives.** Through the flexibility of the Planned Zoning District, the City seeks to achieve the following objectives:
1. Fulfillment of the goals and objectives of the Comprehensive Plan;
 2. Creation of a more desirable environment than would be possible through application of conventional City land use regulations;
 3. Promotion of a creative approach to the use of land and related physical facilities resulting in better design and development including aesthetic amenities;
 4. Combination and coordination of architectural styles, building forms and building relationships;
 5. Preservation and enhancement of desirable site characteristics such as natural topography, vegetation and geologic features, preferably by means of natural erosion control and stormwater control best management practices;
 6. Use of design, landscape or architectural features consistent with the City's design guidelines; and
 7. Mutually desired elimination of obsolete or deteriorated structures or incompatible uses through redevelopment.
- C. Eligibility.** A development proposal shall be eligible for consideration under the planned zoning district process if the Zoning Administrator finds that it meets the following provisions:
1. Is located on one (1) or more lots totaling at least three (3) acres in size.
 2. Cannot be approved under the provisions of another Zoning District.

3. The subject property is zoned for the eligible type of planned zoning district pursuant to Section 405.390.F. In the event the existing zoning district is not eligible for the requested planned zoning district, an application to rezone to a qualifying zoning district must be submitted in conjunction with the planned zoning district application.
4. The proposed development must substantially comply with the provisions of this Section 405.390 and be generally consistent with the applicable provisions of the City's Comprehensive Plan.

D. Relationship Of Planned Districts to Zoning Map.

1. A mapped district. The planned zoning district designation shall not be attached to existing zoning districts as an overlay. The planned zoning districts, as detailed in this Section, are separate zoning districts and applied to a specific parcel or parcels of land following a public hearing and all other requirements of Section 405.1060 Zoning Changes and Text Amendments. Such designation shall be shown on the City Zoning Map.

E. Public Benefit. In connection with obtaining approval of a planned zoning district, public benefits are to be provided as determined by the City Council upon a recommendation of the Planning and Zoning Commission. Such public benefits to the City could include, but are not limited to, the following:

1. Provision of public or quasi-public parking facilities;
2. Provision of on-street and off-street pedestrian facilities linking surrounding business, office and residential uses;
3. Consolidation and/or elimination of overhead utility wires;
4. Inclusion of landscaped gardens, plazas or parks available for public use;
5. Provision of alternative street connections or the dedication of land for additional street right-of-way;
6. Fountains, statuary, public art;
7. Architectural distinction and significance that would make building(s) noteworthy;

8. Extensive use of high-quality building materials that would add to the assessed valuation of the structures.

F. *Types of planned zoning districts.* There are three (3) types of planned zoning districts:

1. Planned Residential Development (PRD). A Planned Residential Development shall be eligible for properties where the existing zoning district is zoned A, B, C, or D Single Family Residential or AR-Attached Residential.
2. Planned Commercial Development (PCD). A Planned Commercial Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
3. Planned Mixed-Use Development (PMD). A Planned Mixed-Use Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
4. *Planned Residential Development (PRD).* A "Planned Residential Development" shall mean a development on a plot of land, containing a limited mixture of uses and building types that is predominately residential, which may include single-family houses, clustered housing, townhouses, and multi-family dwellings. Small service-commercial uses that complement the area may be permitted if deemed compatible with the proposed residential uses and will not have a detrimental impact on the adjacent residential uses. Although no particular combination of the aforementioned uses is predetermined, all applications for PRD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria.* Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PRD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Housing densities expressed as dwelling units per acre for each housing type shall be compatible with the surrounding area.
- (2) The height of all buildings shall be compatible with the surrounding area. In addition, properties adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (3) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of at least twenty-five (25) feet on all sides that abut the single-family development. The buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.
- (4) Balances increased structure densities for the subject property with more cohesive and organized open space.
- (5) Improves on, or provides for, efficient circulation patterns, access controls and screening of parking facilities.
- (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (7) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (8) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.

- (9) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PRD.
- (10) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (11) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with the surrounding development.

5. *Planned Commercial Development (PCD)*. A "Planned Commercial Development" shall mean a development on a plot of land containing a mixture of commercial, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PCD is to provide sites for the development of a mixture of commercial uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PCD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PCD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PCD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development. The

buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.

- (3) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (4) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (5) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (6) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (7) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (8) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (9) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (10) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
- (11) Provides appropriate spacing and/or greenspace in or around the separate developments within the PCD.
- (12) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development

through undergrounding or innovative design of above ground facilities that is visually commensurate with surrounding development.

6. *Planned Mixed-Use Development (PMD)*. A "Planned Mixed-Use Development" shall mean a development on a plot of land containing a mixture of commercial, residential, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PMD is to provide sites for the development of a mixture of commercial and residential uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PMD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PMD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PMD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development, except if the abutting or adjoining proposed uses are residential of equal or less density relative to the existing residential uses then such buffer yard shall be twenty-five (25) feet. The buffer yard shall be landscaped and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning

and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.

- (3) If residential uses are proposed, provides for a mixture of housing types to meet market demands and encourage diversification.
- (4) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (5) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (7) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (8) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (9) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (10) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (11) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
- (12) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PMD.
- (13) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground

facilities that is visually commensurate with surrounding development.

G. *Submittal Requirements—Site Concept Plan.* Any application for a rezoning to a Planned Zoning District must be accompanied by a Site Concept Plan submitted in accordance with Section 405.1080 with the information listed below in approximate detail placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a preliminary plat showing the property subdivided into separate lots may also be submitted in accordance with Chapter 410 (as modified by approvals under this Section) in conjunction with the submittal of the Site Concept Plan, but in any event, must be submitted no later than in conjunction with the submittal of the applicable Site Development Plan(s).

- (1) The location of the parcel in relation to all surrounding and adjacent uses, buildings and zoning;
- (2) The location of the parcel in relation to major arterials and/or highways and any roadways or drives connecting the parcel to those major thoroughfares;
- (3) The boundaries, dimensions and area of the parcel;
- (4) The proposed use and development of the parcel including principal and accessory uses;
- (5) The location and size of each existing structure and building on the parcel;
- (6) The footprint of each proposed building or structure on the parcel;
- (7) The proposed setbacks from all perimeter property lines and buffer yards, if applicable;
- (8) The height and number of stories of all proposed buildings and structures;
- (9) The amount of land area covered by all proposed buildings, structures, drives and parking facilities;
- (10) The ratio of floor area to land area (FAR);
- (11) Approximate locations of existing and proposed utility easements and stormwater retention areas;

- (12) Existing and proposed contours at vertical intervals of not more than five (5) feet;
- (13) Two (2) section profiles through the site showing preliminary building form, existing natural and proposed final grade;
- (14) Preliminary plan for sanitation and drainage facilities;
- (15) Drawings shall contain the project name, proposed and existing street names, a reasonable and legible scale, north arrow and the date drawn.
- (16) A timeline showing the current approximation of when the planned development will be constructed in stages or units and a schedule for the development of stages or units stating the approximate beginning and completion time for each stage or unit.
- (17) A non-exhaustive outline of any proposed restrictive covenants that may be recorded with respect to property in the proposed planned zoning district.
- (18) A narrative addressing each of the standards set forth in Section 405.390(I) Review Criteria, Section 405.390(E) Public Benefit, the City's Comprehensive Plan, and such additional standards, if any, as may be applicable under the specific provisions of these planned zoning district regulations. The statement shall explain specifically how the proposed planned zoning district relates to and meets each such standard.
- (19) An economic analysis of any proposed direct impacts on public costs, such as from any improvements proposed for dedication to the public.
- (20) At the request of the Director of Community Development, a traffic impact analysis prepared by a Missouri registered traffic engineer depicting the project's impact on vehicular and pedestrian traffic along roadways adjacent to the planned zoning district and/or a traffic review focused on the vehicular and pedestrian circulation within the planned zoning district.
- (21) Any other information deemed necessary by the Zoning Administrator to fully understand the proposal.

A Site Development Plan shall then be submitted with applicable fees and escrow, for each specific building or phase within the project, for review and approval by the Planning and Zoning Commission. Such Site Development Plan

shall be submitted in advance of or in conjunction with an application for a building permit (and can be submitted concurrently with the Site Concept Plan) for one or more buildings or phases. Of primary importance in the review of a Site Development Plan will be a determination that the plan substantially complies with the Site Concept Plan approved for the total development or project.

H. *Submittal Requirements—Site Development Plan.* Each Site Development Plan must be submitted in accordance with Section 405.1080 with the information listed below placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a final plat must also be submitted in accordance with Chapter 410 (as modified by approvals under this Section).

1. All submissions to the City's Planning and Zoning Commission and City Council shall be properly sealed and signed by a licensed architect, professional engineer or land surveyor registered in the State of Missouri, as applicable, pursuant to laws and regulations established by the Missouri Board for Architects, Professional Engineers and Land Surveyors. An original seal, signature and print date shall appear on each page of one (1) original submittal set as evidence that the submitted material was prepared under the direction of a licensed architect, professional engineer or land surveyor, as applicable. All other submissions shall be copies of the original set.
2. Title block including name of the proposed project, name, address and phone number of preparers and project applicant or owner.
3. The location, dimensions and total area of the site.
4. The location, height, floor area, type of construction and intended use of each proposed building or structure.
5. Architectural elevations depicting size, shape and special design elements proposed as well as proposed exterior finish materials to be used.
6. A plan of the entire planned zoning district shall be drawn at a scale of 1" = 20' or larger bearing a minimum of two (2) surveyed points located in conformance with the Missouri Coordinate System ("State Plane Coordinates").

7. Two (2) cross sections at ninety degrees (90°) from each other through the proposed site and building(s).
 8. The number, location and dimensions of parking spaces, surface lot or structures and loading docks, in relation to the applicable parking regulations in Article VII, with means of ingress and egress. Layout of physically disabled parking and accessibility shall be included.
 9. The proposed traffic circulation pattern within the area of the development including the location and description of public improvements to be installed including any streets and access easements.
 10. The location and purpose of any existing or proposed dedication, easement or right-of-way (public or private) within the boundaries of the site.
 11. Location and dimensions of adjacent properties, abutting public rights-of-way and easements and utilities serving the site.
 12. Location of existing and proposed sewage treatment, stormwater runoff collection and detention and preliminary stormwater runoff calculations (amount of detention required and provided).
 13. Existing and proposed contour lines or elevations based on mean sea level datum at two (2) foot intervals and extending one hundred (100) feet beyond the property lines.
 14. Site coverage data in a percentage form of the planned zoning district (a ratio of non-impervious to impervious area).
 15. Ratio of floor area to site area of the planned zoning district (FAR).
 16. Location and height of all light poles and trash enclosures including detailed sketches or cut sheets.
 17. The proposed treatment of open spaces including existing and proposed landscaping.
- I. Review Criteria.* The Planning and Zoning Commission shall recommend to the City Council approval, approval with conditions or denial of a planned zoning district application primarily based upon satisfaction of Section 405.390(C), Eligibility and meeting the applicable design criteria in Section 405.390(F), Types of Planned Zoning Districts. Supplemental to these items, every application shall

also be reviewed for conformance with the standards set forth below, to the extent applicable:

1. The proposed development is in harmony with the general purpose and intent of this Chapter and is generally compatible with and implements the planning goals and objectives of the City including the Comprehensive Plan.
2. Streets or other means of access to the proposed development are suitable and adequate to carry anticipated traffic and will not overload the adjacent streets.
3. The internal circulation system of the proposed development encourages safe movement for vehicles and pedestrians.
4. Existing or proposed utility services are adequate for the proposed development.
5. Appropriate buffering is provided to protect adjacent land uses from light, noise and visual impacts.
6. Architecture and building materials are consistent with the character of the proposed development and compatible with areas of the City proximate thereto.
7. Landscaping is appropriate for the scale of development and consistent with any applicable City codes, ordinances and standards.
8. The proposed development preserves any significant architectural and environmental features of the property, to the extent reasonably possible.
9. Operating and delivery hours are compatible with the land uses adjacent to the planned zoning district.
10. The proposed uses are compatible with the area surrounding the proposed development and will not have a material net cumulative adverse impact on the surrounding area or the City as a whole.
11. The proposed development complies with all other applicable codes and ordinances.

12. The layout of structures and spaces adequately takes into account the potential for future subdivision of the development.
13. There is a demonstrated level of the public benefit to the City derived from the proposed development, per Section 405.390(E).

J. Review Procedure For A Planned Zoning District.

1. The application for a Planned Zoning District shall be reviewed and decided upon in accordance with the procedures for a zoning change established by Section 405.1060.
2. The Director of Community Development or his/her designee shall notify the applicant of any deficiencies and/or modifications necessary based on their review. The Planning and Zoning Commission may recommend, and the City Council may adopt modifications to the development standards set forth in Chapter 405 and Chapter 410 of the Code of Ordinances, City of Creve Coeur, Missouri, as part of its consideration and approval of the planned zoning district.
3. Approval of the Planned Zoning District is determined solely in the legislative discretion of the City Council which shall be codified within a separate planned zoning district ordinance.
4. Once approved by the City Council, the planned zoning district, including the associated site concept plan and the planned zoning district ordinance replaces all prior zoning regulations on the property and should be noted on the Zoning Map.
5. Any applicable time limitations shall be met, such as those pertaining to proposed wireless communications facilities and support structures under Section 67.5090 RSMo. et seq. and FCC Declaratory Ruling WT Docket No. 08-165, rel. 11-15-2009.1

K. Conditions Of Approval.

1. The City Council shall consider the same criteria as set forth for the Planning and Zoning Commission review (Section 405.390(I), Review Criteria) and may impose such conditions and limitations including, but not limited to, those recommended by the Planning and Zoning Commission,

as may be necessary or appropriate to prevent or minimize adverse effects upon other property and improvements in the vicinity of the planned zoning district, upon the City as a whole or upon public facilities and services.

These conditions may include, but are not limited to, conditions concerning use, construction, character, location, landscaping, screening, parking, maintenance, operational elements that would impact adjoining land uses and other matters relating to the purposes and objectives of these planned zoning district regulations. Such conditions shall be expressly set forth in the ordinance and depicted, as appropriate, on the associated Site Concept Plan authorizing the planned zoning district.

2. The ordinance approving a Planned Zoning District shall contain a legal description of the subject property, all imposed conditions of approval of the zoning and the approval of the Site Concept Plan. The ordinance and the approved site development plan(s) shall be recorded by the applicant in the office of County Recorder of Deeds. The applicant must present proof to the City of such recording before any permits may be issued.
 3. Following planned zoning district approval, the site concept plan and planned district ordinance, rather than any other provision of this Chapter, shall govern the use, parking, loading, sign, bulk, space and yard regulations applicable to the subject property and no other use or development, except temporary uses, shall be permitted within the area of the planned zoning district pursuant to the zoning district regulations otherwise applicable to such area.
- L. *Reapplication.* In the event the City Council denies an application for planned zoning district, no application for the same or substantially similar proposal will be accepted for a period of at least one (1) year from the date of denial by the City Council, unless the City Council affirmatively waives this restriction for good cause.
- M. *Final Building, Construction and Site Improvement Plans.* Once a planned zoning district and its included Site Concept Plan receives final approval by the City Council and the pertinent Site Development Plan has received approval by the Planning and Zoning Commission, further review of the final building, construction and site improvement plans by the Planning and Zoning Commission or the City Council will not be required, provided those final plans are consistent with and in substantial conformance with the approved planned zoning district and the approved site development plan.
- N. *Period of Validity.* The Site Concept Plans approved by the City Council in conjunction with the Planned Zoning District shall be valid for a period of up to

eight (8) years from the date of approval. After the eighth year, a site concept plan will no longer be valid unless an extension is granted as set forth below. The City of Creve Coeur may grant a single one-year extension prior to the expiration of the site concept plan upon written request of the applicant submitted to the City at least one hundred eighty (180) days prior to the expiration date and granted prior to the expiration date. Site Development Plans shall be valid for a period of twelve (12) months from the date of approval. Within such period a building permit shall be obtained, and substantial construction commenced. Substantial construction shall be deemed to consist of clearing the site, completion of footings, basement or building slab and inspection of such work. The Planning and Zoning Commission may grant extensions regarding the validity of a site development plan not exceeding twelve (12) months each upon written request of the original applicant prior to the expiration of such period and resubmission of the application if the application as resubmitted is substantially the same as the initially approved application. However, the Commission shall have the power in such cases to attach new conditions to their re-approval or to disapprove the reapplication. The validity of a site development plan cannot be extended if the site concept plan has ceased to be valid.

- O. *Building Permit Issuance.* A copy of the approved planned zoning district, the approved site concept plan, and each approved site development plan shall be retained in the records of the Department of Community Development and all building and occupancy permits issued by the City shall conform to the provisions of the approved planned zoning district, site concept plan, and site development plan.
- P. *Violations.* Failure to comply with any of the conditions and/or provisions of an approved planned zoning district plan shall constitute a violation of this Chapter, punishable as provided in Section 405.1150 of this Chapter. The City may seek judicial remedies to compel compliance.
- Q. *Amendments.* No amendments shall be made in the construction, development or use permitted under a planned zoning district except as follows:
1. Minor amendments. During build-out of the planned zoning district, the Zoning Administrator may authorize minor adjustments to the approved site development plan when such adjustments appear necessary in light of technical or engineering considerations provided the project will remain in substantial conformance with the original approval.
 2. Major amendments. If the Zoning Administrator determines that the proposed amendment will result in a major change to the site concept plan or site development plan (not in substantial conformance with the original

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ORDINANCE NO. _____

approval) or any change to the list of permitted uses, the matter shall be subject to review as an amendment the Planned Zoning District. Amendments to the Site Concept Plan shall follow the same procedures as a new application under the provisions of these planned zoning district regulations.

Amendments to the Site Development Plan shall follow the provisions of Section 405.1080 subject to review and approval by the Planning and Zoning Commission.

SECTION 2: This ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter.

ADOPTED THIS ____ DAY OF _____, 2023.

NICOLE GREER
PRESIDENT OF CITY COUNCIL

APPROVED THIS ____ DAY OF _____, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK

Chapter 405 Zoning Ordinance

Article III. Zoning District Regulations

Revised Section 405.390 Planned Zoning Districts

- A. *Purpose.* The purpose of the Planned Zoning District is to allow a development project that is proposed on a single lot or multiple lots to be constructed in one (1) or more phases that is unable to meet the established zoning criteria due to project size, phasing, configuration, site conditions, or particular design features. The Planned Zoning District provides a mechanism to facilitate innovative design, solve problems on difficult sites, meet market niches, encourage housing in different forms and price ranges, promote well-designed developments, and encourage infill and redevelopment within the City.
- B. *Objectives.* Through the flexibility of the Planned Zoning District, the City seeks to achieve the following objectives:
1. Fulfillment of the goals and objectives of the Comprehensive Plan;
 2. Creation of a more desirable environment than would be possible through application of conventional City land use regulations;
 3. Promotion of a creative approach to the use of land and related physical facilities resulting in better design and development including aesthetic amenities;
 4. Combination and coordination of architectural styles, building forms and building relationships;
 5. Preservation and enhancement of desirable site characteristics such as natural topography, vegetation and geologic features, preferably by means of natural erosion control and stormwater control best management practices;
 6. Use of design, landscape or architectural features consistent with the City's design guidelines; and
 7. Mutually desired elimination of obsolete or deteriorated structures or incompatible uses through redevelopment.
- C. *Eligibility.* A development proposal shall be eligible for consideration under the planned zoning district process if the Zoning Administrator finds that it meets the following provisions:
1. Is located on one (1) or more lots totaling at least three (3) acres in size.
 2. Cannot be approved under the provisions of another Zoning District.

3. The subject property is zoned for the eligible type of planned zoning district pursuant to Section 405.390.F. In the event the existing zoning district is not eligible for the requested planned zoning district, an application to rezone to a qualifying zoning district must be submitted in conjunction with the planned zoning district application.
4. The proposed development must substantially comply with the provisions of this Section 405.390 and be generally consistent with the applicable provisions of the City's Comprehensive Plan.

D. Relationship Of Planned Districts to Zoning Map.

1. *A mapped district.* The planned zoning district designation shall not be attached to existing zoning districts as an overlay. The planned zoning districts, as detailed in this Section, are separate zoning districts and applied to a specific parcel or parcels of land following a public hearing and all other requirements of Section 405.1060 Zoning Changes and Text Amendments. Such designation shall be shown on the City Zoning Map.

E. Public Benefit. In connection with obtaining approval of a planned zoning district, public benefits are to be provided as determined by the City Council upon a recommendation of the Planning and Zoning Commission. Such public benefits to the City could include, but are not limited to, the following:

1. Provision of public or quasi-public parking facilities;
2. Provision of on-street and off-street pedestrian facilities linking surrounding business, office and residential uses;
3. Consolidation and/or elimination of overhead utility wires;
4. Inclusion of landscaped gardens, plazas or parks available for public use;
5. Provision of alternative street connections or the dedication of land for additional street right-of-way;
6. Fountains, statuary, public art;
7. Architectural distinction and significance that would make building(s) noteworthy;
8. Extensive use of high-quality building materials that would add to the assessed valuation of the structures.

F. Types of planned zoning districts. There are three (3) types of planned zoning districts:

1. Planned Residential Development (PRD). A Planned Residential Development shall be eligible for properties where the existing zoning district is zoned A, B, C, or D Single Family Residential or AR-Attached Residential.
2. Planned Commercial Development (PCD). A Planned Commercial Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
3. Planned Mixed-Use Development (PMD). A Planned Mixed-Use Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
4. *Planned Residential Development (PRD)*. A "Planned Residential Development" shall mean a development on a plot of land, containing a limited mixture of uses and building types that is predominately residential, which may include single-family houses, clustered housing, townhouses, and multi-family dwellings. Small service-commercial uses that complement the area may be permitted if deemed compatible with the proposed residential uses and will not have a detrimental impact on the adjacent residential uses. Although no particular combination of the aforementioned uses is predetermined, all applications for PRD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PRD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Housing densities expressed as dwelling units per acre for each housing type shall be compatible with the surrounding area.
- (2) The height of all buildings shall be compatible with the surrounding area. In addition, properties adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (3) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of at least twenty-five (25) feet on all sides that abut the single-family development. The buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council.

The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.

- (4) Balances increased structure densities for the subject property with more cohesive and organized open space.
- (5) Improves on, or provides for, efficient circulation patterns, access controls and screening of parking facilities.
- (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (7) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (8) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
- (9) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PRD.
- (10) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (11) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with the surrounding development.

5. *Planned Commercial Development (PCD).* A "Planned Commercial Development" shall mean a development on a plot of land containing a mixture of commercial, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PCD is to provide sites for the development of a mixture of commercial uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PCD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PCD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

- (a) *Design criteria.* Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an

application for PCD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development. The buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.
- (3) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (4) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (5) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (6) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (7) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (8) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (9) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (10) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.

- (11) Provides appropriate spacing and/or greenspace in or around the separate developments within the PCD.
 - (12) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with surrounding development.
6. *Planned Mixed-Use Development (PMD)*. A "Planned Mixed-Use Development" shall mean a development on a plot of land containing a mixture of commercial, residential, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PMD is to provide sites for the development of a mixture of commercial and residential uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PMD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PMD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.
- (a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PMD zoning shall also be reviewed for conformance with the following design criteria:
 - (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
 - (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development, except if the abutting or adjoining proposed uses are residential of equal or less density relative to the existing residential uses then such buffer yard shall be twenty-five (25) feet. The buffer yard shall be landscaped and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking

into consideration the proposed uses adjacent to the existing single-family residential developments.

- (3) If residential uses are proposed, provides for a mixture of housing types to meet market demands and encourage diversification.
- (4) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (5) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (7) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (8) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (9) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (10) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (11) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
- (12) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PMD.
- (13) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with surrounding development.

G. *Submittal Requirements—Site Concept Plan.* Any application for a rezoning to a Planned Zoning District must be accompanied by a Site Concept Plan submitted in accordance with Section 405.1080 with the information listed below in approximate detail placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a preliminary plat showing the property subdivided into separate lots may also be submitted in accordance with Chapter 410 (as

modified by approvals under this Section) in conjunction with the submittal of the Site Concept Plan, but in any event, must be submitted no later than in conjunction with the submittal of the applicable Site Development Plan(s).

- (1) The location of the parcel in relation to all surrounding and adjacent uses, buildings and zoning;
- (2) The location of the parcel in relation to major arterials and/or highways and any roadways or drives connecting the parcel to those major thoroughfares;
- (3) The boundaries, dimensions and area of the parcel;
- (4) The proposed use and development of the parcel including principal and accessory uses;
- (5) The location and size of each existing structure and building on the parcel;
- (6) The footprint of each proposed building or structure on the parcel;
- (7) The proposed setbacks from all perimeter property lines and buffer yards, if applicable;
- (8) The height and number of stories of all proposed buildings and structures;
- (9) The amount of land area covered by all proposed buildings, structures, drives and parking facilities;
- (10) The ratio of floor area to land area (FAR);
- (11) Approximate locations of existing and proposed utility easements and stormwater retention areas;
- (12) Existing and proposed contours at vertical intervals of not more than five (5) feet;
- (13) Two (2) section profiles through the site showing preliminary building form, existing natural and proposed final grade;
- (14) Preliminary plan for sanitation and drainage facilities;
- (15) Drawings shall contain the project name, proposed and existing street names, a reasonable and legible scale, north arrow and the date drawn.
- (16) A timeline showing the current approximation of when the planned development will be constructed in stages or units and a schedule for the development of stages or units stating the approximate beginning and completion time for each stage or unit.
- (17) A non-exhaustive outline of any proposed restrictive covenants that may be recorded with respect to property in the proposed planned zoning district.

~~(18)~~ A narrative addressing each of the standards set forth in Section 405.390(I) Review Criteria, Section 405.390(E) Public Benefit, the City's Comprehensive Plan, and such additional standards, if any, as may be applicable under the specific provisions of these planned zoning district regulations. The statement shall explain specifically how the proposed planned zoning district relates to and meets each such standard.

~~(18)~~(19) An economic analysis of any proposed direct impacts on public costs, such as from any improvements proposed for dedication to the public.

~~(19)~~(20) At the request of the Director of Community Development, a traffic impact analysis prepared by a Missouri registered traffic engineer depicting the project's impact on vehicular and pedestrian traffic along roadways adjacent to the planned zoning district and/or a traffic review focused on the vehicular and pedestrian circulation within the planned zoning district.

~~(20)~~(21) Any other information deemed necessary by the Zoning Administrator to fully understand the proposal.

A Site Development Plan shall then be submitted with applicable fees and escrow, for each specific building or phase within the project, for review and approval by the Planning and Zoning Commission. Such Site Development Plan shall be submitted in advance of or in conjunction with an application for a building permit (and can be submitted concurrently with the Site Concept Plan) for one or more buildings or phases. Of primary importance in the review of a Site Development Plan will be a determination that the plan substantially complies with the Site Concept Plan approved for the total development or project.

H. *Submittal Requirements—Site Development Plan.* Each Site Development Plan must be submitted in accordance with Section 405.1080 with the information listed below placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a final plat must also be submitted in accordance with Chapter 410 (as modified by approvals under this Section).

1. All submissions to the City's Planning and Zoning Commission and City Council shall be properly sealed and signed by a licensed architect, professional engineer or land surveyor registered in the State of Missouri, as applicable, pursuant to laws and regulations established by the Missouri Board for Architects, Professional Engineers and Land Surveyors. An original seal, signature and print date shall appear on each page of one (1) original submittal set as evidence that the submitted material was prepared under the direction of a licensed architect, professional engineer or land surveyor, as applicable. All other submissions shall be copies of the original set.
2. Title block including name of the proposed project, name, address and phone number of preparers and project applicant or owner.
3. The location, dimensions and total area of the site.

4. The location, height, floor area, type of construction and intended use of each proposed building or structure.
5. Architectural elevations depicting size, shape and special design elements proposed as well as proposed exterior finish materials to be used.
6. A plan of the entire planned zoning district shall be drawn at a scale of 1" = 20' or larger bearing a minimum of two (2) surveyed points located in conformance with the Missouri Coordinate System ("State Plane Coordinates").
7. Two (2) cross sections at ninety degrees (90°) from each other through the proposed site and building(s).
8. The number, location and dimensions of parking spaces, surface lot or structures and loading docks, in relation to the applicable parking regulations in Article VII, with means of ingress and egress. Layout of physically disabled parking and accessibility shall be included.
9. The proposed traffic circulation pattern within the area of the development including the location and description of public improvements to be installed including any streets and access easements.
10. The location and purpose of any existing or proposed dedication, easement or right-of-way (public or private) within the boundaries of the site.
11. Location and dimensions of adjacent properties, abutting public rights-of-way and easements and utilities serving the site.
12. Location of existing and proposed sewage treatment, stormwater runoff collection and detention and preliminary stormwater runoff calculations (amount of detention required and provided).
13. Existing and proposed contour lines or elevations based on mean sea level datum at two (2) foot intervals and extending one hundred (100) feet beyond the property lines.
14. Site coverage data in a percentage form of the planned zoning district (a ratio of non-impervious to impervious area).
15. Ratio of floor area to site area of the planned zoning district (FAR).
16. Location and height of all light poles and trash enclosures including detailed sketches or cut sheets.
17. The proposed treatment of open spaces including existing and proposed landscaping.

- I. Review Criteria.* The Planning and Zoning Commission shall recommend to the City Council approval, approval with conditions or denial of a planned zoning district application primarily based upon satisfaction of Section 405.390(C), Eligibility and meeting the applicable design criteria in Section 405.390(F), Types of Planned Zoning Districts. Supplemental to these items, every application shall also be reviewed for conformance with the standards set forth below, to the extent applicable:
1. The proposed development is in harmony with the general purpose and intent of this Chapter and is generally compatible with and implements the planning goals and objectives of the City including the Comprehensive Plan.
 2. Streets or other means of access to the proposed development are suitable and adequate to carry anticipated traffic and will not overload the adjacent streets.
 3. The internal circulation system of the proposed development encourages safe movement for vehicles and pedestrians.
 4. Existing or proposed utility services are adequate for the proposed development.
 5. Appropriate buffering is provided to protect adjacent land uses from light, noise and visual impacts.
 6. Architecture and building materials are consistent with the character of the proposed development and compatible with areas of the City proximate thereto.
 7. Landscaping is appropriate for the scale of development and consistent with any applicable City codes, ordinances and standards.
 8. The proposed development preserves any significant architectural and environmental features of the property, to the extent reasonably possible.
 9. Operating and delivery hours are compatible with the land uses adjacent to the planned zoning district.
 10. The proposed uses are compatible with the area surrounding the proposed development and will not have a material net cumulative adverse impact on the surrounding area or the City as a whole.
 11. The proposed development complies with all other applicable codes and ordinances.
 12. The layout of structures and spaces adequately takes into account the potential for future subdivision of the development.
 13. There is a demonstrated level of the public benefit to the City derived from the proposed development, per Section 405.390(E).

J. Review Procedure For A Planned Zoning District.

1. The application for a Planned Zoning District shall be reviewed and decided upon in accordance with the procedures for a zoning change established by Section 405.1060.
2. The Director of Community Development or his/her designee shall notify the applicant of any deficiencies and/or modifications necessary based on their review. The Planning and Zoning Commission may recommend, and the City Council may adopt modifications to the development standards set forth in Chapter 405 and Chapter 410 of the Code of Ordinances, City of Creve Coeur, Missouri, as part of its consideration and approval of the planned zoning district.
3. Approval of the Planned Zoning District is determined solely in the legislative discretion of the City Council which shall be codified within a separate planned zoning district ordinance.
4. Once approved by the City Council, the planned zoning district, including the associated site concept plan and the planned zoning district ordinance replaces all prior zoning regulations on the property and should be noted on the Zoning Map.
5. Any applicable time limitations shall be met, such as those pertaining to proposed wireless communications facilities and support structures under Section 67.5090 RSMo. et seq. and FCC Declaratory Ruling WT Docket No. 08-165, rel. 11-15-2009.1

K. Conditions Of Approval.

1. The City Council shall consider the same criteria as set forth for the Planning and Zoning Commission review (Section 405.390(I), Review Criteria) and may impose such conditions and limitations including, but not limited to, those recommended by the Planning and Zoning Commission, as may be necessary or appropriate to prevent or minimize adverse effects upon other property and improvements in the vicinity of the planned zoning district, upon the City as a whole or upon public facilities and services. These conditions may include, but are not limited to, conditions concerning use, construction, character, location, landscaping, screening, parking, maintenance, operational elements that would impact adjoining land uses and other matters relating to the purposes and objectives of these planned zoning district regulations. Such conditions shall be expressly set forth in the ordinance and depicted, as appropriate, on the associated Site Concept Plan authorizing the planned zoning district.
2. The ordinance approving a Planned Zoning District shall contain a legal description of the subject property, all imposed conditions of approval of the zoning and the approval of the Site Concept Plan. The ordinance and the approved site development plan(s) shall be

recorded by the applicant in the office of County Recorder of Deeds. The applicant must present proof to the City of such recording before any permits may be issued.

3. Following planned zoning district approval, the site concept plan and planned district ordinance, rather than any other provision of this Chapter, shall govern the use, parking, loading, sign, bulk, space and yard regulations applicable to the subject property and no other use or development, except temporary uses, shall be permitted within the area of the planned zoning district pursuant to the zoning district regulations otherwise applicable to such area.
- L. Reapplication.* In the event the City Council denies an application for planned zoning district, no application for the same or substantially similar proposal will be accepted for a period of at least one (1) year from the date of denial by the City Council, unless the City Council affirmatively waives this restriction for good cause.
- M. Final Building, Construction and Site Improvement Plans.* Once a planned zoning district and its included Site Concept Plan receives final approval by the City Council and the pertinent Site Development Plan has received approval by the Planning and Zoning Commission, further review of the final building, construction and site improvement plans by the Planning and Zoning Commission or the City Council will not be required, provided those final plans are consistent with and in substantial conformance with the approved planned zoning district and the approved site development plan.
- N. Period of Validity.* The Site Concept Plans approved by the City Council in conjunction with the Planned Zoning District shall be valid for a period of up to eight (8) years from the date of approval. After the eighth year, a site concept plan will no longer be valid unless an extension is granted as set forth below. The City of Creve Coeur may grant a single one-year extension prior to the expiration of the site concept plan upon written request of the applicant submitted to the City at least one hundred eighty (180) days prior to the expiration date and granted prior to the expiration date. Site Development Plans shall be valid for a period of twelve (12) months from the date of approval. Within such period a building permit shall be obtained, and substantial construction commenced. Substantial construction shall be deemed to consist of clearing the site, completion of footings, basement or building slab and inspection of such work. The Planning and Zoning Commission may grant extensions regarding the validity of a site development plan not exceeding twelve (12) months each upon written request of the original applicant prior to the expiration of such period and resubmission of the application if the application as resubmitted is substantially the same as the initially approved application. However, the Commission shall have the power in such cases to attach new conditions to their re-approval or to disapprove the reapplication. The validity of a site development plan cannot be extended if the site concept plan has ceased to be valid.
- O. Building Permit Issuance.* A copy of the approved planned zoning district, the approved site concept plan, and each approved site development plan shall be retained in the records of the Department of Community Development and all building and occupancy permits issued by the City shall conform to the provisions of the approved planned zoning district, site concept plan, and site development plan.

- P. *Violations.* Failure to comply with any of the conditions and/or provisions of an approved planned zoning district plan shall constitute a violation of this Chapter, punishable as provided in Section 405.1150 of this Chapter. The City may seek judicial remedies to compel compliance.
- Q. *Amendments.* No amendments shall be made in the construction, development or use permitted under a planned zoning district except as follows:
1. Minor amendments. During build-out of the planned zoning district, the Zoning Administrator may authorize minor adjustments to the approved site development plan when such adjustments appear necessary in light of technical or engineering considerations provided the project will remain in substantial conformance with the original approval.
 2. Major amendments. If the Zoning Administrator determines that the proposed amendment will result in a major change to the site concept plan or site development plan (not in substantial conformance with the original approval) or any change to the list of permitted uses, the matter shall be subject to review as an amendment the Planned Zoning District. Amendments to the Site Concept Plan shall follow the same procedures as a new application under the provisions of these planned zoning district regulations. Amendments to the Site Development Plan shall follow the provisions of Section 405.1080 subject to review and approval by the Planning and Zoning Commission.

Page 1 1 PLANNING AND ZONING COMMISSION MEETING 2 CITY OF CREVE COEUR, MISSOURI 3 300 NORTH NEW BALLAS ROAD 4 MONDAY, MAY 15, 2023 5 6:00 P.M. 6 7 PUBLIC HEARING 8 APPLICATION NO. 23-013 9 10 THOSE IN ATTENDANCE: 11 Ms. Julie LaBonte, Chair 12 Mr. Larry Potashnick 13 Mr. AJ Wang 14 Ms. Rhonda O'Brien 15 Mr. Thomas Buelter 16 Ms. Marjorie Richter 17 Mr. Carl Lumley, City Attorney 18 Mr. Jason Jaggi, Director of Community Development 19 Ms. Bethany L. Moore, City Planner 20 Ms. Megan Waller Administrative Supervisor/Recording Secretary 21 22 McLaughlin Court Reporting Services, Inc. 23 Deborah K. McLaughlin, RPR, MO-CCR #314, IL-CSR, KS-CCR 24 4772 Gatesbury Drive 25 St. Louis, MO 63128 (314) 974-1199	Page 3 1 If we could have anyone speaking, please come 2 forward to be sworn in. 3 (The speakers were sworn in by the court 4 reporter.) 5 MR. JAGGI: Good evening, Planning and Zoning 6 Commission. 7 My name is Jason Jaggi. I'm the Director of 8 Community Development with the City of Creve Coeur. 9 This is a public hearing for Planned Zoning 10 Districts text amendment to this section of the ordinance, 11 which is Section 405.390. 12 So, just a little bit of background here on this 13 particular request. 14 This goes all the way back to our work session 15 that we held a joint session with the City Council back in 16 January of 2023. And if you recall, we had a list of 17 different items we wanted to look at this year in terms of 18 our work program for the Planning Division, and this was 19 included as part of something that we wanted to look at 20 this year. 21 And then after that time period, we had two work 22 sessions where we discussed the -- the need for these 23 changes and outlined some of the various suggestive 24 amendments that we would want to make with this ordinance. 25 And we reviewed that with this Commission at two
Page 2 1 CHAIRMAN LABONTE: We'll call the meeting to 2 order at 6:01 with roll call. 3 Mrs. Hall's not here. 4 Mr. Potashnick? 5 MR. POTASHNICK: Present. 6 CHAIRMAN LABONTE: Ms. Richter? 7 MS. RICHTER: Here. 8 CHAIRMAN LABONTE: Mr. Wang? 9 MR. WANG: Here. 10 CHAIRMAN LABONTE: Ms. O'Brien? 11 MS. O'BRIEN: Here. 12 CHAIRMAN LABONTE: Mr. Buelter? 13 MR. BUELTER: Here. 14 CHAIRMAN LABONTE: Mr. Lumley? 15 MR. LUMLEY: Here. 16 CHAIRMAN LABONTE: Mr. Jaggi? 17 MR. JAGGI: Here. 18 CHAIRMAN LABONTE: Ms. Moore? 19 MS. MOORE: Here. 20 CHAIRMAN LABONTE: Ms. Waller? 21 MS. WALLER: Here. 22 CHAIRMAN LABONTE: All right. Next we have 23 Public Hearing Application 23-013: Text Amendment to 24 Modify Section 405.390 Planned Zoning Districts of the 25 Zoning Ordinance.	Page 4 1 sessions; the first being on February 21st and the second 2 being on March 6th, so -- so, this is -- we've been kind 3 of building up to tonight's public hearing and the actual 4 formal document that's (inaudible). 5 So, I think it's important to start out, because 6 these can be somewhat difficult to understand because we 7 don't have a lot of these applications before us. 8 But, so, what our Planned Zoning Districts. And 9 they're, essentially, a rezoning option to facilitate 10 developments that are unable to meet the established 11 zoning criteria due to significant issues with the project 12 size, perhaps, the configuration of the project on the 13 site, phasing site conditions or other particular design 14 features that are unique that aren't really -- they don't 15 really fit well with the traditional zoning ordinance 16 framework or -- or district standards, as may be the case. 17 So, what we seek to do with the Planned Zoning 18 District is to allow that application, that rezoning 19 application, because it is a rezoning, so whatever the 20 zoning district it is now, that's rezoned, then this whole 21 process begins. And it's really to facilitate innovative 22 designs, solve problems on difficult sites, meet marketing 23 niches for housing, for example, encourage different types 24 of housing, promote quality design, and, really, use this 25 mechanism to encourage infill and redevelopment within

Page 5 1 our -- within our city. 2 So, it is a distinct zoning district, and it's 3 based on a set of criteria that's applied to a specific 4 property. 5 So, it somewhat, you could consider it to be 6 site specific zoning. So if these -- whatever is approved 7 on a site that goes through this process, it's not 8 transferable to another site. And, in fact, it doesn't 9 use a lot of the standards of the zoning ordinance. So 10 it's actually kind of customized based on the request and 11 a development plan. 12 And it is at the discretion of the City Council, 13 and upon the recommendation of the Planning and Zoning 14 Commission. 15 So, it is an elective voluntary process, which 16 is, again, it's sort of a unique aspect of it, so the city 17 has a lot of discretion and authority in terms of how to 18 review and approve this type of application. 19 And it is, at the end of the day, approved by an 20 ordinance, a very specific detailed ordinance, that will 21 adopt a development plan for the site. It will outline -- 22 outline the uses that are allowed, the types of buildings, 23 access, basically, a lot of this development standards 24 that you would find in a zoning code are adopted specific 25 for a development through the ordinance and based on a	Page 7 1 the perimeter of it. 2 So you can see this type of project, you know, 3 is not going to clearly fit in a zoning district because 4 it's a very unique type development. So that's exactly 5 why we have this process available when you've got 6 projects like this. 7 And then we also did -- had a redevelopment -- 8 or I'm sorry -- rezoning process for Coeur de Royale, and 9 that was unique, and it really covered this whole area 10 except for this little piece here off of Old Ballas. And 11 it was to address some nonconformities, and I think some 12 other, you know, unique aspect of all these properties 13 during that time. It was before I was here, but it was, I 14 think, a way to deal with some of the -- the issues in 15 that area, so as to not create nonconformities. 16 And previously this was zoned Core Business 17 District, which I think had a lot of ability then to have 18 a lot of commercial in this area, and that was a conflict 19 with the predominantly residential character of this area. 20 So, that was a Planned Residential District, 21 and, really, those are the only two we have. 22 We do not have a commercial PCD, Planned 23 Commercial Development, in the city. 24 We did have one at the HBE project, at that 25 site, which at the time was proposed to be a hotel with
Page 6 1 development plan, so, that governs, and that document, 2 really, is supreme compared to any other standard that 3 might be in the zoning ordinance. 4 So, the existing ordinance that we have was 5 adopted by the City Council, reviewed by the Planning and 6 Zoning Commission back in 2008. So prior to that we 7 didn't have a Planned Zoning District ordinance. 8 But these are -- these are very popular 9 implementation tool for a lot of cities, because it has 10 the ability to provide some tradeoffs in order to get a 11 quality development that -- that may not fit, like I said, 12 within traditional parameters of the zoning code. 13 And, so, that's found in Section 405.390 of the 14 zoning ordinance. And today we have approved two of them 15 in the city since this time. 16 The first is The Vue at 10 -- 1001 Old Olive, 17 and here's a picture of it right here, you can see it's 18 zoned PRD, which is Planned Residential Development. It's 19 here at Old Olive. And this really had several different 20 housing types, as well as a little bit of commercial, 21 which has not been leased. It's there, but there -- 22 there -- there have never been any leases or occupation of 23 any of the retail here in front. 24 But this is an apartment building, and then 25 there's some townhouse and different types of units around	Page 8 1 some outbuildings that were going to be retail. That did 2 go through the process, but it was ultimately denied by 3 the City Council, so ultimately we don't have any Planned 4 Commercial Developments that have been approved in the 5 city. 6 So, the existing ordinance, just going through 7 that, we have two types of Planned Developments currently 8 in our ordinance. We have a Planned 9 Commercial development -- I'm sorry -- Planned Commercial 10 District, which, again, we do not have any of those in 11 place. But that does allow for commercial, office, 12 service and multifamily residential. The minimum site 13 size to be able to propose that would be 3.5 acres and 14 then it's adjacent to predominantly non-residential uses. 15 And that is a term that's very specifically 16 defined, whereas, the land area adjacent to the site where 17 a Planned Commercial Development would be proposed, it 18 cannot be -- it cannot be more than 50 percent residential 19 in order to qualify. 20 And there's a formula that's involved. It's -- 21 it's 300 feet around the whole site excluding streets, and 22 you have to calculate this to determine if it meets that 23 criteria. 24 And that's something that we're going to talk 25 about that creates some -- some issues for projects.

Page 9 1 And then we have the Planned Residential 2 District with the PRD, which allows all types, really, of 3 residential uses; single-family, multifamily, townhouse, 4 all of these. And as well as some small service 5 commercial, and that's what we have at The Vue. So it 6 does allow a little bit of commercial, but it has to be a 7 mostly residential project. 8 And the minimum site for a PRD is 5 acres, and 9 adjacent to predominantly residential uses. 10 So, the same thing here, the surrounding land 11 uses must be predominantly residential adjacent to it in 12 order for -- for you to qualify under this -- under this 13 application type. 14 So, those are the two that we have. 15 So, that's, basically, how -- how the current 16 ordinance is structured in terms of types of Planned 17 Developments. 18 What are we looking to change? In your packet 19 there is not a redline version because it just got very 20 difficult to read, so what I provided to you was the 21 existing ordinance and the proposed. 22 And we kept a lot of the existing in place. We 23 did a lot of tweaks throughout, but, really, what I want 24 to cover tonight are the real substantive, the bigger 25 issues and the more significant changes to the ordinance.	Page 11 1 What we did, however, was look at the minimum 2 site size. And there right now we have the 5 acre minimum 3 for the Planned Residential Development and 3.5 acre for 4 the Planned Commercial District. So they're two different 5 site size. 6 And to simplify the different types, what we 7 thought was just adjust it to 3 acres, not 3.5, not 5, 8 just keep it at 3, which would also include the new 9 Mixed-Use Plan Development. 10 I think if we go any lower than 3, the ability 11 and the reasoning to go to a Planned Development, it gets 12 kind of lost. If they're that small of sites, you know, 13 they probably shouldn't be utilizing this -- this type of 14 zoning mechanism. 15 But I do think there could be some sites that 16 are the 5 and under 3s, in this range, that might be good 17 candidates down the line for a Planned Development 18 application on some of the sites that are more 19 challenging, particularly, perhaps, in the East Olive 20 Corridor, okay. So, that's why we moved it to the 21 3 acres. 22 And then the proposed components, five real 23 components that we have here that I'm also going to talk 24 about, these are really necessary for our review in the 25 future, the near future, of the former West Bayer site, so
Page 10 1 So, what we did was we first added a third type 2 of Planned Development. We had the Planned Commercial; we 3 had the Planned Residential, but what we didn't have was a 4 Planned Mixed-Use type. 5 And with the Planned Commercial type, a lot of 6 that would be able to probably satisfy most projects, 7 however, it did not have any provision for different types 8 of residential. So, if there's townhouses, if there's 9 even single-family, villas, what -- what have you, that 10 was not a listed allowable residential category because 11 it's -- it's mostly a commercial development. 12 So, we thought that, you know, adding the 13 Planned Mixed-Use really allows all types of uses; 14 residential and commercial to be proposed, and that's 15 called the Planned Mixed Development type. 16 And we retained Planned Commercial Development 17 as well as the Planned Residential Development, except for 18 the Planned Commercial Development, we removed the ability 19 to have multifamily. So, if you're going to have a 20 multifamily component of a commercial project that would 21 get you into the Mixed-Use category to simplify it and 22 clarify it as three different categories. 23 Planned Residential. No real change to that. 24 All the land uses that we have today would remain in 25 place.	Page 12 1 that has been the reason why we're doing all of this, but 2 I can say that this ordinance has been reviewed well 3 beyond that, and it has been thought that, you know, there 4 should probably be some changes to this. It particularly 5 came to light when we were reviewing the HBE project 6 because of some of the fit issues with that proposal as a 7 Planned Development, particularly the adjacent to 8 residential restriction created some -- some concerns. 9 So we did -- at this time -- at this time we did 10 review it holistically, so we certainly are keeping in 11 mind that the Bayer West project is going to come before 12 us, which would be good candidate for this type of zoning 13 procedure, it's 95 acres multi-use proposal that we're 14 expecting, but we also know that, you know, how else can 15 this be used for other projects in the city, so we did 16 take that into consideration as well. 17 And, so, that's a -- that's a duplicate slide. 18 I'll skip that. 19 So, we -- the other change that we did was we 20 had the eligibility based on the existing zoning district. 21 So, we removed the eligibility that's based on 22 the adjacent land uses. So if you're a Planned Commercial 23 District, it has to be, you know, majority land around it 24 has to be commercial. We removed that. And instead we 25 established it based on the -- the existing zoning

Page 13 1 district. 2 So, in order to have a Planned Residential 3 Development, you have to have these based zoning 4 districts, which are single-family or multi -- or attached 5 residential ordinances -- or, I'm sorry -- zoning 6 districts. 7 And then for a Planned Commercial District, you 8 have to be in the core business, general commercial, 9 planned office, research office, so you have to have, 10 basically, commercial or office zoning in place that would 11 allow you to apply for a Planned Resident -- or a Planned 12 Commercial or Planned Mixed-Use Development. 13 So, again, an eligibility criteria is based upon 14 its -- the base zoning, and that allows you to propose a 15 rezoning to apply development. 16 And then with respect to the design criteria, 17 the ordinance has a very -- a long list of design criteria 18 that a project must satisfy, and that's reviewed by staff, 19 P&Z and City Council, and it's listed in the ordinance. 20 We kept a fair amount of those. We didn't 21 change, in fact, we kept most of them, but we did -- we 22 did allow the ability for P&Z and City Council to modify 23 some of those standards based on site characteristics, but 24 we did, it's important to note, we did keep the buffers 25 that are in place, the 25 feet for a Planned Residential	Page 15 1 adjustments of the design criteria, but most of it's still 2 in there. 3 And then the other add -- component of this 4 that's been added is what's called a site constant plan. 5 If you can remember back to our last meeting, we had that 6 request for the project at Olive and -- and Ballas, where 7 it was just the big overview of the layout of the 8 proposal, the access, the traffic, all of these things. 9 We're introducing a same type of procedure here 10 for Planned Developments, where the first step would be to 11 submit a site concept plan that would -- that would lay 12 out all of these -- all of these things, and so we 13 included that in a site -- and a checklist for what needs 14 to be shown on that plan. 15 But, as I've mentioned in previous meetings, we 16 have this in other areas. We have it in the Core Business 17 District, which is why the Olive and Ballas project had to 18 go with that. 19 We have it for our Planned Hospital District 20 where there's multi buildings on hospital campuses that 21 have to submit a concept plan, and then the HE District 22 has it as well, which is where like Missouri Baptist is 23 zoned HE, and they're -- they're multi building campuses, 24 so it seemed logical to apply that to these types of 25 projects that could have different phases, different types
Page 14 1 Development, and the 35 feet for the Planned Commercial, 2 and then for the new Planned Mixed-Use Development we 3 added the 35-foot minimum buffer. And these are adjacent 4 to single-family residential uses. 5 So, those protections are in here, they're 6 enumerated. And those are the minimum standards, however, 7 there is the ability for Planning and Zoning Commission, 8 upon an applicant's request, to make some changes to that. 9 And so an example of that might be, you know, 10 maybe one small portion of the site is adjacent to 11 Residential Land Uses, but maybe the residences are 12 farther away and it's not as big of an impact; maybe 13 there's some slope that's going on there that isn't really 14 visible. Things like that that might come up. This just 15 allows the ability to modify that, if it makes sense. 16 So, that's -- that's a change in the ordinance. 17 And then we did also eliminate the floor area 18 ratio requirement, and the reason there is that it was -- 19 I think it was .6, which is a -- it's a measurement based 20 on the amount of floor area buildings to the site size. 21 That just seemed to be redundant. It didn't 22 really have much of an impact on, you know, the viability 23 or the success of a planned development, so that has been 24 eliminated. 25 And like I said, some minor clarification	Page 16 1 of uses, where we're just looking at the big picture, and 2 if the big picture looks good, then we can approve that 3 and go into all -- all the details in terms of a site 4 plan. 5 So, the site concept plan comes along with the 6 request for a rezoning in the development ordinance. 7 Those are the main components that are submitted 8 initially. And then after that is reviewed and approved, 9 then -- then individual site development plans are 10 submitted, and that's where you would get into the 11 specific building design, the specific landscape plan, the 12 specific lighting that's proposed, you know, all of the 13 detailed, the fine grain details are provided at that 14 stage after the concept plan approve. 15 And a significant component of the site 16 development plan process is is it consistent with the site 17 concept plan. 18 So if we're -- if you can imagine, we're 19 proposing a development that has five different buildings, 20 and one of the buildings is a four-story office building, 21 for example, the site development plan shows a six-story 22 office building, that's not consistent. We would have to 23 go back in and amend the concept plan and consider that 24 change first before we could approve a site development 25 plan.

Page 17 1 So, that's how -- that's the relationship of how 2 these different components would work together. 3 So, just to give you an idea of -- of how this 4 would work in reality in terms of your review and what 5 gets submitted. So, the initial submittal and review 6 under the Planned District process would be the applicant 7 would submit a rezoning to Planned Development 8 application. They would pay their fees. They would 9 submit the site concept plan and supporting documents, and 10 that might involve a traffic study or some other type of 11 document that we would need to see, and then also a 12 preliminary subdivision plat. 13 And that would only be needed if they are 14 proposing to subdivide lots as part of this development. 15 So, we would take all of that in, and that's 16 the -- these are the first things that we would look at. 17 Now, if -- there is also the option to submit a 18 site development plan for one or more phases. And this is 19 what we typically see like for the hospitals, where we've 20 had a site concept in place, and they wanted -- they 21 wanted to build a new building, but it's not shown on the 22 concept plan, we've got to go change that, and then 23 they're coming in concurrently with a site plan specific 24 for that new building. 25 So, for smaller sites, for example, we might see	Page 19 1 And it would be a very similar process except 2 for the Planning and Zoning Commission would be the 3 reviewing entity for a site plan like you normally do. It 4 would not go on to the City Council. 5 So, as long as it meets the site concept plan, 6 it meets all those parameters that the ordinance approved 7 it under, if none of those are changing, then it's a site 8 plan review that's any -- like most any other review that 9 you would have where you're looking at the buildings as it 10 relate to the other buildings, the materials, you know, 11 all of these typical things that you would look at. 12 And then after that, that would be -- that would 13 conclude the public process. And then they would just be 14 filing for permits through all the different agencies 15 including the city for building permits. And then -- and 16 then they could begin their construction. 17 So, I hope that all makes sense. I'm certainly 18 able to go back and discuss any of the specifics if 19 there's questions on how all this works together, what are 20 the specific components, be happy to discuss that. 21 But I wanted to kind of end my remarks with 22 where do we -- where are we going from here. 23 So, tonight, really, questions, if there's 24 things that you all don't understand, things we need to 25 talk about, refine the ordinance, that's what we're here
Page 18 1 this, where they want to submit it all at one time because 2 it's not super -- it's not a very large site, and they 3 want us to review it all -- all at one time. 4 Or for a larger site they might just say, hey, 5 we want these three buildings first to -- to be reviewed, 6 then we'll come back in for the others. 7 So, it just gives them some flexibility based on 8 the scale of the project. 9 And, so, then after we receive the application, 10 staff would verify the eligibility. We would conduct our 11 normal review and -- and schedule the public hearing. 12 And then the Planning and Zoning Commission 13 meeting would be set. You all would review it in a public 14 hearing setting, and then make your recommendation to the 15 City Council, and then the City Council review would 16 consist of a draft ordinance that would outline all the 17 parameters of the project, including all of the allowable 18 uses, the building heights, building locations, all these 19 things that would be shown in the site concept plan. And 20 that would all be presented to the Council for their 21 review. 22 And then if it's approved, then that opens the 23 door for them to come in and -- and submit the site 24 development plans for each of the buildings and each of 25 the phases.	Page 20 1 for tonight. 2 Obviously, we have the public hearing, so we 3 want to accept any comments from the public that we might 4 have, and then after further discussion and direction to 5 the staff, we will go and make any changes, provide 6 clarifications, whatever we need to do, and then we would 7 be prepared to come back to the June 5th meeting for a 8 final review and a possible recommendation and vote by the 9 Commission at that time. 10 And then after there it goes to the City 11 Council, based on your recommendation, and two meetings 12 that are required at City Council for final adoption. 13 So with that, be happy to take any questions. 14 MR. BUELTER: One quick question for 15 implementation. 16 MR. JAGGI: Uh-huh. 17 MR. BUELTER: I don't have the calendar in front 18 of me and that's why I'm asking is, so if we're -- we're 19 good on June 5th, two council meetings, where does that 20 end up on the calendar? 21 MR. JAGGI: Yeah, let me pull -- 22 MR. BUELTER: I'm thinking timeline, so. 23 MR. JAGGI: Sure. So if it -- if it's in front 24 of June 5th, I would -- I'm going to be out on June 12th, 25 so we would --

Page 21 1 MR. BUELTER: Okay. 2 MR. JAGGI: -- probably skip that, since I won't 3 be present at Council. 4 So would probably first appear at Council for 5 review on June 26th -- 6 MR. BUELTER: Okay. 7 MR. JAGGI: -- and then possible approval by 8 Council at July 10th under this timeframe. 9 CHAIRMAN LABONTE: So, I have -- I have two 10 questions. 11 MR. JAGGI: Yes. 12 CHAIRMAN LABONTE: With the Planned Commercial 13 Development that was for HBE -- 14 MR. JAGGI: Yes. 15 CHAIRMAN LABONTE: -- would it have not gone 16 forward, cause it wouldn't have met the requirements, that 17 wouldn't have gone forward? 18 MR. JAGGI: It did. It did meet the 19 requirements, and it did make it all the way through to 20 the vote at City Council. 21 CHAIRMAN LABONTE: And then why did they decline 22 it? 23 MR. JAGGI: They didn't -- they didn't like the 24 proposal. 25 CHAIRMAN LABONTE: Okay.	Page 23 1 are the buffers currently on the Bayer West Campus? Do we 2 know the measurement of what the buffers are if we take 3 from the property line back through the trees to the open 4 space, what that buffer is? 5 MR. JAGGI: Yeah. I don't have that information 6 tonight, but that's something we could easily generate. 7 CHAIRMAN LABONTE: Cause I'm not really 8 comfortable seeing -- cause I think that says minimum, and 9 that might not be what we want to say, right? 10 So, I don't know how others feel, but I would 11 like to know what the buffers -- if we're thinking this is 12 setting us up for that, I'd really like to know what the 13 buffers are today before we set a buffer for what it -- we 14 would think it would be going forward. 15 MR. JAGGI: Yeah, I think why -- why these 16 buffers are in here, first of all, they're in the existing 17 ordinance as a minimum buffer, and I think there were some 18 concerns about not having any standard at all and just 19 leaving it a little too open. Kind of sensed that the 20 Commission was a little concerned with not having 21 anything. So we did just keep those in place that we have 22 now, we kept them in place, but then we noted that they 23 can be modified. 24 CHAIRMAN LABONTE: But modifying meaning we 25 could take them to 50 feet?
Page 22 1 MR. JAGGI: I think there was some of it they 2 didn't like. The main issue with that, I believe, were 3 cross access. That was a significant point that the 4 Council wanted out of that project, that was discussed 5 with the applicant that that should be provided, that was 6 a recommendation, and the applicant opposed to that, and I 7 think that was probably one of the -- probably the largest 8 sticking point with that proposal -- 9 CHAIRMAN LABONTE: So with these new changes -- 10 MR. JAGGI: -- otherwise I believe it would have 11 been passed. 12 CHAIRMAN LABONTE: -- would it have still gone 13 forward? 14 MR. JAGGI: Excuse me? 15 CHAIRMAN LABONTE: With these changes to it, it 16 would still -- 17 MR. JAGGI: Yeah. 18 CHAIRMAN LABONTE: -- qualify and move forward? 19 MR. JAGGI: Yes. Yes. 20 CHAIRMAN LABONTE: Okay. 21 And my other question is, why -- do we have to 22 set minimum setbacks or can it be something that's 23 established as part of the -- as buffers? 24 MR. JAGGI: Uh-huh. 25 CHAIRMAN LABONTE: Cause my question is, what	Page 24 1 MR. JAGGI: I believe that, based on the review 2 and the flexibility of the -- the Planned Development 3 process, if -- if the Commission wanted more of a buffer, 4 that could be part of the approval and part of the review, 5 for example, you may have a taller building that's near 6 the property line, and that would -- that would, you know, 7 might suggest a little bit bigger of a buffer in that 8 area, or some other site constraint or some other site 9 issue. I think there's flexibility in this process to 10 require more. 11 CHAIRMAN LABONTE: Yeah, I guess then I don't 12 know why we would set a minimum at that point, but I don't 13 know, others may have -- 14 MR. JAGGI: It -- 15 CHAIRMAN LABONTE: -- different thoughts. 16 MR. JAGGI: I would just say it is a minimum, so 17 the expectation is you wouldn't go any closer, but 18 there -- there could be a request for that, and it 19 provides at least a baseline, rather than having it having 20 none. That's at least the thought. 21 Mr. Lumley, do you have -- 22 MR. LUMLEY: Well, I'd also point out, don't -- 23 I'd suggest that you don't get too fixated on a 95 acre 24 site. Keep in mind, this would also apply to a 3 acre 25 site where these minimums, you know, would have a totally

Page 25 1 different perspective, but with the discretion involved in 2 this process, they could be as large as P&Z and Council 3 chose to make them. 4 It's not -- it's strictly a minimum. It's 5 not -- it doesn't impose a restriction on what's actually 6 required. 7 MR. JAGGI: Yeah, I think the 35 feet, these -- 8 on -- like Carl said, on smaller sites, you know, there 9 could be -- it could be very tight and there could be more 10 pressure to put things closer in those situations, and 11 this provides at least a baseline to not encroach unless 12 there's some real good reason. 13 CHAIRMAN LABONTE: Okay. 14 MR. BUELTER: For all the projects that we know 15 are currently in flight, take out 39 North and Olive and 16 Ballas project right now -- 17 MR. JAGGI: Uh-huh. 18 MR. BUELTER: -- are there any other projects 19 that this might affect? 20 MR. JAGGI: I would say that there's a potential 21 that the Olive -- I'm sorry -- yes, the Olive and Graeser 22 site. 23 MR. BUELTER: Ballas and Graeser? 24 MR. JAGGI: Yes. 25 If -- we've had lots of discussions on potential	Page 27 1 project, they have to -- hey, I -- we can't do it because 2 of these certain things under the CB zoning, we have to go 3 Planned Development. 4 So, we don't want this being used for every 5 project, there has to be, you know, some criteria in order 6 to be developed. 7 AJ. 8 MS. WALLER: At one point you made a reference 9 to the 3 acre minimum, and you said it was -- it lends 10 itself, I don't know what word you used, to East Olive 11 Corridor. 12 MR. JAGGI: Uh-huh. 13 MR. WANG: So, I think you meant -- you're 14 referring to this Olive Graeser -- 15 MR. JAGGI: Yes. 16 MR. WANG: -- project? 17 And -- 18 MR. JAGGI: And, potentially, other sites along 19 that corridor that I'm not aware of any proposals, but I 20 think the East Olive Corridor is an area of the city 21 where, because of the sensitivities, because of the 22 adjacent land uses -- 23 MR. WANG: Uh-huh. 24 MR. JAGGI: -- this might be a good tool for 25 future development.
Page 26 1 developments over there, lots of inquiries since the QT 2 case has been settled, so there's a high level of interest 3 in that site. 4 Due to all of the constraints of that site and 5 some of the land uses that are being looked at by certain 6 developers, if they move forward, this might be a good 7 mechanism for that site. 8 CHAIRMAN LABONTE: How big is that site? 9 MR. JAGGI: 4.5 acres. 10 MS. O'BRIEN: What about the site behind the 11 Starbucks? 12 MR. JAGGI: Yeah, that site, yeah, that is 13 potential, although, my understanding is they might look 14 to -- to rezone their Core Business, which is consistent 15 with the Olive frontage. They may not need a Planned 16 Development, but that could also be a Planned Development 17 application if there's some issue with the CB District 18 that they can't comply with. But that is also a project 19 that might have varying land uses and different -- 20 different types of uses that could lend itself to this 21 project. 22 One of the things also -- one of the -- one of 23 the criteria here that we have is it can't be approved 24 under the -- under an existing zoning -- or under a 25 standard zoning district, so in that -- in that case, that	Page 28 1 You know, we've also looked at overlay 2 districts. We've looked at other approaches to land use 3 in that area, but, you know, the Planned Development 4 option is there to kind of customize development. 5 MR. WANG: But doesn't the -- you mentioned the 6 base zoning district, so for -- I think for the Planned 7 Mixed-Use, it precludes that area because you have RO, GC, 8 and so the only one that would qualify is actually Planned 9 Residential, is that one that -- 10 MR. JAGGI: So -- 11 MR. WANG: I think it's a previous screen to 12 this. 13 MR. JAGGI: Yeah. 14 MR. WANG: Yeah. 15 MR. JAGGI: So what you would have to do -- 16 MR. WANG: Okay. 17 MR. JAGGI: -- and what I've seen done before in 18 other -- in another city I worked at, is if -- if the base 19 zoning doesn't allow you to -- to obtain one of these 20 Planned Development types, you have to rezone the -- you 21 have to rezone the base zoning first -- 22 MR. WANG: Base zoning, then -- 23 MR. JAGGI: -- and then would immediately be 24 rezoned into a Planned Development, so it'd be like a 25 two-step process.

Page 29 1 MR. WANG: Okay. 2 MR. JAGGI: But the two would be tied. So the 3 base zoning does not get approved -- the base zoning does 4 not get approved if the Planned Development doesn't get 5 approved, they're tied together, is how I've seen it work 6 before. 7 MR. WANG: Thank you. 8 MR. JAGGI: That's a good point. Yes. 9 MR. POTASHNICK: I have a question. 10 You'll have to help me frame the question, but, 11 so, we're going to get a concept development plan -- 12 MR. JAGGI: Uh-huh. 13 MR. POTASHNICK: -- presented, and I think we 14 talked about this previously, we -- are we going to get a 15 concept subdivision set of covenants presented, including 16 the underlying economics, to adequately fund the 17 development plan, the concept development plan; lights, 18 maintenance issues, et cetera, et cetera, et cetera? 19 MR. JAGGI: If there's a -- 20 MR. POTASHNICK: Have to be a substantial budget 21 for maintaining that, either that or it's going to fall on 22 the back of, I'm not sure who, but maybe the city, so. 23 MR. JAGGI: I think it depends on the project, 24 you know. If you're having a -- if there's, you know, 25 no -- no subdivision of lots, no creation of additional	Page 31 1 anything being dedicated to the public, I think it would 2 be strictly relying on our exterior maintenance code down 3 the road, you know, to not let things fall into disrepair. 4 If they were proposing to dedicate a street to 5 the public, you would have whatever covenants you chose to 6 apply as a condition of accepting it, cause the city has 7 to affirmatively accept it. 8 MR. POTASHNICK: We're going to get a global -- 9 a global plan presented to us, and then it may be -- may 10 well be done piecemeal -- 11 MR. LUMLEY: Correct. 12 MR. POTASHNICK: -- over -- over who knows how 13 long -- 14 MR. JAGGI: Yeah -- 15 MR. POTASHNICK: -- a period of time, and I 16 just -- 17 MR. JAGGI: Yeah. Site concept plans are valid 18 for eight years, that's how it is in our ordinance now. 19 Site development plans, so each component of it, 20 you know, once those are approved, they're valid for a 21 year, unless substantial construction has begun, so we do 22 have timeframes on those. 23 But you're right, you know, you could -- it 24 could be several years before large developments are fully 25 built up.
Page 30 1 lots, you may not really have any sort of restrictions 2 other than what the city may have in an ordinance. But if 3 you do have common elements and things like this, yeah, I 4 think we would ask for a -- an indenture to show the 5 maintenance and a plat that would detail who's maintaining 6 what. 7 You might have a larger development where some 8 of the streets are being requested to be built as public 9 streets and turned over to the city, and then that 10 would -- that would be under our subdivision ordinance to, 11 you know, define all of that. 12 MR. POTASHNICK: Should we not have a 13 placeholder for such an eventualities, one way -- one way 14 or the other, it either becomes not applicable or -- 15 and -- or it becomes applicable? 16 MR. JAGGI: Trying to find -- we do have a 17 requirement for a subdivision plat in the ordinance that 18 they have to submit. And I believe we might have 19 indentures in there. But all that is covered under the 20 subdivision process. 21 MR. POTASHNICK: It says indentures someplace? 22 MR. LUMLEY: In Chapter 410. If they're 23 applying for subdivision approval, but if it was to be a 24 single lot -- I mean I think it's a point worth 25 considering adding. I mean if it was a single lot without	Page 32 1 MR. POTASHNICK: So often you see a built state 2 level has to go in for, so, economic statement to attach 3 to it to see what the costs -- what the costs are, I 4 forget what -- exactly what -- what that process is 5 called, but, yeah, I'm just -- for a massive development 6 they (inaudible) -- under -- undercook that review. 7 MR. JAGGI: Yeah. 8 If -- I think that scenario may come out if 9 they're requesting public financing where that's a process 10 that the City Council would look at in terms of a cost 11 benefit and, you know, what -- what type of public 12 financing mechanism that's allowed by the state to assist 13 with some of the development costs based on a very 14 detailed analysis of those costs. 15 So, that's -- that's where that could come into 16 play. But it's not really listed in here in that manner 17 in terms of a requirement of a -- for a Planned 18 Development, that they, you know, that you list all the 19 costs and a pro forma or anything like that, that's not -- 20 that's not involved with the zoning aspect. 21 MR. POTASHNICK: But should it be? 22 CHAIRMAN LABONTE: Yeah, I mean should -- I 23 guess, would we add something under Section G, Submittal 24 Requirements Site Concept Plan? Maybe some type of pro 25 forma, cause, certainly, they've done that in order to

Page 33 1 decide to develop there? 2 MR. JAGGI: Well, yeah. 3 Just to understand, what would be the rationale 4 and the reasoning to -- to -- normally we look at our 5 Comprehensive Plan and does it fulfill the vision of the 6 Comprehensive Plan and the recommendations; does it meet 7 all that. But we typically don't get into the cost of the 8 development and how much they're paying for the property 9 and how much it cost to build it, that's usually not 10 something that the Planning and Zoning Commission looks 11 at. 12 So, I guess, what would be different under this 13 process in order for us to -- 14 MR. LUMLEY: I think they're talking more about 15 the potentially proposed public costs -- 16 MR. JAGGI: Okay. 17 MR. LUMLEY: -- not the private cost of the 18 development. 19 So if a concept plan said we want four streets 20 to be public, well, at the time of concept, maybe show us 21 how that makes financial sense for the city, is what 22 they're saying, right? 23 MR. POTASHNICK: Yes. 24 MR. JAGGI: Okay. 25 MR. BUELTER: Or another example would be put a	Page 35 1 Mason, you know, that's a public street that's going to be 2 dedicated to the city, that went through the subdivision 3 process, and then there's a landscaped island, and that, 4 actually, is in the documents where that's to be 5 maintained by the homeowners association. 6 So, typically, the city will not maintain those 7 types of improvements within a street. That will be the 8 property owner's responsibility. 9 And that's a lot of the -- that's a large part 10 of the subdivision process, and the plat that shows who's 11 responsible for what, what easements are given to the city 12 and utilities and all of the -- of those sorts of things 13 on a plat document. 14 But if we're talking about, you know, public 15 improvements, yeah, I mean what's -- what's the cost of 16 the city in terms of maintaining a street in the future, 17 you know, we can tell you what today's prices are; we can 18 give all that information, you know, from Public Works, 19 what's the square footage or linear foot cost of -- of a 20 roadway to plow it, salt it, repair it. We can get some 21 of those -- that information as part of this process, I 22 suppose. 23 MR. POTASHNICK: Well, there needs to be some 24 mechanism that transcends time. So, for, certainly, a 25 major development, which trying to build something --
Page 34 1 whole bunch more residential in and you have to have a 2 police officer or something like that ongoing knowing 3 that, for our company -- our company (inaudible). 4 MR. JAGGI: This -- 5 MR. POTASHNICK: Under this could be islands and 6 sprinklers, you know, you have costs associated with that. 7 MR. JAGGI: Well, that would still be 8 maintained -- maintained by the property owner, right? 9 Are we talking about public improvements that 10 the city would have to -- 11 MR. POTASHNICK: If the island's in the middle 12 of a public street that's dedicated, you know, I don't 13 know, I'm just -- I'm just asking -- 14 MR. JAGGI: Okay. 15 MR. POTASHNICK: -- the question. 16 MR. JAGGI: Yeah. 17 MR. POTASHNICK: This is -- this is way over our 18 typical routine sort of stuff that we're really good at 19 under -- understanding -- 20 MR. JAGGI: Right. 21 MR. POTASHNICK: -- and sorting -- and sorting 22 through. 23 MR. JAGGI: Uh-huh. 24 So, typically, with -- with those things, like, 25 for example, a residential subdivision where we had on	Page 36 1 MR. JAGGI: Yeah. 2 MR. POTASHNICK: -- on. 3 MR. JAGGI: And I think that is -- you know, 4 that is definitely part of the process and part of the -- 5 the front and zoning part of this is what would be public 6 streets that would be turned over to the city; what -- 7 what would be a public element of this. Typically, 8 they're going to be streets and sidewalks, you know, 9 that's right-of-way that we have that is city maintained. 10 When you go beyond that, it would not be common 11 for the city to maintain anything else, typically. 12 MR. LUMLEY: Streetlights. 13 MR. JAGGI: Streetlights, yeah, street signs, 14 yeah, I guess -- right -- things in the right-of-way, you 15 know, but anything out of that, that's private property, 16 that usually all falls on the -- on the property owner to 17 maintain. 18 MR. POTASHNICK: Okay. 19 MS. O'BRIEN: I had a question, but it's getting 20 more into the specifics of some of this. 21 MR. JAGGI: Okay. 22 MS. O'BRIEN: You know, I don't want to -- if 23 you're general, I don't want to start having those. 24 On page 11, there's a criteria, it's for the 25 review, and I just didn't really understand it. It's

Page 37 1 No. 12, layout of structures and spaces adequately takes 2 into account the potential for future subdivision of the 3 development. 4 MR. JAGGI: Yeah, I think -- 5 MS. O'BRIEN: How would we make a finding like 6 that or -- 7 MR. JAGGI: Yeah. Let's see here. That is page 8 -- I think what that speaks to, and that's in the current 9 ordinance, I don't believe that's been changed, but I 10 think that means if it's going to be -- if potential 11 future development of this, that this is just one phase 12 that's approved now, how do we look at making sure that -- 13 that future expansions are adequately taken into account, 14 that's how I would interpret that. 15 MS. O'BRIEN: So that would be if the concept 16 plan shows that there could be in the future a -- 17 MR. JAGGI: Yeah. 18 MS. O'BRIEN: Okay. 19 MR. JAGGI: You might -- I don't foresee that 20 being common, but I suppose you could have a tract and it 21 would say future development on it, and then, okay, you 22 know, but they're not sure what that would be today, you 23 know, what are the provisions to be able to consider that 24 in the future. 25 MS. O'BRIEN: Okay.	Page 39 1 subdivisions, if you have -- somebody had an outbuilding 2 that's really large and the neighbor can't even grow grass 3 anymore cause of no sunlight, so those kinds of things as 4 well. 5 But I don't think it's a -- a restricted 6 concept. I think it would be whatever came up in that 7 particular circumstance. 8 MS. O'BRIEN: Okay, so just general language? 9 MR. LUMLEY: Yes. 10 CHAIRMAN LABONTE: Other questions? 11 MS. O'BRIEN: I have one more, I guess. 12 Other cities have this similar type of 13 structure? 14 MR. JAGGI: Uh-huh. Yes. 15 MS. O'BRIEN: Are -- do you have some examples? 16 MR. JAGGI: Chesterfield, Clayton, St. Charles. 17 Those are ones that immediately I'm familiar with. 18 Chesterfield uses the -- uses this extensively. 19 A lot of their major developments, they're under a plan of 20 development works. 21 Clayton has them as well. 22 A lot of the downtown projects are -- are 23 planned developments. And they really kind of steer you 24 into this type of zoning procedure. 25 And then I'm familiar also with St. Charles, so
Page 38 1 So you might make them put in some 2 infrastructure or something? 3 MR. JAGGI: Yeah. I -- yeah. I think that's a 4 good interpretation of that. 5 MS. O'BRIEN: And then on page 12, the 6 conditions of approval. 7 MR. JAGGI: Uh-huh. 8 MS. O'BRIEN: I just was wondering about the 9 findings of -- to prevent or minimize the adverse effects 10 on other property and improvements in the vicinity and 11 zoning district. 12 So, are those terms that have like a -- kind of 13 a meaning that everyone knows in the zoning world? 14 MR. JAGGI: Yeah, I think, it, basically, it's 15 like, for example, traffic impacts, that this won't have 16 an adverse effect on traffic impacts, I think that's -- 17 that's within this criteria. 18 You know, the buffers are sufficient that it's 19 not going to have a detrimental effect to surrounding 20 properties, based on, you know, the buffers. 21 I think it captures all of those sorts of things 22 in terms of its impacts on the surrounding areas. 23 MR. LUMLEY: And we had an issue come up with 24 the City Council with regard to the accessory structures 25 and concern about loss of sunlight in smaller	Page 40 1 Streets of St. Charles was a planned -- planned 2 development as well. 3 They even use it for a lot of their subdivisions 4 that have different lot sizes. You know, you have one 5 village that has smaller, you know, villas, and then 6 another part of the subdivision will have bigger lots and, 7 you know, pool houses and things like that, so they use 8 that a lot on their Planned Residential Development, so. 9 But I suspect, I know even more than that, than 10 those cities have those procedures. 11 CHAIRMAN LABONTE: Do we want to open it up for 12 public comment? 13 Thank you. 14 MR. JAGGI: Thank you. 15 CHAIRMAN LABONTE: Okay. We'll open the time up 16 for public comment, if anyone would like to come forward 17 with any public comments. 18 MR. POTASHNICK: Would you like a motion? 19 CHAIRMAN LABONTE: Sure. 20 (At 6:56 p.m. the Public Hearing was continued 21 to June 5, 2022 Planning and Zoning Meeting.) 22 23 24 25

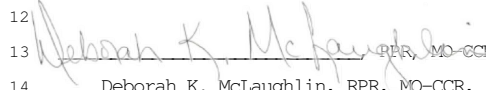
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26/11	3/23	24/18 24/18 25/8	20/22 23/11	traditional [2]
start [2] 4/5	sunlight [2]	25/9 25/18 26/1	third [1] 10/1	4/15 6/12
36/23	38/25 39/3	27/5 28/4 30/19	this [79]	traffic [4] 15/8
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32/12 40/23	Supervisor [1]	there's [17]	those [27] 1/10	38/16
statement [1]	1/15	6/25 8/20 10/8	7/21 8/10 9/14	transcends [1]
32/2	Supervisor/Record	10/8 14/13 15/20	13/20 13/23 14/5	35/24
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[1] 41/8	17/9	26/17 29/19	31/20 31/22	transferable [1]
step [2] 15/10	suppose [2]	29/24 35/3 36/24	32/14 34/24 35/6	5/8
28/25	35/22 37/20	these [27] 3/22	35/12 35/21	trees [1] 23/3
sticking [1]	supreme [1] 6/2	4/6 4/7 5/6 6/8	36/23 38/12	true [1] 41/9
22/8	sure [5] 20/23	6/8 7/12 9/4	38/21 39/3 39/17	trying [2] 30/16
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22/12 22/16 34/7	37/22 40/19	15/8 15/12 15/12	thought [4]	turned [2] 30/9
story [2] 16/20	surrounding [3]	15/24 17/2 17/16	10/12 11/7 12/3	36/6
16/21	9/10 38/19 38/22	18/5 18/18 19/11	24/20	tweaks [1] 9/23
street [6] 31/4	suspect [1] 40/9	22/9 22/15 23/15	thoughts [1]	two [12] 3/21
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Streetlights [2]	T	they [30] 4/14	18/5	20/11 20/19 21/9
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stuff [1] 34/18	terms [10] 3/17	15/23 15/23	33/20 35/24	10/7 10/13 11/6
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14/23	then [48]	28/11 29/13	24/25	under [18] 9/12
such [1] 30/13	there [28] 6/21	29/23 30/4 30/24	townhouse [2]	9/12 11/16 17/6
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**APPLICATION TO PLANNING AND ZONING COMMISSION
#23-013: TEXT AMENDMENT TO MODIFY SECTION 405.390 PLANNED
ZONING DISTRICTS OF THE ZONING ORDINANCE**

FOR THE MEETING OF: Monday, May 15, 2023, 6:00 P.M.

LOCATION: Citywide

REQUEST: Jason Jaggi, Director of Community Development on behalf of the City of Creve Coeur, has submitted an application to amend Zoning Ordinance Section 405.390, Planned Zoning Districts. The submitted amendments include reducing the minimum site size for planned zoning districts, modifying the eligibility criteria, establishing a new mixed-use type of planned zoning district, and introducing the requirement for approval of a site concept plan to regulate the overall components of a development. The Planned Zoning Districts procedure provides an alternative approach to the traditional zoning ordinance standards for developments to allow flexibility due to circumstances with project size, phasing, configuration, site conditions or design features in exchange for a public benefit. Planned Zoning Districts have been established to implement the goals of the comprehensive plan, facilitate innovative design, solve problems on difficult sites and promote well-designed redevelopment that cannot be achieved under the traditional zoning and land use regulations.

ADDITIONAL INFORMATION: Text Amendments to the Zoning Ordinance require a public hearing and review by the Planning and Zoning Commission with final approval by the City Council.

APPLICANT: Jason Jaggi, AICP
Director of Community Development
City of Creve Coeur
300 North New Ballas Road
St. Louis, MO 63141

REPORT PREPARED BY: Jason Jaggi, AICP Director of Community Development
DATE: May 10, 2023
ATTACHMENTS: Draft Amendments and Existing Section 405.390 Planned Zoning Districts

Key Issues:

- Are the changes consistent with the purposes of the Zoning Code?
- Are the changes consistent with the objectives and strategies of the Comprehensive Plan?

Zoning Code References

- Section 405.390 Planned Zoning Districts
- Section 405.1060 Zoning Changes and Text Amendments

INTRODUCTION

At the joint City Council/Planning and Zoning Commission work session held in January of this year, City staff discussed the need to revise the Planned Zoning District regulations. Following the joint session, staff held work sessions with the Planning and Zoning Commission to review the current Planned Zoning District ordinance and the areas that are in need of review. These work sessions were held on February 21, 2023 and March 6, 2023.

BACKGROUND

The current Planned Zoning Districts ordinance was approved by the City Council in 2008 and is found in Section 405.390 of the zoning code. Planned Zoning Districts are a rezoning option available to facilitate innovative, high-quality development that implements the goals of the comprehensive plan and other land use objectives in exchange for flexibility from the specific requirements of the zoning ordinance. The planned development ordinance is a useful option for larger, complex developments where strict adherence to the zoning code is not possible, but that could result in a desirable development. Approval for planned developments involves rezoning to the Planned District with approval of a site-specific development plan and ordinance that can regulate nearly all aspects of the development including uses, parking, building heights, setbacks, signage, etc.

Planned developments are currently classified into two types: Planned Residential Development (PRD) and Planned Commercial Development (PCD). PRD's allow all forms of residential as well as small service commercial intended to serve the immediate area. The minimum site size is 5.0 acres and applications are subject to several standards for development including density, setbacks, buffers, and open space. The Vue apartments on Old Olive is a recent project that was approved under the PRD procedure.

PCD's allow a mixture of commercial, office, miscellaneous service activities and multi-family residential uses. The minimum site size is 3.5 acres with several standards that the applicant must demonstrate compliance. The HBE hotel project was a recent application under the PCD procedure; however, that project did not receive approval by the City Council.

These text amendments to the planned development ordinance are being reviewed in advance of an anticipated application utilizing this procedure for the former Bayer West site. The new ownership entity has approached the City with an ambitious plan to redevelop the property into a mixed-use, master planned development. The development contemplates a wide variety of uses including commercial (retail and restaurants), multi-family and attached single family residential, senior living, office and open space. While the proposed development is the driving force for this review, staff feels that the planned development ordinance would benefit from these updates, regardless of the status of this development.

SUMMARY OF PROPOSED AMENDMENTS

The Planned Zoning District ordinance has been revised throughout; however, the following represent the key components where changes have been made:

Changes to the Minimum Site Size

The current ordinance requires a minimum site size of 5 acres for a planned residential development and 3.5 acres for a planned commercial development. The minimum site size has been changed to 3 acres for consistency across all planned development types.

Adding a Third Type of Planned Development and Base Zoning District Eligibility

The current ordinance has two types of planned developments: Residential and Commercial. The proposed revision creates a third type of planned development—a Planned Mixed-Use Development that would allow any combination of the following uses: commercial, lodging,

residential, offices. The Planned Commercial type has been revised to eliminate any residential component. An additional change involves the eligibility for a rezoning to a Planned Zoning District based on the base zoning district. The three planned development types require the base zoning districts as follows:

1. Planned Residential Development (PRD). A Planned Residential Development shall be eligible for properties where the existing zoning district is zoned A, B, C, or D Single Family Residential or AR-Attached Residential.
2. Planned Commercial Development (PCD). A Planned Commercial Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
3. Planned Mixed-Use Development (PMD). A Planned Mixed-Use Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.

Eliminating the Eligibility Criteria Based on Adjacent Land Uses

The current ordinance prohibits a commercial planned development if more than 50 percent of the adjacent land uses are single family residential. This provision is extremely limiting in the use of this zoning mechanism and, in the case of the former Bayer West site, would be prohibitive. As an alternative approach, as stated above, one of the eligibility factors involves the base zoning district. For example, for a commercial planned development, the base zoning would need to be commercially zoned or zoned office.

Design Criteria

The current ordinance lists specific design criteria for each of the types of planned developments. These standards of development include density, floor area ratio, setbacks and buffer yard dimensions. The standards involving the minimum buffer requirements when adjacent to existing single-family development and the sky exposure plane remain; however, the ordinance has been amended to allow waivers from one or more of these standards as part of the planned development review process. As previously mentioned, planned developments, by their very nature, are intended to allow site flexibility and relief from certain aspects of the zoning code on a case-by-case basis. There may be a need to modify these standards based on site conditions as determined by P&Z and City Council and the ordinance provides the ability to do so.

Site Concept Plan

For multi-phased projects on large development sites, introducing a site concept plan requirement that serves as the basis for approval of the rezoning to the planned district would be beneficial. Currently, the ordinance requires a fully developed site development plan to be prepared and submitted with the rezoning request. A site concept plan is a higher-level site plan that provides the essential information for a proposed large-scale development. This information includes in a general form: minimum setbacks, location and maximum height of all buildings on the site, parking areas, buffers, open space, access points, pedestrian circulation and land uses. The site concept plan serves as the basis for reviewing future site development plans for each phase of the concept plan. A more detailed site development plan would still be required for review and approval by the Planning and Zoning Commission prior to construction of each phase as shown on the site concept plan. The individual site development plans will provide more detailed information including architectural elevations, landscape plans, and specific information on the building's use, bulk, and placement.

It is important to note that each site development plan must be consistent with the approved site concept plan. If there are substantial departures, then the site concept plan must be revised. The site concept plan process is similar for development proposals on large sites or within a campus setting located in the Core Business, Planned Hospital, and Higher Education districts.

Other Considerations

Subdivision regulations. The amendments allow the ability to request relief from the subdivision regulations. Such waivers could involve minimum design standards such as street widths and lot sizes. The planned development process requires the submittal of a preliminary plat if new public streets or subdivision of lots are involved. The preliminary plat can be submitted concurrently with the site concept plan or with the site development plan.

Amendments. After approval of the rezoning to the planned development, the site concept plan is valid for 8 years. The site development plan is valid for one year. Minor amendments that do not represent a substantial change from the approval can be issued by staff. Major amendments to the site concept plan require an amendment to the planned district and a public hearing by P&Z with final approval by City Council. Major amendments to the site development plan require approval by the Planning and Zoning Commission if they follow the site concept plan.

COMPREHENSIVE PLAN REVIEW

The Creve Coeur 2030 comprehensive plan was developed with specific recommendations for implementation within the community place type framework. The comprehensive plan contains twelve identified place types. The Planned Zoning Districts procedure provides the opportunity for zoning flexibility based on eligibility criteria; however, a key finding of approval for any planned development is how it meets with the vision of the place type and its ability to implement the comprehensive plan's recommendations. In these respects, the planned development procedure is a useful tool to accomplish these objectives. It is important to note that the planned district ordinance is a tool to achieve implementation of the plan based on the merits of each specific proposal. With these considerations in mind, the proposed text amendments enable certain development proposals with a means to implement the objectives and recommendations of the plan.

CONCLUSION AND ACTION

The proposed amendments have been submitted to address shortcomings with the existing planned development ordinance. The planned development ordinance can be a useful tool for certain projects; however, some of the constraints with the current ordinance may have contributed to its limited use. The most significant aspects of these changes have been summarized in this report. Staff will review these changes at the meeting. The Commission is requested to take comments from the public at this time and continue this matter until the next Planning and Zoning Commission meeting of June 5, 2023. At the following meeting, staff will incorporate any requested revisions and present a draft ordinance for review and recommendation to the City Council.

MOTION

To continue this item to the next meeting, the following would be a suitable motion for this application:

"I move to continue the proposed text amendments to Section 405.390 of the Zoning Code as part of Application 23-013 to the next Planning and Zoning Commission meeting, scheduled for June 5, 2023."

APPENDIX 1: COMPREHENSIVE PLAN

Included and attached by reference. See body of report for specific excerpts.

APPENDIX 2: ZONING CODE

Included and attached by reference. See body of report for specific excerpts.

Chapter 405 Zoning Ordinance

Article III. Zoning District Regulations

Revised Section 405.390 Planned Zoning Districts

- A. *Purpose.* The purpose of the Planned Zoning District is to allow a development project that is proposed on a single lot or multiple lots to be constructed in one (1) or more phases that is unable to meet the established zoning criteria due to project size, phasing, configuration, site conditions, or particular design features. The Planned Zoning District provides a mechanism to facilitate innovative design, solve problems on difficult sites, meet market niches, encourage housing in different forms and price ranges, promote well-designed developments, and encourage infill and redevelopment within the City.
- B. *Objectives.* Through the flexibility of the Planned Zoning District, the City seeks to achieve the following objectives:
1. Fulfillment of the goals and objectives of the Comprehensive Plan;
 2. Creation of a more desirable environment than would be possible through application of conventional City land use regulations;
 3. Promotion of a creative approach to the use of land and related physical facilities resulting in better design and development including aesthetic amenities;
 4. Combination and coordination of architectural styles, building forms and building relationships;
 5. Preservation and enhancement of desirable site characteristics such as natural topography, vegetation and geologic features, preferably by means of natural erosion control and stormwater control best management practices;
 6. Use of design, landscape or architectural features consistent with the City's design guidelines; and
 7. Mutually desired elimination of obsolete or deteriorated structures or incompatible uses through redevelopment.
- C. *Eligibility.* A development proposal shall be eligible for consideration under the planned zoning district process if the Zoning Administrator finds that it meets the following provisions:
1. Is located on one (1) or more lots totaling at least three (3) acres in size.
 2. Cannot be approved under the provisions of another Zoning District.

3. The subject property is zoned for the eligible type of planned zoning district pursuant to Section 405.390.F. In the event the existing zoning district is not eligible for the requested planned zoning district, an application to rezone to a qualifying zoning district must be submitted in conjunction with the planned zoning district application.
4. The proposed development must substantially comply with the provisions of this Section 405.390 and be generally consistent with the applicable provisions of the City's Comprehensive Plan.

D. Relationship Of Planned Districts to Zoning Map.

1. *A mapped district.* The planned zoning district designation shall not be attached to existing zoning districts as an overlay. The planned zoning districts, as detailed in this Section, are separate zoning districts and applied to a specific parcel or parcels of land following a public hearing and all other requirements of Section 405.1060 Zoning Changes and Text Amendments. Such designation shall be shown on the City Zoning Map.

E. Public Benefit. In connection with obtaining approval of a planned zoning district, public benefits are to be provided as determined by the City Council upon a recommendation of the Planning and Zoning Commission. Such public benefits to the City could include, but are not limited to, the following:

1. Provision of public or quasi-public parking facilities;
2. Provision of on-street and off-street pedestrian facilities linking surrounding business, office and residential uses;
3. Consolidation and/or elimination of overhead utility wires;
4. Inclusion of landscaped gardens, plazas or parks available for public use;
5. Provision of alternative street connections or the dedication of land for additional street right-of-way;
6. Fountains, statuary, public art;
7. Architectural distinction and significance that would make building(s) noteworthy;
8. Extensive use of high-quality building materials that would add to the assessed valuation of the structures.

F. Types of planned zoning districts. There are three (3) types of planned zoning districts:

1. Planned Residential Development (PRD). A Planned Residential Development shall be eligible for properties where the existing zoning district is zoned A, B, C, or D Single Family Residential or AR-Attached Residential.
2. Planned Commercial Development (PCD). A Planned Commercial Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
3. Planned Mixed-Use Development (PMD). A Planned Mixed-Use Development shall be eligible for properties where the existing zoning district is CB-Core Business, GC-General Commercial, PO-Planned Office, or RO-Research Office District.
4. *Planned Residential Development (PRD)*. A "Planned Residential Development" shall mean a development on a plot of land, containing a limited mixture of uses and building types that is predominately residential, which may include single-family houses, clustered housing, townhouses, and multi-family dwellings. Small service-commercial uses that complement the area may be permitted if deemed compatible with the proposed residential uses and will not have a detrimental impact on the adjacent residential uses. Although no particular combination of the aforementioned uses is predetermined, all applications for PRD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.

(a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PRD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Housing densities expressed as dwelling units per acre for each housing type shall be compatible with the surrounding area.
- (2) The height of all buildings shall be compatible with the surrounding area. In addition, properties adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (3) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of at least twenty-five (25) feet on all sides that abut the single-family development. The buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council.

The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.

- (4) Balances increased structure densities for the subject property with more cohesive and organized open space.
 - (5) Improves on, or provides for, efficient circulation patterns, access controls and screening of parking facilities.
 - (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
 - (7) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
 - (8) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
 - (9) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PRD.
 - (10) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
 - (11) Functionality and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with the surrounding development.
5. *Planned Commercial Development (PCD).* A "Planned Commercial Development" shall mean a development on a plot of land containing a mixture of commercial, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PCD is to provide sites for the development of a mixture of commercial uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PCD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PCD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.
- (a) *Design criteria.* Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an

application for PCD zoning shall also be reviewed for conformance with the following design criteria:

- (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development. The buffer yard shall be landscaped and provided with other screening devices and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking into consideration the proposed uses adjacent to the existing single-family residential developments.
- (3) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (4) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (5) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (6) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (7) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (8) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (9) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (10) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.

- (11) Provides appropriate spacing and/or greenspace in or around the separate developments within the PCD.
 - (12) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with surrounding development.
6. *Planned Mixed-Use Development (PMD)*. A "Planned Mixed-Use Development" shall mean a development on a plot of land containing a mixture of commercial, residential, office, lodging, and miscellaneous service activities when acceptable to the area. The purpose of a PMD is to provide sites for the development of a mixture of commercial and residential uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PMD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PMD zoning must contain a clear statement and placement of the specific uses within the district as set forth in Table A. Subsequent requests for additional uses not previously approved shall be treated as amendments to the planned zoning district and subject to all of the original approval criteria.
- (a) *Design criteria*. Except to the extent supplemented, modified or superseded by and through the planned zoning district ordinance or site concept plan, an application for PMD zoning shall also be reviewed for conformance with the following design criteria:
 - (1) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
 - (2) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development, except if the abutting or adjoining proposed uses are residential of equal or less density relative to the existing residential uses then such buffer yard shall be twenty-five (25) feet. The buffer yard shall be landscaped and shall not contain impervious surfaces, with the exception of trails, footpaths, walkways, pedestrian accommodations and/or amenities, retaining walls and/or other screening devices and/or stormwater management systems as deemed appropriate by the Planning and Zoning Commission and City Council. The required buffer yard may be modified due to unique site characteristics and taking

into consideration the proposed uses adjacent to the existing single-family residential developments.

- (3) If residential uses are proposed, provides for a mixture of housing types to meet market demands and encourage diversification.
- (4) Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.
- (5) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (6) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (7) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (8) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (9) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (10) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (11) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section.
- (12) Provides for appropriate spacing and/or greenspace in or around the separate developments within the PMD.
- (13) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or innovative design of above ground facilities that is visually commensurate with surrounding development.

G. *Submittal Requirements—Site Concept Plan.* Any application for a rezoning to a Planned Zoning District must be accompanied by a Site Concept Plan submitted in accordance with Section 405.1080 with the information listed below in approximate detail placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a preliminary plat showing the property subdivided into separate lots may also be submitted in accordance with Chapter 410 (as

modified by approvals under this Section) in conjunction with the submittal of the Site Concept Plan, but in any event, must be submitted no later than in conjunction with the submittal of the applicable Site Development Plan(s).

- (1) The location of the parcel in relation to all surrounding and adjacent uses, buildings and zoning;
- (2) The location of the parcel in relation to major arterials and/or highways and any roadways or drives connecting the parcel to those major thoroughfares;
- (3) The boundaries, dimensions and area of the parcel;
- (4) The proposed use and development of the parcel including principal and accessory uses;
- (5) The location and size of each existing structure and building on the parcel;
- (6) The footprint of each proposed building or structure on the parcel;
- (7) The proposed setbacks from all perimeter property lines and buffer yards, if applicable;
- (8) The height and number of stories of all proposed buildings and structures;
- (9) The amount of land area covered by all proposed buildings, structures, drives and parking facilities;
- (10) The ratio of floor area to land area (FAR);
- (11) Approximate locations of existing and proposed utility easements and stormwater retention areas;
- (12) Existing and proposed contours at vertical intervals of not more than five (5) feet;
- (13) Two (2) section profiles through the site showing preliminary building form, existing natural and proposed final grade;
- (14) Preliminary plan for sanitation and drainage facilities;
- (15) Drawings shall contain the project name, proposed and existing street names, a reasonable and legible scale, north arrow and the date drawn.
- (16) A timeline showing the current approximation of when the planned development will be constructed in stages or units and a schedule for the development of stages or units stating the approximate beginning and completion time for each stage or unit.
- (17) A non-exhaustive outline of any proposed restrictive covenants that may be recorded with respect to property in the proposed planned zoning district.

- (18) A narrative addressing each of the standards set forth in Section 405.390(I) Review Criteria, Section 405.390(E) Public Benefit, the City's Comprehensive Plan, and such additional standards, if any, as may be applicable under the specific provisions of these planned zoning district regulations. The statement shall explain specifically how the proposed planned zoning district relates to and meets each such standard.
- (19) At the request of the Director of Community Development, a traffic impact analysis prepared by a Missouri registered traffic engineer depicting the project's impact on vehicular and pedestrian traffic along roadways adjacent to the planned zoning district and/or a traffic review focused on the vehicular and pedestrian circulation within the planned zoning district.
- (20) Any other information deemed necessary by the Zoning Administrator to fully understand the proposal.

A Site Development Plan shall then be submitted with applicable fees and escrow, for each specific building or phase within the project, for review and approval by the Planning and Zoning Commission. Such Site Development Plan shall be submitted in advance of or in conjunction with an application for a building permit (and can be submitted concurrently with the Site Concept Plan) for one or more buildings or phases. Of primary importance in the review of a Site Development Plan will be a determination that the plan substantially complies with the Site Concept Plan approved for the total development or project.

H. *Submittal Requirements—Site Development Plan.* Each Site Development Plan must be submitted in accordance with Section 405.1080 with the information listed below placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator. If there is to be a subdivision of property into separate lots, then a final plat must also be submitted in accordance with Chapter 410 (as modified by approvals under this Section).

- 1. All submissions to the City's Planning and Zoning Commission and City Council shall be properly sealed and signed by a licensed architect, professional engineer or land surveyor registered in the State of Missouri, as applicable, pursuant to laws and regulations established by the Missouri Board for Architects, Professional Engineers and Land Surveyors. An original seal, signature and print date shall appear on each page of one (1) original submittal set as evidence that the submitted material was prepared under the direction of a licensed architect, professional engineer or land surveyor, as applicable. All other submissions shall be copies of the original set.
- 2. Title block including name of the proposed project, name, address and phone number of preparers and project applicant or owner.
- 3. The location, dimensions and total area of the site.
- 4. The location, height, floor area, type of construction and intended use of each proposed building or structure.

5. Architectural elevations depicting size, shape and special design elements proposed as well as proposed exterior finish materials to be used.
 6. A plan of the entire planned zoning district shall be drawn at a scale of 1" = 20' or larger bearing a minimum of two (2) surveyed points located in conformance with the Missouri Coordinate System ("State Plane Coordinates").
 7. Two (2) cross sections at ninety degrees (90°) from each other through the proposed site and building(s).
 8. The number, location and dimensions of parking spaces, surface lot or structures and loading docks, in relation to the applicable parking regulations in Article VII, with means of ingress and egress. Layout of physically disabled parking and accessibility shall be included.
 9. The proposed traffic circulation pattern within the area of the development including the location and description of public improvements to be installed including any streets and access easements.
 10. The location and purpose of any existing or proposed dedication, easement or right-of-way (public or private) within the boundaries of the site.
 11. Location and dimensions of adjacent properties, abutting public rights-of-way and easements and utilities serving the site.
 12. Location of existing and proposed sewage treatment, stormwater runoff collection and detention and preliminary stormwater runoff calculations (amount of detention required and provided).
 13. Existing and proposed contour lines or elevations based on mean sea level datum at two (2) foot intervals and extending one hundred (100) feet beyond the property lines.
 14. Site coverage data in a percentage form of the planned zoning district (a ratio of non-impervious to impervious area).
 15. Ratio of floor area to site area of the planned zoning district (FAR).
 16. Location and height of all light poles and trash enclosures including detailed sketches or cut sheets.
 17. The proposed treatment of open spaces including existing and proposed landscaping.
- I. Review Criteria.* The Planning and Zoning Commission shall recommend to the City Council approval, approval with conditions or denial of a planned zoning district application primarily based upon satisfaction of Section 405.390(C), Eligibility and meeting the applicable design

criteria in Section 405.390(F), Types of Planned Zoning Districts. Supplemental to these items, every application shall also be reviewed for conformance with the standards set forth below, to the extent applicable:

1. The proposed development is in harmony with the general purpose and intent of this Chapter and is generally compatible with and implements the planning goals and objectives of the City including the Comprehensive Plan.
2. Streets or other means of access to the proposed development are suitable and adequate to carry anticipated traffic and will not overload the adjacent streets.
3. The internal circulation system of the proposed development encourages safe movement for vehicles and pedestrians.
4. Existing or proposed utility services are adequate for the proposed development.
5. Appropriate buffering is provided to protect adjacent land uses from light, noise and visual impacts.
6. Architecture and building materials are consistent with the character of the proposed development and compatible with areas of the City proximate thereto.
7. Landscaping is appropriate for the scale of development and consistent with any applicable City codes, ordinances and standards.
8. The proposed development preserves any significant architectural and environmental features of the property, to the extent reasonably possible.
9. Operating and delivery hours are compatible with the land uses adjacent to the planned zoning district.
10. The proposed uses are compatible with the area surrounding the proposed development and will not have a material net cumulative adverse impact on the surrounding area or the City as a whole.
11. The proposed development complies with all other applicable codes and ordinances.
12. The layout of structures and spaces adequately takes into account the potential for future subdivision of the development.
13. There is a demonstrated level of the public benefit to the City derived from the proposed development, per Section 405.390(E).

J. Review Procedure For A Planned Zoning District.

1. The application for a Planned Zoning District shall be reviewed and decided upon in accordance with the procedures for a zoning change established by Section 405.1060.
2. The Director of Community Development or his/her designee shall notify the applicant of any deficiencies and/or modifications necessary based on their review. The Planning and Zoning Commission may recommend, and the City Council may adopt modifications to the development standards set forth in Chapter 405 and Chapter 410 of the Code of Ordinances, City of Creve Coeur, Missouri, as part of its consideration and approval of the planned zoning district.
3. Approval of the Planned Zoning District is determined solely in the legislative discretion of the City Council which shall be codified within a separate planned zoning district ordinance.
4. Once approved by the City Council, the planned zoning district, including the associated site concept plan and the planned zoning district ordinance replaces all prior zoning regulations on the property and should be noted on the Zoning Map.
5. Any applicable time limitations shall be met, such as those pertaining to proposed wireless communications facilities and support structures under Section 67.5090 RSMo. et seq. and FCC Declaratory Ruling WT Docket No. 08-165, rel. 11-15-2009.1

K. Conditions Of Approval.

1. The City Council shall consider the same criteria as set forth for the Planning and Zoning Commission review (Section 405.390(I), Review Criteria) and may impose such conditions and limitations including, but not limited to, those recommended by the Planning and Zoning Commission, as may be necessary or appropriate to prevent or minimize adverse effects upon other property and improvements in the vicinity of the planned zoning district, upon the City as a whole or upon public facilities and services. These conditions may include, but are not limited to, conditions concerning use, construction, character, location, landscaping, screening, parking, maintenance, operational elements that would impact adjoining land uses and other matters relating to the purposes and objectives of these planned zoning district regulations. Such conditions shall be expressly set forth in the ordinance and depicted, as appropriate, on the associated Site Concept Plan authorizing the planned zoning district.
2. The ordinance approving a Planned Zoning District shall contain a legal description of the subject property, all imposed conditions of approval of the zoning and the approval of the Site Concept Plan. The ordinance and the approved site development plan(s) shall be recorded by the applicant in the office of County Recorder of Deeds. The applicant must present proof to the City of such recording before any permits may be issued.

3. Following planned zoning district approval, the site concept plan and planned district ordinance, rather than any other provision of this Chapter, shall govern the use, parking, loading, sign, bulk, space and yard regulations applicable to the subject property and no other use or development, except temporary uses, shall be permitted within the area of the planned zoning district pursuant to the zoning district regulations otherwise applicable to such area.
- L. *Reapplication.* In the event the City Council denies an application for planned zoning district, no application for the same or substantially similar proposal will be accepted for a period of at least one (1) year from the date of denial by the City Council, unless the City Council affirmatively waives this restriction for good cause.
 - M. *Final Building, Construction and Site Improvement Plans.* Once a planned zoning district and its included Site Concept Plan receives final approval by the City Council and the pertinent Site Development Plan has received approval by the Planning and Zoning Commission, further review of the final building, construction and site improvement plans by the Planning and Zoning Commission or the City Council will not be required, provided those final plans are consistent with and in substantial conformance with the approved planned zoning district and the approved site development plan.
 - N. *Period of Validity.* The Site Concept Plans approved by the City Council in conjunction with the Planned Zoning District shall be valid for a period of up to eight (8) years from the date of approval. After the eighth year, a site concept plan will no longer be valid unless an extension is granted as set forth below. The City of Creve Coeur may grant a single one-year extension prior to the expiration of the site concept plan upon written request of the applicant submitted to the City at least one hundred eighty (180) days prior to the expiration date and granted prior to the expiration date. Site Development Plans shall be valid for a period of twelve (12) months from the date of approval. Within such period a building permit shall be obtained, and substantial construction commenced. Substantial construction shall be deemed to consist of clearing the site, completion of footings, basement or building slab and inspection of such work. The Planning and Zoning Commission may grant extensions regarding the validity of a site development plan not exceeding twelve (12) months each upon written request of the original applicant prior to the expiration of such period and resubmission of the application if the application as resubmitted is substantially the same as the initially approved application. However, the Commission shall have the power in such cases to attach new conditions to their re-approval or to disapprove the reapplication. The validity of a site development plan cannot be extended if the site concept plan has ceased to be valid.
 - O. *Building Permit Issuance.* A copy of the approved planned zoning district, the approved site concept plan, and each approved site development plan shall be retained in the records of the Department of Community Development and all building and occupancy permits issued by the City shall conform to the provisions of the approved planned zoning district, site concept plan, and site development plan.
 - P. *Violations.* Failure to comply with any of the conditions and/or provisions of an approved planned zoning district plan shall constitute a violation of this Chapter, punishable as provided in Section 405.1150 of this Chapter. The City may seek judicial remedies to compel compliance.

Q. *Amendments.* No amendments shall be made in the construction, development or use permitted under a planned zoning district except as follows:

1. Minor amendments. During build-out of the planned zoning district, the Zoning Administrator may authorize minor adjustments to the approved site development plan when such adjustments appear necessary in light of technical or engineering considerations provided the project will remain in substantial conformance with the original approval.
2. Major amendments. If the Zoning Administrator determines that the proposed amendment will result in a major change to the site concept plan or site development plan (not in substantial conformance with the original approval) or any change to the list of permitted uses, the matter shall be subject to review as an amendment the Planned Zoning District. Amendments to the Site Concept Plan shall follow the same procedures as a new application under the provisions of these planned zoning district regulations. Amendments to the Site Development Plan shall follow the provisions of Section 405.1080 subject to review and approval by the Planning and Zoning Commission.

Section 405.390. Planned Zoning Districts. [R.O. 2008 §26-46.1 — 26-46.13; Ord. No. 5057 §2, 9-4-2008; Ord. No. 5134 §§1 — 3, 4-26-2010; Ord. No. 5165 §7, 12-13-2010; Ord. No. 5243 §4, 2-13-2012; Ord. No. 5300 §§16 — 17, 4-22-2013]

- A. *Definitions Of Terms.* Unless a contrary intention clearly appears, the following words and phrases shall have the meanings given in the following clauses for the purposes of this Section. Where a conflict arises between these definitions and those contained in Section 405.120, Definitions, the wording in this Section shall prevail only to the extent needed to interpret and enforce the regulations of this Section. Further, words and phrases which are not defined by this Section nor Section 405.120, Definitions, shall be given their usual meaning except where the context clearly indicates a different or specific meaning.

PLANNED ZONING DISTRICT — A designed grouping of varied and compatible land uses, such as housing, recreation, commercial centers and industrial parks, all within one (1) contained development or subdivision.

PREDOMINATELY NON-RESIDENTIAL — A descriptive phrase that applies to areas in which less than fifty percent (50%) of the adjoining land area (excluding streets) within five hundred (500) feet is developed as single-family residences, either detached or attached (the latter includes only stand-alone development of four (4) attached units or less).

PREDOMINATELY RESIDENTIAL OR INSTITUTIONAL — A descriptive phrase that applies to areas in which fifty percent (50%) or more of the adjoining land area (excluding streets) within five hundred (500) feet is developed as either:

1. Residential uses, or
2. Institutional uses consisting of non-profit or quasi-public uses, such as a religious institution, library, public or private school, hospital or government-owned or government-operated structure or land used for public purposes.

UTILITIES — All lines and facilities related to the provision, distribution, collection, transmission or disposal of water, storm and sanitary sewage, oil, gas, power, information, video, telecommunication and telephone.

- B. *Purpose.* The purpose of the Planned Zoning District is to allow innovative design, solve problems on difficult sites, meet market niches, encourage housing in different price ranges, promote well designed developments and encourage infill and redevelopment within the existing urban area. Through the flexibility of the Planned Zoning District, the City seeks to achieve the following objectives:

1. Fulfillment of the goals and objectives of the Comprehensive Plan;
2. Creation of a more desirable environment than would be possible through application of conventional City land use regulations;
3. Promotion of a creative approach to the use of land and related physical facilities resulting in better design and development including aesthetic amenities;
4. Combination and coordination of architectural styles, building forms and building relationships;
5. Preservation and enhancement of desirable site characteristics such as natural topography, vegetation and geologic features, preferably by means of natural erosion control and stormwater control best management practices;

6. Use of design, landscape or architectural features consistent with the City's design guidelines; and
7. Mutually desired elimination of obsolete or deteriorated structures or incompatible uses through redevelopment.

C. *Eligibility.* A development proposal shall be eligible for consideration under the planned zoning district process if the Zoning Administrator finds that it cannot be approved under any other Zoning District and that the applicant has provided credible evidence that the proposal is an appropriate implementation of the Comprehensive Plan due to the fulfillment of the purpose of this Section, the substantial incorporation of the design criteria for each the applicable district type identified in this Section 405.390 and the provision of a substantial tangible public benefit(s) to the City including, but not limited to, the following:

1. Provision of public or quasi-public parking facilities;
2. Provision of on-street and off-street pedestrian facilities linking surrounding business, office and residential uses;
3. Consolidation and/or elimination of overhead utility wires;
4. Inclusion of landscaped gardens, plazas or parks available for public use;
5. Provision of alternative street connections or the dedication of land for additional street right-of-way;
6. Fountains, statuary, public art;
7. Architectural distinction and significance that would make the building(s) noteworthy;
8. Extensive use of high quality building materials that would add to the assessed valuation of the structures.

It should be noted that the benefits listed may not necessarily satisfy the public benefit requirement as final discretion falls on the City Council, upon receipt of a recommendation of the Planning and Zoning Commission, in determining the level of benefit derived.

D. *Relationship Of Planned Districts To Zoning Map.*

1. *A mapped district.* The planned zoning district designation shall not be attached to existing zoning districts as an overlay. The planned zoning districts, as detailed in this Section, are separate zoning districts and applied to a specific parcel or parcels of land following a public hearing and all other requirements of Section 405.1060 Zoning Changes and Text Amendments.
2. *Types of planned zoning districts.*
 - a. *Planned residential development (PRD).* A "planned residential development" shall mean a development on a plot of land, containing a limited mixture of uses and building types, which may include single-family houses, clustered housing, multi-family dwellings, open space and small service commercial (boutique style business uses) that complement the area. Although no particular combination of the aforementioned uses is predetermined, all applications for PRD zoning must contain a clear statement and placement of the specific uses within the district with the NAICS Designation from Table A. Note that no use which

is listed as a conditional use in the Creve Coeur zoning ordinance shall be considered approved for a PRD unless it is expressly listed in the application and approved. Subsequent requests for additional conditional uses shall be treated as amendments to the zoning district and subject to all of the original approval criteria. The minimum gross area (includes floodplain areas) required for PRD is five (5.0) acres, composed of one (1) parcel or two (2) or more contiguous parcels of land.

Design criteria.

- (1) Adjoining areas should be predominately residential or institutional.
- (2) Housing densities may not exceed six (6) units per acre for new single-family residential nor thirty (30) units per acre for new multi-family residential. For the purpose of calculating density, acreage shall not include areas located in a 100-year floodplain. **[Ord. No. 5333 §1, 9-9-2013]**
- (3) Includes dwelling units (all types) subject to height and development and performance standards substantially similar to surrounding residential development. In addition, properties adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (4) The floor area ratio (FAR) shall not exceed six-tenths (0.6). However, where a proposed district includes pre-existing buildings that are found to otherwise satisfy the overall purpose and intent of this Chapter, the FAR may be waived so long as the building coverage does not exceed thirty-three percent (33%) of the site area and the sky exposure plane requirement is met. **[Ord. No. 5333 §2, 9-9-2013]**
- (5) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of twenty-five (25) feet on all sides that abut the single-family development. The buffer yard shall not contain any impervious surface and shall be landscaped and provided with other screening devices as deemed appropriate by the Planning and Zoning Commission.
- (6) No new residential building may be located closer than twenty (20) feet to any required buffer yard.
- (7) No new commercial building may be located closer than forty (40) feet to any required buffer yard.
- (8) Balances increased structure densities for the subject property with more cohesive and organized open space.
- (9) Improves on, or provides for, efficient circulation patterns, access controls and screening of parking facilities.
- (10) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (11) Utilizes high-quality architectural design, placement, relationship and orientation of structures.

- (12) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section. **[Ord. No. 5381 §1, 7-14-2014]**
 - (13) Provides effective landscaping or screening in or around the separate developments within the PRD.
 - (14) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
 - (15) Functionality and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or extraordinary design of above ground facilities that is visually commensurate with the surrounding development.
- b. *Planned commercial development (PCD).* A "planned commercial development" shall mean a development on a plot of land containing a mixture of commercial, office, miscellaneous service activities and multi-family dwellings when acceptable to the area. The purpose of a PCD is to provide sites for the development of commercial retail and office uses in a manner which is attractive for such uses and compatible with surrounding neighborhoods. The PCD will also encourage the efficient use of land and resources, offer a mix of amenities for the populace of the area and promote greater efficiency in public and utility services. Although no particular combination of the aforementioned uses is predetermined, all applications for PCD zoning must contain a clear statement and placement of the specific uses within the district, with the NAICS Designation from Table A. Note that no use which is listed as a conditional use in the Creve Coeur zoning ordinance shall be considered approved for a PCD unless it is expressly listed in the application and approved. Subsequent requests for additional conditional uses shall be treated as amendments to the zoning district and subject to all of the original approval criteria. The minimum gross area (includes floodplain areas) required for PCD is three and one-half (3.5) acres, composed of one (1) parcel or two (2) or more contiguous parcels of land. In addition, a PCD may not be requested for properties described by the Central Business District land use plan.

Design criteria.

- (1) Adjoining areas must be predominantly non-residential as defined for this district and the project shall have primary access, from Olive Boulevard, Lindbergh Boulevard, North New Ballas Road or any street within the "LI" Light Industrial zoning district, and may also have secondary access to a side road or from any street within the "LI" Light Industrial zoning district. **[Ord. No. 5578, 4-9-2018]**
- (2) Proposed development adjacent to any single-family residential development shall meet a sky exposure plane requirement. The sky exposure plane will be measured from a line located thirty-five (35) feet above the property line and will have a slope of thirty degrees (30°) rising towards the center of the site.
- (3) The floor area ratio (FAR) for new developments shall not exceed six-tenths (0.6). However, where a proposed district includes pre-existing buildings that are found to otherwise satisfy the overall purpose and intent of this Chapter, the FAR may be waived so long as the building coverage does not exceed forty percent (40%) of the site area and the sky exposure plane requirement is met.

- (4) Any tract or site abutting or adjoining a single-family residential development shall provide a buffer yard of thirty-five (35) feet on all sides that abut the single-family development. The buffer yard shall not contain any impervious surface and shall be landscaped and provided with other screening devices as deemed appropriate by the Planning and Zoning Commission.
- (5) No new residential building may be located closer than fifteen (15) feet to any property line or any required buffer yard.
- (6) No new commercial building may be located closer than forty (40) feet to any required buffer yard.
- (7) Makes efficient use of parking and storage areas including cooperative parking facilities.
- (8) Provides for the more efficient provision of public and private utilities and facilities throughout the development area.
- (9) Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.
- (10) Incorporates pocket parks, small plazas and places for public art where appropriate.
- (11) Locates buildings in appropriate relation to sidewalks or public parks and plazas.
- (12) Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.
- (13) Allows for on-street parking and locates surface parking to the side and rear of buildings.
- (14) Utilizes high-quality architectural design, placement, relationship and orientation of structures.
- (15) Places all utilities serving new projects underground, to the extent feasible, except where specific allowances and design considerations are provided elsewhere in this Section. **[Ord. No. 5381 §1, 7-14-2014]**
- (16) Provides effective landscape or screening in or around the separate developments within the PCD.
- (17) Functionally and aesthetically integrates all proposed storm water collection basins with the surrounding development through undergrounding or extraordinary design of above ground facilities that is visually commensurate with surrounding development.

E. *Submittal Requirements.* For a planned zoning district to be accepted for review, the application must be accompanied by a complete site development plan submitted in accordance with Section 405.1080 with the information listed below placed either on the plan or on a separate sheet accompanying the plan, unless otherwise approved by the Zoning Administrator.

1. All submissions to the City's Planning and Zoning Commission and City Council shall be properly sealed and signed by a licensed architect, professional engineer or land surveyor

registered in the State of Missouri, as applicable, pursuant to laws and regulations established by the Missouri Board for Architects, Professional Engineers and Land Surveyors. An original seal, signature and print date shall appear on each page of one (1) original submittal set as evidence that the submitted material was prepared under the direction of a licensed architect, professional engineer or land surveyor. All other submissions shall be copies of the original set.

2. Title block including name of the proposed project, name, address and phone number of preparers and project applicant or owner.
3. The location, dimensions and total area of the site.
4. The location, height, floor area, type of construction and intended use of each proposed building or structure.
5. Architectural elevations depicting size, shape and special design elements proposed as well as proposed exterior finish materials to be used.
6. A plan of the entire planned zoning district shall be drawn at a scale of 1" = 20' or larger bearing a minimum of two (2) surveyed points located in conformance with the Missouri Coordinate System ("State Plane Coordinates").
7. Two (2) cross sections at ninety degrees (90°) from each other through the proposed site and building(s).
8. The number, location and dimensions of parking spaces, surface lot or structures and loading docks, in relation to the applicable parking regulations in Article VII, with means of ingress and egress. Layout of physically disabled parking and accessibility shall be included.
9. The proposed traffic circulation pattern within the area of the development including the location and description of public improvements to be installed including any streets and access easements.
10. The location and purpose of any existing or proposed dedication, easement or right-of-way (public or private) within the boundaries of the site.
11. Location and dimensions of adjacent properties, abutting public rights-of-way and easements and utilities serving the site.
12. Location of existing and proposed sewage treatment, stormwater runoff collection and detention and preliminary stormwater runoff calculations (amount of detention required and provided).
13. Existing and proposed contour lines or elevations based on mean sea level datum at two (2) foot intervals and extending one hundred (100) feet beyond the property line.
14. Site coverage data in a percentage form (a ratio of non-impervious to impervious area).
15. Ratio of floor area to site area (FAR).
16. Location and height of all light poles and trash enclosures including detailed sketches or cut sheets.
17. The proposed treatment of open spaces including existing and proposed landscaping.
18. When the planned development is to be constructed in stages or units, a schedule for the

development of stages or units stating the approximate beginning and completion time for each stage or unit.

19. Copies of any restrictive covenants that are to be recorded with respect to property in the proposed planned zoning district.
20. A narrative addressing each of the standards set forth in Section 405.390(F) Review Criteria and such additional standards, if any, as may be applicable under the specific provisions of these planned zoning district regulations. The statement shall explain specifically how the proposed planned zoning district relates to and meets each such standard.
21. A traffic impact analysis prepared by a Missouri registered traffic engineer depicting the project's impact on vehicular and pedestrian traffic.

F. *Review Criteria.* The Planning and Zoning Commission shall recommend to the City Council approval, approval with conditions or denial of a planned zoning district application primarily based upon satisfaction of Section 405.390(C), Eligibility and meeting the applicable design criteria in Section 405.390(D)(2), Types of Planned Zoning Districts. Supplemental to these items, every application shall also be reviewed for conformance with the standards set forth below:

1. The proposed development is in harmony with the general purpose and intent of this Chapter and is compatible with and implements the planning goals and objectives of the City including the Comprehensive Plan and CBD land use plan.
2. Streets or other means of access to the proposed development are suitable and adequate to carry anticipated traffic and will not overload the adjacent streets.
3. The internal circulation system of the proposed development encourages safe movement for vehicles and pedestrians.
4. Existing or proposed utility services are adequate for the proposed development.
5. Appropriate buffering is provided to protect adjacent land uses from light, noise and visual impacts.
6. Architecture and building materials are consistent with the character of the proposed development and compatible with areas of the City proximate thereto.
7. Landscaping is appropriate for the scale of development and consistent with any applicable City codes, ordinances and standards.
8. The proposed development preserves any significant architectural and environmental features of the property.
9. Operating and delivery hours are compatible with adjacent land uses.
10. The proposed uses are compatible with the area surrounding the proposed development and will not have a material net cumulative adverse impact on the surrounding area or the City as a whole.
11. The proposed development complies with all other applicable codes and ordinances.
12. The layout of structures and spaces adequately takes into account the potential for future subdivision of the development.

13. There is a demonstrated level of the public benefit to the City derived from the proposed development, per Section 405.390(B).

G. *Review Procedure For A Planned Zoning District.*

1. *Finding of eligibility.* The Zoning Administrator shall make a written finding of eligibility under Section 405.390(C), Eligibility, within fifteen (15) days following submittal of a proposal by an applicant.
2. Following a positive finding of eligibility by the Zoning Administrator, an application for approval of a planned zoning district shall be reviewed and presented at a public hearing according to the procedures outlined in Section 405.1060.
3. Once approved by the City Council, the planned zoning district, including the associated site development plan, replaces all prior zoning regulations on the property and should be noted on the Zoning Map.
4. Any applicable time limitations shall be met, such as those pertaining to proposed wireless communications facilities and support structures under Section 67.5090 RSMo. et seq. and FCC Declaratory Ruling WT Docket No. 08-165, rel. 11-15-2009.¹ **[Ord. No. 5381 §1 7-14-2014; Ord. No. 5620, 12-10-2018]**

H. *Conditions Of Approval.*

1. The City Council shall consider the same criteria as set forth for the Planning and Zoning Commission review (Section 405.390(F), Review Criteria) and may impose such conditions and limitations including, but not limited to, those recommended by the Planning and Zoning Commission, as may be necessary or appropriate to prevent or minimize adverse effects upon other property and improvements in the vicinity of the planned zoning district, upon the City as a whole or upon public facilities and services. These conditions may include, but are not limited to, conditions concerning use, construction, character, location, landscaping, screening, parking, maintenance, operational elements that would impact adjoining land uses and other matters relating to the purposes and objectives of these planned zoning district regulations. Such conditions shall be expressly set forth in the ordinance and depicted, as appropriate, on the associated site development plan authorizing the planned zoning district.
2. The ordinance approving a planned zoning district shall contain a legal description of the subject property to the planned zoning district, all imposed conditions of approval and the site development plan. The ordinance and the approved development plan shall be recorded by the applicant in the office of County Recorder of Deeds. The applicant must present proof to the City of such recording before any permits may be issued.
3. Following planned zoning district approval, the development plan, rather than any other provision of this Chapter, shall govern the use, parking, loading, sign, bulk, space and yard regulations applicable to the subject property and no use or development, other than temporary uses, shall be permitted within the area of the planned zoning district pursuant to the zoning district regulations otherwise applicable to such area.

1. Note: Review of an application shall be completed within applicable time limitations including those pertaining to proposed wireless communications facilities and support structures under State and Federal law, which are generally: 45 days for collocation or replacement of wireless facilities or non-substantial modifications of existing facilities, 60 days for small wireless facilities on new poles, and 120 days for other (not small) wireless facilities on new poles or substantial modifications of such existing facilities. See Sections 67.5090, et seq., and 67.5110, et seq., RSMo., and 47 CFR 1.40001 and 1.6003.

- I. *Reapplication.* In the event the City Council denies an application for planned zoning district, no application for the same or substantially similar proposal will be accepted for a period of at least one (1) year from the date of denial by the City Council, unless the City Council affirmatively waives this restriction for good cause.
- J. *Final Building, Construction And Site Improvement Plans.* Once a planned zoning district and its included site development plan receives final approval by the City Council, further review of the final building, construction and site improvement plans by the Planning and Zoning Commission or the City Council will not be required, provided those final plans are consistent with and in substantial conformance with the approved planned zoning district and its included site development plan.
- K. *Building Permit Issuance.* A copy of the approved planned zoning district shall be retained in the records of the Department of Community Development and all building and occupancy permits issued by the City shall conform to the provisions of the approved planned zoning district.
- L. *Violations.* Failure to comply with any of the conditions and/or provisions of an approved planned zoning district plan shall constitute a violation of this Chapter, punishable as provided in Section 405.1150 of this Chapter. The City may seek judicial remedies to compel compliance.
- M. *Amendments.* No amendments shall be made in the construction, development or use permitted under a planned zoning district except as follows:
 - 1. *Minor amendments.* During build-out of the planned zoning district, the Zoning Administrator may authorize minor adjustments to the approved site development plan when such adjustments appear necessary in light of technical or engineering considerations and the project will remain in substantial conformance with the original approval.
 - 2. *Major amendments.* If the Zoning Administrator determines that the proposed amendment will result in a major change to the site development plan (not in substantial conformance with the original approval) or any change to the list of permitted uses, the matter shall be subject to review as a new application under the provisions of these planned zoning district regulations.



city
of

CREVE COEUR

File # _____

300 North New Ballas Road • Creve Coeur, Missouri 63141
(314) 872-2500/872-2501 • Fax (314) 872-2505 • Relay MO 1-800-735-2966
www.creve-coeur.org

TEXT AMENDMENT APPLICATION

PLEASE COMPLETE FRONT AND BACK PAGES

Applicant:	Applicant's Representative (if applicable):
Jason Jaggi, Director of Community Development	-Same-
<i>Name</i>	<i>Name</i>
City of Creve Coeur	
<i>Company (If Applicable)</i>	<i>Company (If Applicable)</i>
300 North New Ballas Road	
<i>Address</i>	<i>Address</i>
Creve Coeur MO 63141	
<i>Address</i>	<i>Address</i>
Telephone # 314-872-2504	Telephone # _____
Fax # _____	Fax # _____
Email: jjaggi@crevecoeurmo.gov	Email: _____

Applicant's Status (Indicate one):

☒
☐
☐

City Official (Mayor, City Councilor, Planning Commissioner, Zoning Administrator)

Private Party (Financial, contractual, or proprietary interest)

Other Governmental Interest (Jurisdiction: _____)

The undersigned hereby requests to be placed on the Agenda for the Planning and Zoning Commission meeting at 6:30 P.M. on Monday, April 12, 2023, 2023.

Applicant's Signature

Applicant's Representative's Signature

April 12, 2023

Date

Date

Description of Request (attach additional sheets as needed): _____

Amend Section 405.390 Planned Zoning Districts ordinance. The existing ordinance is outdated has been difficult to implement and does not meet the current needs of the City to allow review of certain redevelopment proposals ideally suited under this procedure.

Affected Section(s) of the Zoning or Subdivision Code: _____

Section 405.390

Proposed Ordinance Language (attach additional sheets as needed): _____

See attached

Office Use Only

Proposed Ordinance Language

Received By: _____

Fees Paid

Written Justification

Date: _____

1 PLANNING AND ZONING COMMISSION MEETING

2 CITY OF CREVE COEUR, MISSOURI

3 300 NORTH NEW BALLAS ROAD

4 MONDAY, JUNE 5, 2023

5 6:00 P.M.

6
7 PUBLIC HEARING

8 APPLICATION NO. 23-013

9 CONTINUATION AND CONCLUSION

10
11 THOSE IN ATTENDANCE:

12 Mr. Thomas Buelter Acting Chair

Ms. Julie LaBonte (via Zoom)

13 Ms. Muriel Hall

Ms. Rhonda O'Brien

14 Ms. Marjorie Richter

Ms. Stephanie Karr, City Attorney

15 Mr. Jason Jaggi, Director of Community Development

Ms. Bethany L. Moore, City Planner

16 Ms. Megan Waller Administrative Supervisor/Recording
Secretary

17
18
19
20
21
22 McLaughlin Court Reporting Services, Inc.

23 Deborah K. McLaughlin, RPR, MO-CCR #314, IL-CSR, KS-CCR
4772 Gatesbury Drive
24 St. Louis, MO 63128
25 (314) 974-1199

1 CHAIRMAN BUELTER: We'll go ahead and call the
2 meeting to order 6:02.

3 MR. JAGGI: Thank you.

4 Just to start off, our Chair, Julie LaBonte, is
5 with us via phone, however, because she's not able to be
6 here and not on video, she had asked that we identify a
7 chair in her absence, and our Vice Chair is also not here
8 this evening, but we do have a quorum, we can proceed with
9 the meeting.

10 But I think the first order of business is to
11 appoint a vice -- or I'm sorry -- an Acting Chair to run
12 the meeting tonight, and I've talked with Mr. Buelter, and
13 he's agreed to do that.

14 So, for him to be able to run the meeting
15 tonight, we'd just need a motion from the Commission and
16 a -- and a vote to appoint Mr. Buelter as the Acting Chair
17 for tonight's meeting only.

18 MS. O'BRIEN: I move that Mr. Buelter conduct
19 the meeting as Chair.

20 MS. RICHTER: Second.

21 CHAIRMAN BUELTER: Okay.

22 Do we need to run through all in favor?

23 MR. JAGGI: All in favor.

24 CHAIRMAN BUELTER: All in favor?

25 (All responded aye.)

1 CHAIRMAN BUELTER: Opposed? Opposed?
2 Okay.
3 MR. JAGGI: Thank you.
4 CHAIRMAN BUELTER: Thank you.
5 So, we'll -- next item, roll call.
6 Ms. Julie LaBonte?
7 MS. LABONTE: Here.
8 CHAIRMAN BUELTER: Thank you.
9 Ms. Muriel Hall?
10 MS. HALL: Here.
11 CHAIRMAN BUELTER: Larry Potashnick? No.
12 AJ Wang? No.
13 Ms. Rhonda O'Brien?
14 MS. O'BRIEN: Here.
15 CHAIRMAN BUELTER: Ms. Marjorie Richter?
16 MS. RICHTER: Yeah. Here.
17 CHAIRMAN BUELTER: And myself.
18 Ms. Stephanie Karr?
19 MS. KARR: Here as City Attorney.
20 CHAIRMAN BUELTER: Thank you.
21 Mr. Jaggi?
22 MR. JAGGI: Present.
23 CHAIRMAN BUELTER: Ms. Bethany Moore?
24 MS. MOORE: Present.
25 CHAIRMAN BUELTER: And Ms. Megan Waller?

1 MS. WALLER: Present.

2 CHAIRMAN BUELTER: Thank you.

3 We'll move to Unfinished Business.

4 The first item is Public Hearing Application
5 23-013: Text Amendment to Modify Section 405.390 Planned
6 Zoning Districts of the Zoning Ordinance.

7 So, ask anyone who is speaking on this item to
8 come forward to be sworn in.

9 (The speakers were sworn in by the court
10 reporter.)

11 MR. JAGGI: Good evening, Members of the
12 Commission, Jason Jaggi, Director of Community Development
13 with the City of Creve Coeur.

14 This is a continuation of the text amendment
15 request that we've been looking at for the past several
16 months.

17 As the agenda indicated, we did have a public
18 hearing on this item at the last meeting on May 15th. We
19 took some feedback from the Commission at that time.

20 And we did make one change to the ordinance,
21 that was highlighted in my staff report, and that is
22 summarized as follows. We added a section under G of the
23 draft proposed regulations, No. 19, which would be page 9
24 on the draft, that states, an economic analysis of any
25 proposed direct impacts on public costs, such as for many

1 improvements proposed for dedication to the public would
2 be a requirement for the developer to provide for review
3 by the Commission and City Council in association with an
4 application for a Planned Development rezoning and a
5 Development Plan.

6 So, I think that was Mr. Potashnick's comment
7 that that be included, and we did add that in terms of the
8 updated ordinance.

9 Other than that, I think there might -- might
10 have been a typo or two that we caught. Otherwise, it
11 remains the same as what was presented last time.

12 So, be happy to answer any other questions.

13 There is a draft ordinance that we prepared in
14 the event that you're ready to vote and move that on to
15 the City Council this evening.

16 Thank you.

17 CHAIRMAN BUELTER: Is there any -- is there any
18 comments from the public, any registration cards or --

19 Okay.

20 Other questions from the Commission?

21 MS. HALL: No.

22 CHAIRMAN BUELTER: Okay.

23 So could I call for a motion.

24 (This ends the Public Hearing.)
25

1 STATE OF MISSOURI)
2) SS
3 COUNTY OF ST. LOUIS)

4 I, Deborah K. McLaughlin, Registered
5 Professional Reporter, Missouri Certified Court Reporter,
6 Illinois Certified Shorthand Reporter and Kansas Certified
7 Court Reporter, do hereby certify that I reported the
8 Planning and Zoning Public Hearing stenographically and
9 later reduced to typewriting; and that this is a true and
10 accurate transcript of the public hearing.

11
12
13 Deborah K. McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR
14 Deborah K. McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR
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AN ORDINANCE AMENDING SECTION 405.470.A.27 *CONDITIONAL USES* OF THE ZONING CODE TO REMOVE NAICS 624410 CHILD DAY CARE SERVICES FROM THE ADDITIONAL REQUIREMENTS WITHIN THE "PO"-PLANNED OFFICE AND "RO"-RESEARCH AND OFFICE PARK ZONING DISTRICTS

WHEREAS, an application by Mark J. Goodman, of Higher Ground Education, Inc, was submitted for a text amendment to the zoning code to remove Child Daycare Centers (NAICS 624410) from being subjected to the additional requirements of Section 405.470.A.27 as a conditional use in the PO-Planned Office and RO-Research and Office Park Districts; and

WHEREAS, such uses are currently allowed within the PO-Planned Office and RO-Research and Office Park Districts as a Conditional Use subject to Section 405.470.A.27; and

WHEREAS, a public hearing was held by the Creve Coeur Planning and Zoning Commission on Tuesday, June 20, 2023, beginning at 6:00 p.m. or immediately following the close of the previous public hearing, and

WHEREAS, notice of publication for said public hearing had been previously published at least 15 days prior to the hearing, in the St. Louis Countian, a newspaper of general circulation in the City of Creve Coeur; and

WHEREAS, the Planning and Zoning Commission reviewed and, by a 4-0 vote, recommended approval of the amendment, at its meeting on June 20, 2023; and

WHEREAS, all parties desiring to be heard, either for or against said application, were given an opportunity to be heard, and a copy of the proposed ordinance has been made available for public inspection prior to its consideration by the Council; and this Bill having been read by title in open meeting two times before final passage by the City Council, and

WHEREAS, the City Council being fully informed finds that amending the City Code of Ordinances would be in harmony with and bear a substantial relation to the public welfare, health, safety, comfort and convenience of the citizens of the City of Creve Coeur and in the public interest;

NOW, THEREFORE, be it ordained by the City Council of the City of Creve Coeur, Missouri, as follows:

Section 1: Section 405.470.A.27 *Conditional Uses* shall be amended as follows, while all other parts of Section 405.470 shall remain unchanged:

Child day care services — NAICS 624410 (conditional use in the "A", "B", "C", "D", "AR", and "HE", ~~"PO" and "RO"~~ districts).

a. Shall be located on lots of not less than three (3) acres.

b. The site shall be located on a paved street with sufficient width to accommodate vehicular traffic generated by the use.

c. Passenger loading and unloading facilities shall be provided on the site and such facilities shall be designed to preclude any back-up movements to enter or exit the site.

Section 2: This ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter.

BILL NO. 6073

ORDINANCE NO. _____

ADOPTED THIS ____ DAY OF _____, 2023.

NICOLE GREER
PRESIDENT OF CITY COUNCIL

APPROVED THIS ____ DAY OF _____, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



May 5, 2023

City of Creve Coeur, Missouri
Planning Division
Attn: Jason Jaggi, Director of Community Development
Bethany L. Moore, City Planner
300 North New Ballas Road
Creve Coeur, Missouri 63141

Dear Jason and Bethany,

On behalf of Higher Ground Education, Inc. (the "Applicant"), please allow this letter to serve as the "Description of Request" and "Statement of Justification" with respect to the enclosed Text Amendment Application. Under the NAICS, Applicant operates as a child day care service provider (NAICS 624410).

Applicant is an international, Montessori- powered, educational service provider whose mission is to bring Montessori education everywhere. Part of Applicant's mission in serving the communities in which it operates is to make accessible to the world's working caregivers Montessori-enriched programming. As such, in response to Creve Coeur's ever-expanding and welcoming business community, Applicant has located a suitable site in the City's Planned Office District ("PO District") located at 689 Craig Road. As a child day care service provider, Applicant would be subject to the City's zoning code, and specifically, those requirements set forth in Section 405.470.A.27, including the requirement that a day care facility must be located on a lot of no less than three (3) acres.

Applicant seeks to remove the PO District from the list of Districts set forth in Section 405.470.A.27. Imposing such a requirement for child day care service providers within the PO District renders it nearly impossible to operate, as the City's PO Districts are already improved, and/or contain lots have already been subdivided in increments that are less than three (3) acres, and/or lots that are not economically viable in which to construct and operate a child day care service facility.

Applicant has found that its most successful schools are those that are in the heart of the community's core business districts. Caregivers desire childcare that is a reasonable distance from their work, reducing miles and time traveled, and provides convenient access to the child whenever a need to modify their schedule arises.

10 Orchard Rd. Suite 200, Lake Forest, CA 92630

Much like the City's General Commercial Districts, the City's PO Districts are ones that are outside of any residential district and are not typically comprised of lots that contain three (3) or more acres. Further, Applicant would still be subject to those conditions set forth in Section 405.1070 and looks forward to applying for its Conditional Use Permit in the coming weeks.

Attached for your use and review is our current site plan. On behalf of the Applicant, thank you for this opportunity to become a part of the Creve Coeur family, and we look forward to working with you during this process.

Sincerely,

Mark J. Goodman

Mark J. Goodman
Predevelopment Project Manager

RECEIVED
MAY 04 2023
PLANNING DEPT.

BILL NO. _____

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION 405.470.A.27 *CONDITIONAL USES* OF THE ZONING CODE TO REMOVE NAICS 624410 CHILD DAY CARE SERVICES FROM THE ADDITIONAL REQUIREMENTS WITHIN THE “PO”-PLANNED OFFICE AND “RO”-RESEARCH AND OFFICE PARK ZONING DISTRICTS

WHEREAS, an application by Mark J. Goodman, of Higher Ground Education, Inc, was submitted for a text amendment to the zoning code to remove Child Daycare Centers (NAICS 624410) from being subjected to the additional requirements of Section 405.470.A.27 as a conditional use in the PO-Planned Office and RO-Research and Office Park Districts; and

WHEREAS, such uses are currently allowed within the PO-Planned Office and RO-Research and Office Park Districts as a Conditional Use subject to Section 405.470.A.27; and

WHEREAS, a public hearing was held by the Creve Coeur Planning and Zoning Commission on Tuesday, June 20, 2023, beginning at 6:00 p.m. or immediately following the close of the previous public hearing, and

WHEREAS, notice of publication for said public hearing had been previously published at least 15 days prior to the hearing, in the St. Louis Countian, a newspaper of general circulation in the City of Creve Coeur; and

WHEREAS, the Planning and Zoning Commission reviewed and, by a ____ vote, recommended approval of the text amendment, at its meeting on June 20, 2023; and

WHEREAS, all parties desiring to be heard, either for or against said application, were given an opportunity to be heard, and a copy of the proposed ordinance has been made available for public inspection prior to its consideration by the Council; and this Bill having been read by title in open meeting two times before final passage by the City Council, and

WHEREAS, the City Council being fully informed finds that amending the City Code of Ordinances would be in harmony with and bear a substantial relation to the public welfare, health, safety, comfort and convenience of the citizens of the City of Creve Coeur and in the public interest;

NOW, THEREFORE, be it ordained by the City Council of the City of Creve Coeur, Missouri, as follows:

Section 1: Section 405.470.A.27 *Conditional Uses* shall be amended as follows, while all other parts of Section 405.470 shall remain unchanged:

Child day care services — NAICS 624410 (conditional use in the "A", "B", "C", "D", "AR", "HE", "~~PO~~" and "~~RO~~" districts).

a. Shall be located on lots of not less than three (3) acres.

b. The site shall be located on a paved street with sufficient width to accommodate vehicular traffic generated by the use.

c. Passenger loading and unloading facilities shall be provided on the site and such facilities shall be designed to preclude any back-up movements to enter or exit the site.

Section 2: This ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter.

BILL NO. _____

ORDINANCE NO. _____

ADOPTED THIS ____ DAY OF _____, 2023.

NICOLE GREER
PRESIDENT OF CITY COUNCIL

APPROVED THIS ____ DAY OF _____, 2023.

DR. ROBERT
HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK

RESOLUTION NO. 1649

A RESOLUTION AUTHORIZING THE PURCHASE OF INSURANCE COVERAGES FOR THE YEAR BEGINNING JULY 1, 2023

WHEREAS, The City annually purchases property, casualty and workers' compensation insurance to protect the City financially against loss due to damage and destruction of city property and liability claims, and;

WHEREAS, The City annually purchases health insurance coverage for its employees and certain retirees, and;

WHEREAS, purchasing these insurances either directly from the St. Louis Area Insurance Trust (SLAIT) or through the Trust in conjunction with the other members allows the City to obtain competitive rates for insurance coverages by being a part of a large consortium;

WHEREAS, the City's insurance coverage terminates on June 30, 2023.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR AS FOLLOWS:

SECTION 1: Authorization is hereby granted to enter into an agreement to purchase the following insurance coverages from the St. Louis Insurance Trust (SLAIT) at the estimated cost as follows:

1. Worker's Compensation	\$359,904
2. General Police and Auto Liability	<u>112,768</u>
Total	\$472,672

SECTION 2: Authorization is hereby granted to enter into an agreement to purchase the following insurance coverages from CHUBB Insurance Group at the estimated costs as follows:

1. Property and Auto Property Coverage \$141,707
(including earthquake and terrorism)

SECTION 3: Authorization is hereby granted to enter into an agreement to purchase the following insurance coverage from XL Catlin on Greenwich Insurance Company at the estimated cost as follows:

1. Public Officials Liability Insurance \$42,268

SECTION 4: Authorization is hereby granted to enter into an agreement with SLAIT through Anthem Blue Cross/Blue Shield as the 3rd party administrator to purchase the

City's health care insurance for the budget year of FY 2024 at the estimated cost as follows:

1. Health Insurance	\$1,555,151
City's Portion	\$1,289,093

SECTION 5: The City Administrator is authorized to execute any and all documents necessary to obtain the insurance coverage described above. This Resolution shall take effect upon approval.

Adopted this 26th day of June, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



MEMORANDUM

DATE: June 21, 2023

TO: Mark Perkins, City Administrator

FROM: Lori Obermoeller, Director of Finance

SUBJECT: Insurance Coverage for FY 2024

The city's primary insurance coverages expire at midnight on June 30, 2023. These include: Auto-physical damage and Property, General, Police and Auto Liability, Workers' Compensation, Public Officials Liability and others. In addition, health insurance coverage expires at the same time.

For many years the city has received its coverages from two sources:

1. St. Louis Area Insurance Trust (SLAIT) – this is a self-insured trust of 29 municipalities in St. Louis that provides coverages for Workers' Compensation; General, Police, Auto Liability and Health Insurance (24 municipalities).
2. The Thomas McGee Group – The Thomas McGee Group are the administrators for the SLAIT group.

They also broker insurance coverage not provided by SLAIT for the members. This is done by soliciting proposals from various insurance companies to provide these coverages to the group. Since the same company provides the coverage to all members of the group, the members receive preferential pricing due to the larger premium base. The additional coverages provided through The Thomas McGee Group includes Property, Auto-physical damage (Chubb), Public Officials Liability coverage's (XL Catlin/Greenwich Insurance Company), and Cyber Liability (Lloyds).

The coverages and deductibles are basically the same as last year.

The Public Officials Liability insurance provides the standard Public Officials and Employers Liability coverage to the city. The coverage covers legal fees and judgments resulting from the acts of a public official (including all employees). There are some exemptions to this coverage. Some of the major ones include:

1. Defense costs and judgments resulting from illegal activity if found guilty.
2. Punitive damages.
3. Officials of certain public agencies such as utilities and airports.
4. Intentional torts.
5. Inverse Condemnation.

The average Workmen's Compensation (WC) premiums and losses for SLAIT members are up by 2%. However, due to the City of Creve Coeur's wages going up 4% for FY2024 and because the experience modification went up from 1.03 to 1.14, the City's premium is going up 14.5% in FY2024.

The average premium increase for Liability coverage for SLAIT members ranged from 16% - 22%. There are no policy changes for the Liability Coverage, but due to Creve Coeur's really high loss ratio over the last 5 years, FY2024 includes a 22% increase in premiums, one of the highest amount the SLAIT cities.

There are no changes to the Property and Auto Coverage with Chubb. There was a 20% increase in these premiums.

Below is a table comparing the proposed FY 2024 premiums with FY 2023, as you can see the overall premiums increased in FY 2024.

Coverage	FY 2024 Premium	FY 2023 Premium	\$ Increase (Decrease)	% Increase (Decrease)	Coverage and (Deductibles)
Workers Compensation*	\$359,904	\$314,394	45,510	14.5%	Per State Law
General, Police, Auto Liability	112,768	92,434	20,334	22%	\$3,000,000 per Occurrence and \$6,000,000 Aggregate (\$2,500 Law Enforcement) (\$500 Gen. Liability)
Property & Auto Property**	141,707	118,089	23,618	20%	Value of Property (\$2,500-Vehicle) (\$5,000-Property)
Public Official Liability	42,268	40,255	2,013	5.0%	\$2,000,000 per Occurrence Aggregate (\$10,000-Public Officials)
Cyber Liability	12,125	12,070	55	.5%	\$1,000,000 (\$5,000)
Health Insurance Total***	1,555,151	1,495,337	59,814	4%	
City's Portion	1,289,093	1,239,520	49,573		
TOTAL	\$1,957,865	\$1,816,762	141,103	7.77%	

*Full premium before adjustment from workmen's comp audit

**Includes earthquake coverage.

***Both premium amounts are based on current enrolled members – City's portion is for information purposes only (it's included in total)

The attached memo from SLAIT provides information on the FY 2024 health insurance premiums which increased 7% over FY 2023. However, since there was a slight surplus from FY 2023, only a 4% rate increase was adopted for FY 2024. SLAIT divided rate increases into 4 tiers with a range from 2% to 6%, with the City of Creve Coeur falling in the 4% tier. The number of total members covered has increased slightly over last year as a result of most of the vacant positions now being filled.

On January 1, 2022, in an effort to keep costs down for all employees, the City of Creve Coeur required all employees or retirees who cover their spouses under the City employee health insurance to be assessed a \$200 monthly surcharge if the spouse is eligible for a major medical/prescription insurance plan through their employer. This monthly spousal health insurance surcharge was set forth and approved by City Council as part of the annual FY 2021 budget process. The annual savings to the city was approximately \$123K. In FY2022, we had 17 employees/retirees

drop spousal coverage and 10 employee/retirees start paying the \$200 monthly surcharge. As of today, we only have 5 active employees and 3 retirees paying the \$200 monthly surcharge.

I also wanted to point out that the City has a Medical Benefit Reimbursement (MBR) Program that allows eligible employees to receive up to \$600 per year if they opt out of the City's health insurance or if they opt out of eligible dependent coverage. We had 29 employees who participated in this program in 2023. Out of those 29 employees, 7 of them are employees who had opted out of all insurance coverage, where 22 were employees who had opted out of dependent coverage. By opting employees opting out of this coverage, the City saves \$198,992 per year in insurance premium. The MBR incentive only costs the City \$14,000.

Based on these numbers, staff recommends approval of the attached resolution authorizing the purchase of insurance coverage for FY 2024. All overall increases in premiums are slightly less than what was budgeted for FY2024, so no budget amendments will be needed.

The cyber liability coverage can be approved by the City Administrator as it is less than \$20,000 annually. Therefore, the cyber liability coverage is not included on the resolution for Council approval.

I would be pleased to answer any questions you may have.



Memorandum

TO: SLAIT Health Program Members

FROM: John Charpie

DATE: April 12, 2023

SUBJECT: 2023-2024 Health Rates

At its meeting of April 6, 2023, the SLAIT Board of Directors adopted rates and a Budget for the 2023-2024 Health Plan policy year.

The Budget is determined by expected claims, and claims results for the current year of the SLAIT health program have been slightly better than expected. Claims for 2022-2023 policy year have been approximately 95% of expected, or \$973.68 per employee per month (PEPM). For 2023-24, PEPM claims costs are budgeted to be \$1,041.84 PEPM, a 7% increase. To fund the expected claims cost and a slight surplus, a 4% rate increase was adopted for the 2023-2024 term.

As has been done the past several years, the rate increases by member adopted by the Board for the 2023-2024 policy year were developed with the idea of rewarding the best performers, while still maintaining the “one group” characteristics of the plan. Rate increases were divided into 3 tiers and range from 2% to 6%. By-member rate increases with loss ratios are attached to this memo.

Remember, SLAIT only spends approximately 8% of premium on administrative expenses. Thus, the group’s premium and results are based almost entirely on claims experience. Attached is a document outlining the rate increases by year over the past 12 years. You’ll note that even with this year’s increase, our year over year increases have been significantly less than industry average.

Finally, the SLAIT Board approved a \$1,076,507 distribution from the 2013-14 policy year. The distribution will be made on a pro-rata basis to members that participated in the Plan during the 2013-2014 year and who are still members when the distribution is made in September of 2023. A by-member accounting of the distribution is shown on the attached worksheet.

If you have any questions about any of this information, please feel free to contact me at 816-830-0073 or jcharpie@thomasmcgee.com.



SLAIT Health Plan 2023-2024 Rate Changes

City	Loss Ratio *	Current Estimated	Rate Change	Renewal Estimated
	July 2020-January 2023	Annual Premium		Annual Premium
WCDC	56%	\$135,000	2.0%	\$137,700
Rock Hill	61%	\$355,000	2.0%	\$362,100
St. Ann	68%	\$870,000	2.0%	\$887,400
Maplewood	69%	<u>\$1,215,000</u>	2.0%	<u>\$1,239,300</u>
		\$2,575,000		\$2,626,500
Richmond Heights	80%	\$1,375,000	4.0%	\$1,430,000
Crestwood	81%	\$1,435,000	4.0%	\$1,492,400
Des Peres	82%	\$1,465,000	4.0%	\$1,523,600
Chesterfield	83%	\$2,450,000	4.0%	\$2,548,000
Ferguson	89%	\$1,545,000	4.0%	\$1,606,800
Maryland Heights	90%	\$2,630,000	4.0%	\$2,735,200
Webster Groves	92%	\$1,960,000	4.0%	\$2,038,400
ECDC	94%	\$265,000	4.0%	\$275,600
Town & Country	94%	\$460,000	4.0%	\$478,400
Brentwood	96%	\$1,580,000	4.0%	\$1,643,200
Creve Coeur	103%	\$1,540,000	4.0%	\$1,601,600
Lake St. Louis	109%	\$1,380,000	4.0%	\$1,435,200
Clayton	111%	\$2,275,000	4.0%	\$2,366,000
Bridgeton	N/A	\$2,010,000	4.0%	\$2,090,400
Glendale	N/A	<u>\$530,000</u>	4.0%	<u>\$551,200</u>
		\$22,900,000		\$23,816,000
Frontenac	118%	\$780,000	6.0%	\$826,800
University City	119%	\$3,260,000	6.0%	\$3,455,600
Ballwin	132%	\$1,745,000	6.0%	\$1,849,700
Olivette	138%	<u>\$940,000</u>	6.0%	<u>\$996,400</u>
		\$6,725,000		\$7,128,500
Total		\$32,200,000		\$33,571,000



History of SLAIT Health Rate Increases – As of July 1, 2023

1) **For 2010-2011 Policy Year**

- 10% rate increase
- Plan changes equal to 6% reduction in estimated losses
- Pharmacy co-pay increase from \$8/25/40 to \$10/35/60, (3% reduction)
- Office visit co-pay increase from \$20/20 to \$20/40, (2% reduction)
- ER co-pay from \$100 to \$200 (1% reduction)

2) **For 2011-2012 Policy Year**

- 7.5% rate increase
- Plan changes equal to 1.5% reduction in estimated losses
- Office visit co-pay increase \$20/40 to \$25/40 (1% reduction)
- ER co-pay from \$200 to \$250 (.5% reduction)

*\$0 deductible plan eliminated
Maplewood & University City move to \$250*

3) **For 2012-2013 Policy Year**

- Primary Increase 4%
 - Varied among members – Range = 1% to 9%
- No Plan Changes*

4) **For 2013-2014 Policy Year**

- Primary Increase 5.6%
 - Varied among members – Range = 3% to 11%
 - ACA Reinsurance Fee effective 1/1/14
- No Plan Changes*

5) **For 2014-2015 Policy Year**

- Overall Increase 4.8%
- Varied among members – Range = 1.8% to 7.8%
- Maximum out-of-pocket increased by \$1,500/\$3,000 as ACA requires medical co-pays be included

6) **For 2015-2016 Policy Year**

- Overall Increase = 0
- Range = -3% to 3%



- Maximum out-of-pocket increased by \$1,000/\$2,000 as ACA requires prescription drug co-pays be included

7) **For 2016-2017 Policy Year**

- Overall Increase = 4.5%
- Range = 2.5% to 6.5%

No Plan Changes

8) **For 2017-2018 Policy Year**

- Overall Increase = 2%
- Range = 0% to 4%

9) **For 2018-2019 Policy Year**

- Overall Increase = 2%
- Range = 0% to 4%

10) **For 2019-2020 Policy Year**

- Overall Increase = 2%
- Range = 0% to 4%

11) **For 2020-2021 Policy Year**

- Overall Increase = 2%
- Range = 0% to 4%

12) **For 2021-2022 Policy Year**

- Overall Increase = 4.5%
- Range = 2.5% to 6.5%

13) **For 2022-2023 Policy Year**

- Overall Increase = 7%
- Range = 5% to 9%

14) **For 2023-2024 Policy Year**

- Overall Increase = 4%
- Range = 2% to 6%

**SLAIT SURPLUS DISTRIBUTION
HEALTH PREMIUMS
To Be Distributed September, 2023**

	2013-2014 HEALTH PREMIUM	% OF TOTAL	2013-2014 HEALTH DISTRIBUTION	TOTAL DISTRIBUTION	CHECK
1 Ballwin	1,371,321	6.56%	\$70,584	70,584	
2 Brentwood	1,194,005	5.71%	\$61,458	61,458	
3 Chesterfield	1,884,321	9.01%	\$96,990	96,990	
4 Clayton & CRSWC	1,561,543	7.47%	\$80,376	80,376	
5 Crestwood				-	
6 Creve Coeur	1,364,997	6.53%	\$70,259	70,259	
7 Des Peres	1,140,750	5.45%	\$58,717	58,717	
8 ECDC	186,284	0.89%	\$9,588	9,588	
9 Ferguson	1,643,947	7.86%	\$84,617	84,617	
10 Frontenac	627,698	3.00%	\$32,309	32,309	
11 Lake St. Louis	861,516	4.12%	\$44,344	44,344	
12 Manchester				-	
13 Maplewood	928,448	4.44%	\$47,789	47,789	
14 Maryland Heights	2,171,003	10.38%	\$111,746	111,746	
15 Olivette	809,503	3.87%	\$41,667	41,667	
16 Richmond Heights	1,377,112	6.58%	\$70,883	70,883	
17 Rock Hill	380,414	1.82%	\$19,581	19,581	
18 St. Ann	565,895	2.71%	\$29,128	29,128	
19 Town & Country				-	
20 University City	2,759,239	13.19%	\$142,023	142,023	
21 WCDC	86,481	0.41%	\$4,451	4,451	
			\$1,076,507	1,076,507	
	20,914,477	100.00%	\$1,076,507	1,076,507	

RESOLUTION 1650

A RESOLUTION AUTHORIZING THE CITY ADMINISTRATOR OF THE CITY OF CREVE COEUR TO ENTER INTO AN AGREEMENT WITH WINNING TECHNOLOGIES FOR THE PURCHASE OF INFORMATION TECHNOLOGY MANAGEMENT SERVICES

WHEREAS, THE CITY OF CREVE COEUR DETERMINED in 2013 IT WAS IN THE BEST INTEREST OF THE CITY TO OUTSOURCE ITS INFORMATION TECHNOLOGY MANAGEMENT SERVICE, AND

WHEREAS, OUTSOURCING THE IT MANAGEMENT FUNCTION HAS IMPROVED THE PROVISION OF IT SERVICES BY THE CITY AND TO CITY STAFF AT A REDUCED COST, AND

WHEREAS THE COST OF THIS OUTSOURCING IS LESS THAN HAVING THIS FUNCTION PROVIDED BY CITY STAFF, AND

WHEREAS, IT HAS BEEN DETERMINED WINNING TECHNOLOGIES HAS PROVIDED EXCELLENT IT SERVICE IN THE PAST AT A REASONABLE PRICE AND IS FAMILIAR WITH THE CITY'S IT NEEDS AND OPERATIONS.

NOW, THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI THAT:

SECTION 1 – THE AGREEMENT BETWEEN WINNING TECHNOLOGIES AND THE CITY REGARDING THE PROVISION OF INFORMATION TECHNOLOGY MANAGEMENT AND SUPPORT SERVICES ATTACHED HERETO AS EXHIBIT A IS HEREBY APPROVED AND THE CITY ADMINISTRATOR IS AUTHORIZED TO EXECUTE SAME ON THE BEHALF OF THE CITY AND THE CITY CLERK IS AUTHORIZED AND DIRECTED TO ATTEST THERETO, WITH THE AMOUNT OF \$1,800.00 PER MONTH. THE AGREEMENT AS EXECUTED SHALL BE IN SUBSTANTIALLY THE FORM OF EXHIBIT A, WITH SUCH CHANGES THEREIN AS SHALL BE APPROVED BY THE OFFICERS OF THE CITY EXECUTING SAME, CONSISTENT WITH THE PROVISIONS AND INTENT OF THIS RESOLUTION AND NECESSARY, DESIRABLE, CONVENIENT OR PROPER IN ORDER TO CARRY OUT THE MATTERS HEREIN AUTHORIZED. THE CITY ADMINISTRATOR AND HIS DESIGNATED REPRESENTATIVES ARE HEREBY AUTHORIZED AND DIRECTED TO TAKE ANY AND ALL ACTIONS NECESSARY, DESIRABLE, CONVENIENT OR PROPER IN ORDER TO CARRY OUT THE INTENT OF THIS RESOLUTION, THE MATTERS HEREIN AUTHORIZED, AND THE RIGHTS AND DUTIES OF THE CITY UNDER THE AGREEMENT.

SECTION 2 – THIS RESOLUTION SHALL BECOME EFFECTIVE UPON ITS PASSAGE.

ADOPTED THIS 26TH DAY OF JUNE, 2023

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK

CITY OF CREVE COEUR



Date: June 26, 2023
To: Mark Perkins, City Administrator
From: Chris Tumbarello, Information Systems Coordinator
Subject: Renewal of Winning Technologies Agreement for IT Services

The current Winning Technologies agreement is up for renewal at the end of June. The city began its relationship with Winning Technologies in 2013 when the IT Manager position was eliminated and those duties assumed by Winning Technologies. Originally the agreement called for 30 hours per week on-site services, availability of a help desk and other services as needed by the city. The original costs were \$6,600 per month. Since our initial agreement with Winning Technologies, we have adjusted hours as the City's needs have changed. In FY20, the hours were at 15 hours per week, with a cost of \$3,991.05 per month. In FY21, the hours were maintained at 15 hours per week, with a cost of \$4,190.60 per month. In FY22, the hours were maintained at 15 hours per week, with a cost of \$4,380.00 per month. In FY23, the hours were reduced to 10 hours per week, with a cost of \$3,200.00 per month. The "outsourcing" of this work has saved the city substantial funds and provided additional IT resources.

Winning Technologies provides day to day assistance in troubleshooting problems with IT users. In addition, they provide management assistance in such areas as large projects (telephone, security, new police building), budgeting, evaluation of software and other areas as needed. In FY18 they were involved in the recommendation and installation of a virtual server environment for the City's Tyler Technologies software implementation and have conducted security awareness training for employees. In FY19, they have assisted with preliminary design and discussion of IT in the new police building. In FY20, they assisted with the move into the new police building.

Staff is recommending renewal of the Winning Technologies agreement for a two-year period. The renewal reduces on-site technician hours to 5 hours per week, with a total cost of \$1,800 per month. This cost reflects a 44% decrease over FY23. While we are lowering the overall cost, it should be noted that the per hour rate is at 12.5% increase over FY22 due to increased vendor costs and lowering the hours worked. There is a 2.5% increase for the 2nd year. This agreement contains a cancellation clause with a 15-day notice.

I would be pleased to respond to any questions.



City of Creve Coeur
Managed Service Proposal



MANAGED SERVICES

Increase Productivity
We make your technology work at it's best so you can maximize your productivity

Increase ROI
We have the knowledge and experience needed to help you increase your technology ROI

Lower Ownership Cost
Winning Technologies can help you lower your cost of ownership more than 35%

Specializing in the selection, implementation, and management of technology, we help our customers lower their cost of ownership, increase productivity, and increase the return on their technology investment.

We've Saved Our Clients \$30,000,000
in technology costs since 2002!

The Advantages:

- 1 24x7x365 USA Based - End User Support
- 2 CIO Level Consulting
- 3 Technology Auditing  
- 4 Telco - Cloud - Disaster Recovery - Hardware/Software



WINNING TECHNOLOGIES WEB: WINNINGTECH.COM TOLL FREE: (877) 379-8279

TWELVE DOMESTIC OFFICES AND AN INTERNATIONAL FOOTPRINT THAT INCLUDES UK, FRANCE, SPAIN, AND MOROCCO

Why Darktrace?

Darktrace fundamentally transforms the ability of organizations to defend themselves in the face of diverse cyber-threats. Developed at our R&D center in Cambridge, UK, Self-Learning AI is the only technology on the market that builds an understanding of your unique business, rather than attempting to learn breaches. This enables the AI to autonomously detect, investigate, and respond to novel and sophisticated threats across the digital ecosystem – without the need for human input or fine tuning.

Key Benefits

- ✓ **Self-Learning AI**
Detects threats that others miss
- ✓ **Autonomous Response**
Fights in-progress attacks 24/7
- ✓ **Protection Everywhere**
Covers cloud, email, network, IoT, endpoints, and OT
- ✓ **Augmented Intelligence**
Saves up to 92% of security analysts' time

Independent Recognition: Over 200 Awards

Recognized by leading independent bodies including Forrester, IDC, Marsh, Gartner, and The Royal Academy of Engineering for our ground-breaking developments in the field of AI cyber security.



 **Cyber Catalyst** by Marsh

Over 5,000 Global Customers

More than 5,000 organizations in over 100 countries rely on Self-Learning AI to protect their digital ecosystem, including cloud and SaaS, corporate networks and IoT, Operational Technologies and ICS, and email.



Figure 1: Darktrace provides complete visibility across the digital estate in real time

“Darktrace thrives in complex digital environments as the technology is adaptive, enabling it to detect and respond to threats that other tools miss.”

Jonas Knudsen, Research Director, IDC



PROPOSAL

Confidence, Integrity, Pride, Passion, Customer Loyalty

Date: 06/20/2023.

Agreement #: TC - 1027

Customer: City of Creve Coeur

Contact Name: Chris Tumbarello

Scope of Work: System Management and Support

At the start of the each year the contract will increase 2.5% This is a flat rate contract per month. Winning Technologies Inc. reserves the right to review and renegotiate the contract terms if the monthly applied time exceeds 60 hours in any given month. Either party may cancel this agreement on 15 days written notice, and no cancellation fees shall apply. Winning Technologies shall fully cooperate in transition to any subsequent service provider. Customer is responsible for all reasonable expenses in supporting this contract, provided such expenses are approved by it in advance. Customer agrees to the terms of service attached to this contract, any exceptions to the terms need to be noted on this page. Mutually agreed upon project work will be proposed to the City of Creve Coeur with any additional cost estimates. Winning Technologies agrees to provide insurance as reasonably requested by City, to name City as additional insured for general liability coverage, and to provide certificate of insurance and endorsements on request. This contract supersedes prior agreement of the parties. *This is a standard support contract and does not include any project work. Project work will be billed under a separate proposal.

Term

0701/2023 through 06/30/2025

Pricing

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Standard Rate: \$ 1,800.00 per month.

At the start of the each year the contract will increase 2.5%

Additional hours over 20 will be billed at \$ 90.00

The customer is responsible for all reasonable expenses in supporting this contract. The customer agrees to the terms of service attached to this contract; any exceptions to the terms need to be noted on this page.

**This is a standard support contract and does not include any project work. Project work will be billed under a separate proposal.*

THIS PROPOSAL IS VALID FOR 30 DAYS FROM THE DATE OF ISSUANCE.

IN WITNESS of which, both parties have caused the proposal to be executed by its duly authorized representative.

Winning Technologies, Inc.

Client:

Approved By:

Approved By:

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

GENERAL DEFINITIONS

Helpdesk Support:

Helpdesk support is generally defined as the basic support of network workstation hardware, operating systems, user application software, shared files, and printing resources within the corporate customer environment. Examples of regular helpdesk support activities for the customer include the following:

- Respond to telephone, walk-in (if applicable), and e-mail support requests from end-users and management.
- Provide daily administration of network services, file shares, and shared resources.
- Provide daily administration of the Citrix or terminal server environment and published applications.
- Maintain user account in Active Directory (password resets, lockouts, group membership).
- Set up a new employee network and e-mail accounts in Active Directory.
- Provide initial new-user orientation concerning workstation operation and network usage.
- Assist users with e-mail system problems.
- Administer, maintain, and troubleshoot corporate print services & print devices.
- Troubleshoot, maintain, and repair existing PC workstations and related hardware.
- Set-up, configure and deploy new or rebuilt workstations within local office limited to 3 per instance; larger installs can be handled as a defined project.
- Arrange for shipment of IT-related equipment to remote offices.
- Install and configure software on corporate PCs in compliance with established licensing agreements.
- Provide users with technical assistance regarding the standard functionality of corporate software applications.
- Maintain daily/weekly/monthly Back-Up checks schedule on local servers.
- Assist users in retrieving and/or restoring deleted and misplaced files.
- Relocate selected backup media to an offsite location as required.

Systems Administration:

Systems Administration is generally defined as a higher-level network, server administration, and server maintenance tasks beyond those of the Helpdesk. Systems Administration involves working with core technologies that make up the companies critical, enterprise-wide systems. These systems must function properly to provide users with essential network services and connectivity. Administering these key components safely and effectively requires many years of platform-specific experience and high-level technical training beyond that held by typical helpdesk staff.

Following are examples of typical systems administration tasks:

- Inspection and monitoring of system logs for security, system, and application errors
- Monitor disk space usage and allocation throughout the server network.
- Routine maintenance and updates of servers, including service packs, hotfixes, and patches
- Datacenter backup system configuration, maintenance, and backup routine verification
- Power systems maintenance and monitoring.
- Management of Active Directory components within the domain such as security policy, group policy, group membership rights, organizational units, workstation accounts, etc....
- Administration of Domain Controller specific functions such as AD synchronization, DNS, and DHCP
- Install and configure software on network servers in compliance with established licensing agreements.
- Maintain Local Area Network (LAN) infrastructure, including switches, routers, and firewalls.
- Manage Wide Area Network infrastructure and vendors.

Project Work: Project work is not part of a standard support agreement project work will be proposed under a separate contract.

Project Work refers to activities that fall outside the ordinary course of daily helpdesk support, systems administration, and maintenance activities. The following examples demonstrate typical project work

- Server builds, rebuilds, installations, upgrades, and migrations.
- System audits, software audits, security audits, and procedural audits
- Local Area Network upgrades, expansions, or enhancements
- Wide Area Network upgrades, expansions, or enhancements including T-1, Frame-Relay, and VPN
- Network application upgrades.
- Large-scale equipment deployments, relocations, or upgrades
- Database migrations and server operating system upgrades
- New system installations at remote offices & existing remote office moves
- Remote office on-site systems maintenance and equipment installations
- Design, testing, evaluation, or implementation of new systems or applications
- Creation of technical or training documentation

Project work is planned to accommodate the schedules of all parties, minimize system downtime, and minimize interruptions to the company's regular business activity. To successfully implement a wide-scale system change or implementation, a project team usually conducts various pre-planning, assessment, and high-level analysis activities to understand and evaluate the project scope fully. Next, the team employs various

implementation techniques using accepted industry standards and best practices to move the client into the new environment successfully. Following implementation, the team provides a measure of project follow-up and support to ensure a smooth transition.

1.1 Application of terms: The terms in this agreement apply to all Winning Technologies Inc, companies, subsidiaries, or subcontractors hired by Winning technologies, Inc operating under the name of Winning Technologies Inc. has many subsidiaries; this is a general template, so some of the sections may not apply to your specific product or service.

1.2 Level of Service: It is always a Winning Technologies' goal to provide the highest level of service in the industry. Although it is our goal, we are often forced to prioritize based on the level of urgency and impact on our customers' ability to operate their business. Winning Technologies defines a reasonable level of service in the following manner: Down systems always have the highest priority and will be responded to within 30 minutes of notification. General Helpdesk issues will be responded to within a two (2) hour time period. Winning Technologies will provide the best effort to achieve the resolution of reported problems within 48 hours of notification of each issue. It is the responsibility of Winning Technologies to provide to the customer technicians that, in the view of Winning Technologies, are qualified to complete the agreed to scope of work outlined in this document. In the event resolution of a reported issue requires the engagement of a third party such as a software vendor, hardware vendor, Phone Company, software development, Winning Technologies will not be responsible for resolution within 48 hours. Winning Technologies will continue to work with the third-party vendor to achieve resolution within a reasonable amount of time, acting as an agent for the customer.

1.3 Helpdesk Definition: Winning Technologies defines helpdesk in the following manner: The term Helpdesk generally refers to activities surrounding the support of but not limited to workstation hardware, operating system software, application software, and printing resources within the corporate environment that have already been installed and considered operational. Helpdesk activities involve day-to-day support calls, password changes, PC repairs, software installations, e-mail assistance, daily administration of network services, file shares, and shared resources, set-up new employee network and e-mail accounts in Active Directory, administer, maintain, and troubleshoot corporate print services & print devices. Helpdesk is only available to and limited to servers or systems that are under the control of Winning Technologies and considered part of this proposal, outside equipment or not under the control of Winning Technologies such as home computers are not covered under this agreement, and an hourly charge will apply.

1.4 Project Work: Winning Technologies defines Project Work as activities that fall outside the ordinary course of daily activity and usually involves advanced technical skills, high-level analysis, and planning and implementation techniques, new system implementation, engineering design, major network upgrades, and deployment of large numbers of assets and systems auditing. Project Work is scheduled in advance and planned for by all involved parties. Emergency project work is anything that cannot be planned for and must be done as soon as possible, which could result in additional charges to the customer.

1.5 Systems Administration: Systems administration is generally defined as a higher-level network, server administration, and server maintenance tasks beyond those of the Helpdesk. Systems Administration involves working with core technologies that make up the companies critical, enterprise-wide systems. These systems must function properly to provide users with essential network services. Administering these key components safely and effectively requires many years of platform-specific experience and high-level technical training beyond that held by typical helpdesk staff. System administration is only available to and limited to servers or systems that are under the control of Winning Technologies, outside equipment, or not under the control of Winning Technologies such as home computers are not covered under this agreement, and an hourly charge will apply.

2.1 Cyber Center Colocation/Hosting Service: (Applies only to XpressHost customers) Colocation service pricing provided by Winning Technologies are subject to change based on changes in the scope of work requested by the customer or licensing changes/requirements of software vendors such as Microsoft, or other agreed-upon collocation software packages. Customers agree to maintain proper licensing as outlined by each software vendor hosting in the Cyber Center, which may result in pricing changes. Support provided by Winning Technologies collocation applications are covered by helpdesk services outlined in this document but are limited to functions only required for proper operation of application or connection to/within the cyber center. Helpdesk services for collocation services are limited to the proper operation and configuration within the Cyber Center. The customer's local network configuration is not covered under the helpdesk services for collocation but under a separate in-house network support contract. Winning Technologies is not responsible for under a collocation agreement for the Internet connection residing at the customer location. In the event customer changes hosting companies, cancel service for any reason with Winning Technologies, all fees, and services for hosting of Applications, Databases, Web Sites within the Cyber Center will be paid in full before Winning Technologies releasing the information contained within Cyber Center to the customer or new hosting company.

2.2 Cyber Center Colocation Backups: (Applies only to collocation customers) all applications hosted in the XpressHost/Winning Technologies cyber center will be backed up on a nightly basis; the aforementioned tapes or electronic backup will be stored in a secure location of Winning Technologies choosing. Verification of data being backed up is the sole responsibility of the client, Winning Technologies, and all its subsidiaries, partners; resellers are not responsible for ensuring that all the clients' data is being backed up. All backups and the selection of data being backed up are the sole responsibility of the client.

2.3 Content disclosure agreement: Winning Technologies will abide by all State, Local, and Federal laws regarding obscene material and will not host, promote or allow obscene material on any hosted server under the control of Winning Technologies. Furthermore, Winning Technologies will report any such activity to the appropriate law enforcement agency and fully cooperate with any investigation, which will include providing system logs, files, or other requested documented activity.

2.4 XpressStor Online Backup: (Applies to only XpressStor online backup customers). Verification of data being backed up is the sole responsibility of the client, Winning Technologies, and all its subsidiaries, partners; resellers are not responsible for ensuring that all the clients' data is being backed up. All backups and the selection of data being backed up are the sole responsibility of the client.

3.1 Software Licensing: Winning Technologies will abide by all manufacture and developer licensing agreements; the customer agrees to the terms and fees associated with all licensing fees and understands that licensing fees are not covered under the monthly maintenance or hosting agreements,

and the customer will receive additional billings following licensing regulations. From time to time, software manufacturers and developers change the licensing models, which may result in additional licensing fees being billed to customers. All software purchases made by Winning Technologies on behalf of the customer will require payment, as outlined in section 5.3 of this agreement.

3.2 Web Site Development: (Applies only to websites hosted by Winning Technologies) Winning Technologies will, if required, register the domain name for the customer website. Winning Technologies will remain the owner of the said domain name until paid in full, at which time the customer may request that the ownership be transferred to the customer. Winning Technologies will also retain ownership of all creative development of web site and source code until the development costs are paid in full. If the customer does not pay invoices within the terms outlined in this document, Winning Technologies has the option of removing the website from the Internet until payment is received. If the customer decides to terminate hosting/development with Winning Technologies customer agrees to pay in full any outstanding balances for hosting or website development before Winning Technologies releasing the website to another hosting company. The customer also agrees to allow Winning Technologies to show and promote creative material to other clients and prospective clients.

4.1 Proactive system monitoring: Winning Technologies' proactive system monitoring is an add-on service and is not included in the standard maintenance contracts. Winning Technologies will utilize customer maintenance hours to evaluate and resolve systems alarms reported by the proactive monitoring system. Non-Maintenance customers will be billed \$155.00 per hour for evaluation and resolution of warnings reported by the proactive monitoring system. Virtualized systems are licensed and monitored based on the logical servers as well as the host server, so if the customer has a single-host server and four logical serves, then that would require five licenses, and the client will be charged for five servers being monitored. In a virtual environment, although there may be only one physical server, the logical servers all operate independently of each other, reporting issues and logs individually, so to have a fully monitored system, does require individually monitoring logical servers.

4.2 XpressStor Controller Warrantee: (Only applies to XpressStor Customers) The XpressStor Electronic Online Backup Controller comes with a one-year hardware warranty effective from the date of purchase of the controller. During the warranty period Winning Technologies / XpressStor reserve the right to replace or repair the affected controller. If the customer does not have the instant replacement option, the customer agrees to send the controller to Winning Technologies at the client's expense back to Winning Technologies for repair, and Winning Technologies will then, at our cost, return the controller once the repair is completed. Extended warranty plans are available to extend warrantee coverage beyond the initial year warranty. Instant replacement warranty options are also available, where a replacement controller will be priority delivered to the client once the client has notified Winning Technologies / Xpress Host of a hardware failure.

4.3 XpressStor Data Replication: (only applies to XpressStor Customers) XpressStor electronic online backups are bandwidth dependent, so the initial and ongoing data replication to the Xpress Host data centers will vary widely during this process. Once initial replication is complete, additional replications should be improved. Depending on the available bandwidth at the client's location and the amount of data to be replicated, Winning Technologies should be able to provide the client with an estimated replication time. The Client can, at the client's expense, provide an external hard drive and connect it to the XpressStor controller; Winning Technologies will then copy the data from the controller to the hard drive, the client can, at the clients' expense, ship the drive to Xpress Host which will load data into the data replication server, and return the external hard drive to the customer at Xpress Host's expense. During replication, the controller will continue to back up the local data and servers so the client will be getting a system backup during this process. Xpress Host / Winning Technologies is not responsible for bandwidth limitations at the client's location.

4.4 Hardware purchases/warrantee / Labor warrantee: Winning Technologies and subsidiaries will provide only warrantee hardware in conjunction with the hardware vendor warranty that is purchased and installed through Winning Technologies. The customer retains the right to buy hardware from a vendor of their choosing and have it installed by Winning Technologies; however, any execution of the manufacture warranty is the responsibility of the customer and will be a billable labor event on the part of Winning Technologies. Winning Technologies does not provide any parts or labor warranties on parts, equipment, or otherwise for equipment not purchased through Winning Technologies. Winning Technologies does not offer any assurance that exceeds the manufacture warranty on hardware, and the labor warranty is limited to one year. Hardware purchases or specific parts purchases related to hardware will require payment, as outlined in section 5.3 of this agreement.

5.1 Non-Solicitation: Customer listed on this agreement and all subsidiaries or related businesses that are owned in part or whole shall not solicit, either individually or in concert with an affiliate, subsidiary, partner, vendor, or supplier otherwise solicit any employee or consultant of Winning Technologies, at any time during the duration of the relationship between the customer and Winning Technologies or for three years following the termination of this relationship. The customer will not solicit any terminated Winning Technologies employee or consultant that worked directly or indirectly on the customer account for three years from the date of termination of the employee or consultant. Winning Technologies will not solicit an employee or consultant of the customer for employment with Winning Technologies during the duration of engagement with said customer.

5.2 Contract Termination: This Agreement shall be in effect for a period listed on the front of the proposal after the date of the termination of the relationship between Winning Technologies and customer commencing on the date in which the customer has notified Winning Technologies in writing of said termination 60 days in advance. The customer agrees to pay all fees due at the final termination date. If the customer terminates this contract without cause customer agrees to pay 100% of the outstanding contract fees.

5.3 Payment of Invoices: Winning Technologies payment terms are net 15 days. Payment under this plan is only accepted by credit card, electronic payment, or check; EFT or ARH Electronic payment will be accepted once associated banking completes the proper paperwork. Payment by credit card (Visa, MasterCard, and American Express) will also be accepted. If payment is made by credit card, Winning Technologies will add a processing fee not to exceed 4% to the invoice. Winning Technologies Inc technicians should never ask for payment or reimbursement to them directly, do not make payments to any Winning Technologies Inc staff member. Failure to make the payment on time could result in a stop-work order, which could delay support to the client.

5.4 Default of Payment: Any payment not received by Winning Technologies within the 15 days of Invoice will be considered to be in default, and service could be interrupted until payment is received. If the client is placed in default client acknowledges that the hardware and software licensing provided under this agreement is the property of Winning Technologies and can be recovered at our discretion. That access to server/s in the Winning Technologies or subsidiaries data center could be restricted or denied until payment is made. If payment is not made within 45 days of issuance of the

invoice, then a fee not to exceed 2.0% will be added to the invoice. If customers' accounts are turned over to a collection agency or law firm those expenses and fees will be reimbursable to Winning Technologies, XpressHost LLC, or Lingo Communications LLC in addition to the amount due.

5.5 International Customers: All funds paid to Winning Technologies or subsidiaries will be made in US funds (Dollars); no other currency will be accepted as payment. The customer will pay all international fees or taxes.

5.6 Advance Payment Deposit: Winning Technologies or subsidiaries will be based on the scope of the project, and the cost of hardware may require advance payment or deposit before scheduling the work to be completed. Hardware purchased by Winning Technologies to support clients will be required to be paid in full before ordering or scheduling of installation of part or equipment.

5.8 Expenses: The customer is responsible for all reasonable expenses incurred in managing and maintaining the customer account and the execution of this contract. Expenses could include but are not limited to Airfare, hotel, meals, car rental, mileage, phone charges, shipping, and parts and equipment.

5.9 Software Licensing: Winning Technologies only includes licensing that is outlined in this agreement. The customer will be required to provide a licensing proof before any software will be loaded on workstations, laptops, or servers. Additional software licensing will increase the monthly cost to the customer.

5.10 Travel: Winning Technologies does not bill for actual travel time of technicians or management and support staff but will charge for mileage based on the IRS published mileage rate.

5.11 Project Cancellation: If the customer cancels or delays a project proposal, the customer will be responsible for all expenses and fees that have been incurred in good faith in the execution of this contract. If the customer cancels, a project contract customer agrees to pay 100% of the outstanding contract fees along with all costs already incurred on the customers' behalf.

6.0 Confidentiality: (a) "Confidential Information" means any information that the Parties designate as being confidential or which, under the circumstances surrounding disclosure, ought to be treated as confidential. Confidential Information includes, without limitation, information relating to customer information of the Parties, the marketing or promotion of any of the Parties' services, the Parties' business policies or practices, and information received from others that the Parties are obligated to treat as confidential. Confidential Information disclosed to one of the Parties by the other Party's Subsidiary and/or agents is covered by this agreement.

(b) Confidential Information shall not include that information defined as Confidential Information above that one of the Parties can establish: (i) is or subsequently become publicly available without either party's breach of any obligation owed the other party; (ii) became known to one party before the other party disclosed such information to the first party; (iii) became known to one party from a source not subject to any obligation of confidentiality to the first party; (iv) is disclosed by one party to a third party without restrictions on its disclosure and knowledge of disclosure with both Parties; or (v) is independently developed by a party.

(c) "Confidential Materials" shall mean all tangible materials containing Confidential Information, including without limitation written or printed documents, source code, and computer disks or tapes, whether machine or user-readable, specifically, but not limited to, customer or market information.

6.1 Confidentiality Restrictions: (a) The Parties shall not disclose any Confidential Information to third parties except to a party's employees and consultants, as provided below. However, a party may disclose Confidential Information following judicial or other governmental orders provided that party shall give the other party reasonable notice before such disclosure and shall comply with any applicable protective order.

(b) Each party shall take reasonable security precautions, at least as great as the precautions each party takes to protect its confidential information, to keep confidential the Confidential Information. Each party may disclose Confidential Information or Materials only to its employees or consultants on a need-to-know basis. Each party shall execute appropriate written agreements with such employees and consultants sufficient to enable it to comply with all the provisions of this agreement.

(c) Parties shall have no obligation under this Agreement concerning Confidential Information which is or becomes publicly available without breach of this Agreement by Parties; is rightfully received by Parties without obligations of confidentiality; or is developed by Parties without breach of this agreement; provided, however, such Confidential Information shall not be disclosed until thirty (30) business days after written notice of intent to disclose is given to Parties along with asserted grounds for disclosures.

6.2 Confidentiality; Definition; Term of Protection: All documents and other information which shall be submitted or communicated by either of Parties within the context of this agreement or otherwise related to the Contractor's performance of the Services ("Information") shall remain the exclusive property of the Party which shall have produced such Information (the "Owner") and shall be held by the other Party (the "Recipient") in trust and treated as confidential during the period of validity of this agreement and after for a period extending three (3) years from the date of termination of this agreement.

6.3 Non-Disclosure: The Recipient of Information shall use its best efforts to protect Information from disclosure to others using the same degree of care, which it uses to protect its own confidential or proprietary information of like importance, and in no event using less than a reasonable degree of care. The Contractor further agrees that Information received by it concerning the performance of the Services shall be used only as expressly authorized or directed by the Company and or as otherwise contemplated by this agreement and not for any other purpose. Notwithstanding the two previous sentences, the Contractor may disclose Information received by it hereunder: (i) to Affiliates who agree in advance, in writing, to be bound by this agreement, (ii) to employees and independent contractors and employees and independent contractors of its Affiliates who have a need to know for this agreement and who agree to protect the received Information from unauthorized use and disclosure by and under the terms of a written Non-Disclosure Agreement; (iii) to potential underlying carriers or vendors as specifically approved by the Company and subject to a non-disclosure agreement between the Contractor and the potential vendor or underlying carrier. A Recipient shall not otherwise disclose any Information to a third party without the prior written consent of the Owner.

6.4 Non-Disclosure; Exceptions: The restrictions contained herein this agreement on the use and disclosure of information shall not apply to information that:

- was publicly known at the time of the Owner's communication thereof to Recipient;
- becomes publicly known through no fault of Recipient;
- was in Recipient's possession free of any obligation of confidence or non-disclosure at the time of Owner's communication thereof to Recipient;
- is developed by Recipient independently of and without reference to any of Owner's Information or other information that Owner disclosed in confidence to any third party; or
- is rightfully obtained by Recipient from third parties authorized to make such disclosure without restriction; or
- is identified by the Owner as no longer proprietary or confidential

6.5 Mandatory Disclosure: In the event Recipient is required by law, regulation, or court order to disclose any of Owner's Information, Recipient will promptly notify the Owner in writing before making any such disclosure to facilitate Owner seeking a protective order or another appropriate remedy from the proper authority, and Recipient hereby agrees to cooperate with Owner in seeking such order or remedy.

6.6 HIPAA COMPLIANCE STATEMENT: We at WINNING TECHNOLOGIES realize that our clients must comply with all aspects of confidentiality of patient data. If we require access to data elements associated with claims, including patient and provider information. As such, WINNING TECHNOLOGIES has taken steps to ensure its compliance with HIPAA requirements. Our critical aspects to our existing policies include, but are not limited to, the following: All WINNING TECHNOLOGIES employees are required to sign a confidentiality agreement with WINNING TECHNOLOGIES. These agreements provide WINNING TECHNOLOGIES the right to terminate employment if the confidentiality breach is deemed to be significant, harmful, or damaging to WINNING TECHNOLOGIES, its clients, and its client's insured members. These confidentiality agreements also provide sanctions for employees as recommended by HIPAA. All client-specific information that we receive or generate as a result of delivering our services is treated as confidential, and it is not disclosed to those who do not need to view it concerning the services we provide to our clients. The electronic data is stored on secure computer servers and PC workstations, which require a unique user name and password to access such data. All client information that exists in printed format is contained within designated working spaces. Information that requires mailing is secured in a sealed envelope before leaving Winning Technologies' premises. All WINNING TECHNOLOGIES Client and Vendor agreements include a Business Associate Addendum. The incorporation of this Addendum ensures that all parties involved in the use and/or disclosure of protected health information to be in compliance and that they will remain in compliance with current HIPAA regulations. The Addendum also outlines the procedures the parties must follow concerning protected health information upon the termination of their Agreements. WINNING TECHNOLOGIES currently accepts data directly from our clients. Therefore, we can receive and re-transmit data to our clients or other parties involved with the delivery of our services in HIPAA compliant formats concerning data elements, formats, and definitions. We will continue to monitor the latest HIPAA news and legislation to ensure our compliance, where required, and as agreed upon with our clients.

6.7 Liability and Damages: The Parties acknowledge that Information is unique and valuable and that disclosure in breach of this agreement will result in irreparable injury to the Owner for which monetary damages alone would not be an adequate remedy. Therefore, the Parties agree that in the event of a breach or threatened breach, the Owner shall be entitled to specific performance and injunctive and other equitable relief as a remedy for any such breach or anticipated breach without the necessity of posting a bond. Any such relief shall be in addition to and not in lieu of any appropriate relief in the way of monetary damages not to exceed monies paid to Winning Technologies in a 12-month period. Winning Technologies. The customer agrees that in all cases, damages will not exceed the amount of insurance coverage on a per-instance basis. Will take all reasonable action to protect customers' data during outlined projects, helpdesk support, system administration, cyber center services, or ongoing maintenance agreements. Data security within the data center remains the responsibility of the customer. Security breaches originating from the client location remain the responsibility of the client. Winning Technologies. Does not have any liability regarding lost data due to: (1) the customer site employees/owner security intrusion originating from Client location; (2) Virus introduced at customer location; (3) disgruntled client employee, (4) accidental data loss by the client; (5) natural or manmade disaster, fire, theft, equipment failure or acts of God.

7.1 Automatic Renewal: This contract will automatically renew at the end of the term with an equal term on the face of this contract and will continue to automatically renew for the same term on each anniversary date, with a standard rate increase of 2.5% unless Winning Technologies is notified by the customer no less than 60 days before expiration that the customer would like to cancel, renegotiate rates or change the operating terms of the contract. Winning Technologies also reserves the right to renegotiate this contract at the renewal date based on customer growth, the number of users supported, or to change the operating terms of this contract.

7.1.1 Inflationary increase: The price adjustment clause provides for a fixed annual percentage increase (e.g., 3%) in the price unless the percentage increase in the CPI is in excess of the stated fixed percentage. If the percentage increase in the CPI, year over year, is greater than the stated fixed percentage increase, then the applicable payment or price in the contract (whether rent, product price or service fee) will be adjusted by that greater percentage increase. This type of variable structure (i.e., tied to an index) more accurately reflects real time trends, while requiring slightly more maintenance than its fixed-percentage alternative.

7.2 Dispute Resolution: Any controversy or claim arising out of or relating to this agreement, the relationship resulting in or from this agreement, or breach of any party's duties hereunder will be settled by arbitration in accordance with the Commercial Rules of the American Arbitration Association ("AAA") or Consolidated Arbitration Rules of U. S. Arbitration & Mediation ("USA&M"). All hearings will be held in St. Louis, Missouri, before an arbitrator who is a licensed attorney with at least 15 years. Judgment upon the award rendered by the arbitrator shall be entered in a court with competent jurisdiction. The Federal Arbitration Act (Title 9 U.S. Code Section 1 et. seq.) shall govern all arbitration and confirmation proceedings. As a condition precedent to the filing of an arbitration claim, the parties agree to first mediate any claims between them by a mediator, mutually selected. A party refusing to mediate shall not prevent the other party from pursuing its claims in arbitration. The parties will share the cost of mediation and arbitration equally. Nothing herein will be construed to prevent any party's use of injunction, unlawful detainer, and/or any other prejudgment or provisional action or remedy. Any such action or remedy will not waive the moving party's right to compel arbitration of any dispute. Prior to any mediation, the parties agree to meet and negotiate in good faith in order to resolve any disputes which may arise between them.

7.3 If any provision of this agreement is held to be invalid, void, or unenforceable for any reason whatsoever, the remaining provisions will nevertheless continue in full force without being impaired or invalidated in any way. This agreement will be governed by and construed in accordance with the laws of the State of Missouri without regard to choice or conflicts of law principles. Venue shall be in St. Charles County, Missouri, in all cases.



BIG BROTHER PREMIUM



Increase Productivity

We make your technology work at it's best so you can maximize your productivity



Increase ROI

We have the knowledge and experience needed to help you increase your technology ROI



Lower Ownership Cost

Winning Technologies can help you lower your cost of ownership more than 35%

A Constant Eye on Your Server's Lifetimes

Winning Technologies provides proactive system monitoring which gives us, and you, a constant eye over 200 touchpoints to ensure your network is running at peak efficiency at all times, 24 hours a day, 7 days a week, 365 days a year. This allows us to monitor, predict, troubleshoot, and solve problems before they start. Catching these issues early can save you tens of thousands of dollars in company downtime.

The Benefits:

- 1 Anti-Virus Protection
- 2 Crypto-Locker Prevention
- 3 Systems Management
- 4 Patch & Upgrade Management
- 5 Proactive Network Monitoring
- 6 Proactive Server Monitoring

Get Started

Call Winning Technologies today at (877) 379-8279 or visit us online at winningtech.com

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TWELVE DOMESTIC OFFICES AND AN INTERNATIONAL FOOTPRINT THAT INCLUDES UK, FRANCE, SPAIN, AND MOROCCO





Increased Efficiency + Solid Foundation = Long Term Success

Spending too much money on user hardware? Watching the time fly out the window getting your users up and running?

Winning Technologies came up with a simple equation to solve this problem, Pre-Configuration Service (PCS) Plus.

Our PCS Program is designed to:

- Deploy end user computers and technology assets without the headache - your users will un-box and go to work
- Keep it simple through hardware standardization
- Help keep your software compliant through the development of software standards for your organization
- Increase the efficiency of inventory control and management of IT hardware and software
- Asset recovery programs to aid in case of theft, disgruntled employees, terminations and more
- Increase productivity and lower costs in the deployment of end user computers

How does the PCS program work for you?

- We install a secure connection to your business so we can actively configure equipment specific to you
- Equipment is purchased and shipped directly to us where it is pre-configured and stored in a secure warehouse designated for your company
- When you need a desktop, laptop, etc., you let us know. We then pull the equipment that is already pre-loaded and set up the system for your specific user and ship it out directly to them
- We track all system information, configuration and use information so that it is accessible to you 24x7x365 via our online Helpdesk System
- Replenishment is ordered and inventory levels are maintained per your agreement

Ready to start saving time and money getting your users up and running?

Call Winning Technologies today to discuss how our PCS Plus program can work for you!

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INFORMATION TECHNOLOGY AUDIT



Creative Technology Solutions to Help You Succeed

How do you measure your technology success? How do you know that you are spending wisely when it comes to Information Technology? Most importantly, how do you know that you are getting a return on your investment and helping your business be more successful? Winning Technologies can tell you! Sign up today for a system-wide Information Technology Audit performed by Winning Technologies.

Winning Technologies System Audit includes:

- Infrastructure Evaluation
- Server Evaluation
- Copiers and Scanning
- Digital Storage
- Communications Contracts Review
- Industry Best Practices Comparison
- Employee Training Review
- Virus Protection Evaluation
- Electronic Mail Security
- Evaluation for IT-related Policies & Procedures
- Disaster Recovery
- System Back-Up and Restore Procedures
- Computer Hardware Evaluation
- Software Evaluations
- Phone System Evaluation
- Software License Compliancy Evaluation
- Security Evaluation
- Remote Access Security
- Firewall Evaluation
- Internet Security



Concerned with your company's technology status?
Talk to Winning Technologies. We can help you succeed!



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TWELVE DOMESTIC OFFICES AND AN INTERNATIONAL FOOTPRINT THAT INCLUDES UK, FRANCE, SPAIN, AND MOROCCO

RESOLUTION NO. 1651

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI AUTHORIZING EXECUTION OF A PRELIMINARY FUNDING AGREEMENT BETWEEN THE CITY OF CREVE COEUR, MISSOURI AND 10300 OLIVE DEV, LLC

WHEREAS, the Developer of the former Bayer West Campus, 10300 Olive Dev, LLC, proposes to redevelop the property into a mixed-use planned development to be commonly known as Olia Village; and

WHEREAS, the Developer has advised the City that the development will not be financially feasible without certain economic incentives; and

WHEREAS, the City is willing to explore such incentives if the Developer advances funds to pay the City's costs; and

WHEREAS, it currently appears that funds in the amount of \$50,000 will need to be provided by the Developer to the City to cover third party costs incurred by the City for services provided by such consultants and advisors as deemed necessary by the City;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, AS FOLLOWS:

Section 1: The agreement between **10300 Olive Dev, LLC** and the City of Creve Coeur, attached hereto as "Exhibit 1" to provide preliminary funding as described above for the City of Creve Coeur is hereby approved and the City Administrator is authorized to execute same. The agreement as executed shall be in the form of such exhibits with such changes as are consistent with the provisions and intent of this Resolution and necessary to achieve the purposes hereof. The City Administrator and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient or proper in order to carry out the intent of this Resolution, the matters herein authorized, and the rights and duties of the City under the agreement.

ADOPTED THIS 26TH DAY OF JUNE, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK

PRELIMINARY FUNDING AGREEMENT

THIS PRELIMINARY FUNDING AGREEMENT (the “Agreement”) is made and entered into as of the _____ day of _____, 2023, by and between the **CITY OF CREVE COEUR, MISSOURI** (the “City”) and **10300 OLIVE DEV, LLC** (the “Developer”).

RECITALS

1. The Developer proposes to redevelop the property to be commonly known as Olia Village in the City (the “Project”). The Developer has advised the City that the Project will not be financially feasible without certain economic development incentives.

2. The City is willing to explore such incentives if the Developer advances funds to pay the City’s costs.

NOW THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. Advance of Funds.

(a) The Developer shall advance the City the sum of \$50,000 upon execution of this Agreement (the “Preliminary Funds”). The City may, subject to the terms hereof, use the Preliminary Funds and any subsequent funds to pay or reimburse the City for payment of actual third party costs incurred by the City for services provided by such consultants and advisors (including, but not limited to, attorneys, planners and financial consultants) as the City deems advisable from time to time for the Project, and for expenses incurred by the City (such as mailing, publication and similar costs) associated with the consideration and/or implementation of economic development incentives for the Project. The parties acknowledge that such amount is a substantial sum and agree to use their best efforts to work together to reduce the total costs to be paid out of the Preliminary Funds, and to cooperate in qualifying such costs as reimbursable costs with respect to any financing incentives ultimately implemented with respect to the Project.

(b) Before engaging any third-party consultant or advisor to be paid under this Agreement (other than Gilmore & Bell, P.C. and PGAV, who are already engaged), the City shall provide copies of such consultant or advisor contracts to the Developer and if not specified in the contract an estimate of the fees to be incurred. If the Developer has questions or objections regarding any such contracts, the Developer shall direct such questions or objections in writing to the City within 10 days of the Developer’s receipt of such contracts, and the parties agree to work in good faith to reasonably resolve any such questions or objections prior to engagement.

(c) If the City and the Developer enter into a development agreement, the development agreement shall provide for the disbursement of any remaining Preliminary Funds in the manner specified in the development agreement and this Agreement shall then automatically terminate as to such remaining funds.

2. Disbursement. Subject to the provisions of this Agreement, the City may disburse Preliminary Funds for fees and expenses incurred or to reimburse the City for fees and expenses previously paid by the City (pursuant to Section 1(a) above) upon receipt of (a) invoices for work actually performed

by consultants and advisors, (b) invoices and/or receipts for out-of-pocket expenses actually incurred by such parties or the City for the planning, legal and financial work described above, and (c) such other supporting documentation as may be requested by the City. The City shall use reasonable care in ascertaining that the fees and expenses paid from the Preliminary Funds are fair and reasonable.

3. Copies of Disbursement Requests. The Developer may request copies of all disbursement records and invoices (as maintained pursuant to Section 2 above) detailing costs paid from the Preliminary Funds.

4. Consideration of Incentives. Nothing herein shall obligate the City to approve any financial incentives for the Developer's proposed project.

5. Developer's Right of Termination. The Developer may terminate this Agreement at any time in its sole discretion upon giving the City 10 days' written notice; whereupon 10 days following the Developer's delivery of said notice, this Agreement shall be deemed terminated. Upon receipt of such notice, the City will cease incurring expenditures under this Agreement as soon as reasonably possible. The City shall pay to the Developer, within 60 days after the Developer delivers notice of its termination under this Section, all Preliminary Funds remaining after the City's payment of any Disbursement Requests submitted pursuant to this Agreement for work performed through the date of termination.

6. City's Right of Termination. The City may terminate this Agreement upon giving the Developer 10 days' written notice if (a) a development agreement is not executed by **May 31, 2024** or (b) the balance from the initial Preliminary Funds or subsequent funds advanced hereunder at any time falls below \$5,000 and the Developer does not provide subsequent funds in the amount of \$10,000.00 to the City within 14 days after written request from the City. Upon giving such notice under this Section, the City shall cease incurring expenditures under this Agreement. The City shall pay to the Developer, within 60 days after the City delivers notice of its termination of this Agreement under this Section, all Preliminary Funds and subsequent funds remaining after the City's payment of any fees and expenses submitted pursuant to this Agreement for work performed by the City or its consultants, as specified in Section 1 hereof, through the date of termination.

7. Excess Preliminary Funds. If the City does not expend all the Preliminary Funds and any subsequent funds as provided herein, the City shall immediately return the remainder to the Developer.

8. Applicability of Section 285.530, RSMo. Developer acknowledges and agrees that, if it receives a state-administered or subsidized tax credit, tax abatement, or loan from the state, it shall, by sworn affidavit and provision of documentation, comply with the requirements of Section 285.530, RSMo. and affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the project and sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the project benefitting from any incentive specified in Sec. 285.530.

9. No Third-Party Beneficiaries. This Agreement constitutes a contract solely between the City and the Developer. No third party has any beneficial interest in or derived from this Agreement.

10. Notices. All notices and correspondence hereunder shall be in writing and shall be delivered by hand delivery, e-mail, or first-class mail, postage prepaid, to the parties as set forth below:

If to the City:

City of CREVE COEUR
300 N. New Ballas Road
CREVE COEUR, Missouri 63141
Attention: Jason Jaggi, Director of Community Development
Email: Jjaggi@crevecoeurmo.gov

with a copy to:

City of CREVE COEUR
300 N. New Ballas
CREVE COEUR, Missouri 63141
Attention: Mark Perkins, City Administrator
Email: mperkins@crevecoeurmo.gov

If to the Developer:

10300 Olive DEV, LLC

Attention:

Email:

with a copy to:

Attention:

Email:

11. Miscellaneous.

a. Severability. If any provision of this Agreement is unenforceable, the remainder of this Agreement shall be enforced as if such provision were not contained herein.

b. No Waiver. Failure of any party hereto to enforce its rights hereunder at any time shall not be deemed a waiver of any such rights.

c. Representations and Warranties. The Developer and the City each represent and warrant that (i) this Agreement has been duly executed by them or on their behalf, as the case may be, pursuant to due authorization, and is not in violation of any such party's governing documents, charter or ordinances, as the case may be, (ii) no consents are necessary for the execution, delivery, and performance of this Agreement by such party, and (iii) this Agreement is valid, binding and enforceable against such party in accordance with its terms.

d. Assignment. This Agreement may not be assigned by either party without the written consent of the other, provided, however, that the Developer shall have right at any time and from time to time to assign this Agreement to any affiliate or related entity.

e. Survival. Notwithstanding the expiration or termination or breach of this Agreement by either party, the City's obligation with respect to repayment of unexpended Preliminary Funds and any subsequent funds and copies of Disbursement Requests shall survive expiration, termination or breach of this Agreement by either party.

f. Counterparts. This Agreement may be executed simultaneously in several counterparts, each of which shall be deemed to be an original and all of which shall constitute but one and the same instrument.

12. Limitation of Liability. Notwithstanding any provision hereof to the contrary, the City and its officials, agents, employees and representatives shall not be liable to the Developer for damages or otherwise if this Agreement or any of the incentives approved by the City are declared invalid or unconstitutional in whole or in part by the final (as to which all rights of appeal have expired or have been exhausted) judgment of any court of competent jurisdiction, and by reason thereof either the City is prevented from performing any of the covenants and agreements herein or therein, or the Developer is prevented from enjoying the rights and privileges contemplated hereunder or thereunder.

IN WITNESS WHEREOF, the parties hereto have caused this Preliminary Funding Agreement to be duly executed as of the date first above written.

CITY OF CREVE COEUR, MISSOURI

By: _____
City Administrator

10300 Olive DEV, LLC

By: _____
Authorized Signatory



DEPARTMENT OF COMMUNITY DEVELOPMENT MEMORANDUM

Meeting Date: June 26, 2023

To: Mark Perkins, City Administrator
Mayor and City Council

Memo Prepared by: Jason W. Jaggi, AICP, Director of Community Development

Subject: **Preliminary Funding Agreement and Task Order Agreement Resolutions
(Nos. 1651 & 1652)—Olia Village Redevelopment**

These two resolutions pertain to the redevelopment of the former Bayer West property, now referred to as Olia Village. The first resolution (No. 1651) establishes a funding agreement for the developer, 10300 Olive Dev, LLC, to cover the City's costs for the review of economic development incentives and for planning services to include site plan review. These costs include legal and planning consulting costs, as well as other costs such as mailing and publications. The agreement requires the developer to advance \$50,000 to the City to cover these review costs.

The second resolution (No. 1652) involves a task order for the City's planning and development finance consultant, PGAV Planners, to advise the City on planning best practices and site plan review recommendations associated with the development plan and for review and analysis of the proposed economic development incentives. In April 2023, the City Council approved a resolution (No. 1639) for a Master Services Agreement with PGAV Planners to provide planning and development financing consulting services to the City. This task order, not to exceed \$25,000, is being submitted under this previously approved Master Services Agreement. The costs for the services provided by PGAV will be drawn from the funding agreement noted above.

Recommendation

These agreements will facilitate the City's review of economic development incentives proposed by the developer and will provide the funding mechanism to cover the City's costs for these services. Therefore, Staff recommends approval of both resolutions.

RESOLUTION NO. 1652

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI AUTHORIZING EXECUTION OF A TASK ORDER AGREEMENT UNDER THE MASTER SERVICES AGREEMENT BETWEEN THE CITY OF CREVE COEUR, MISSOURI AND PGAV PLANNERS

WHEREAS, the Developer of the former Bayer West Campus, 10300 Olive Dev, LLC, proposes to redevelop the property into a mixed-use planned development to be commonly known as Olia Village; and

WHEREAS, the Developer has advised the City that the development will not be financially feasible without certain economic incentives; and

WHEREAS, on April 24, 2023, the City Council adopted Resolution No. 1639 approving a Master Services Agreement with PGAV Planners for planning and development financing services; and

WHEREAS, PGAV Planners has submitted a Task Order agreement to provide such services to the City of Creve Coeur not to exceed \$25,000 exclusive of reimbursable expenses; and

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, AS FOLLOWS:

Section 1: Task Order Number One between **PGAV Planners** and the City of Creve Coeur, attached hereto as "Exhibit 1" to provide planning and development financing review services to the City of Creve Coeur is hereby approved and the City Administrator is authorized to execute same. The agreement as executed shall be in the form of such exhibit with such changes as are consistent with the provisions and intent of this Resolution and necessary to achieve the purposes hereof. The City Administrator and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient or proper in order to carry out the intent of this Resolution, the matters herein authorized, and the rights and duties of the City under the agreement.

ADOPTED THIS 26TH DAY OF JUNE, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK

ATTACHMENT A

TASK ORDER NUMBER ONE

In accordance with the Master Services Agreement between the City and PGAV, this Task Order serves as the written authorization to PGAV to provide the services described herein, in accordance with the attached work schedule and compensation structure.

I. SCOPE OF SERVICES

The Scope of Services to be performed pursuant to this Task Order are as described in Exhibit A attached hereto, which exhibit describes the work to be performed and the schedule within which the work shall be delivered. PGAV shall furnish all labor, materials, supplies, equipment, supervision, and services necessary for and incident to the delivery of the Scope of Services. PGAV represents that it has thoroughly reviewed the Scope of Services and the Master Services Agreement and that it accepts the Task and the conditions under which the Task is to be performed.

II. INFORMATION TO BE PROVIDED BY THE CITY

Depending upon where such information may be located and maintained, the City will provide to PGAV available data as follows:

- A. Data and/or contact persons who may provide information regarding proposed plans or projects that are contemplated including a graphic depiction of the proposed plan for redevelopment (i.e. proposed site plan), if applicable;
- B. Data which the City has or which may be readily acquired without extensive research which may assist in conducting the work as outlined in Exhibit A, including information regarding, but not necessarily limited to, existing master development plans or conditional use permits, reviews of staff or consultants; and
- C. The services of the City Attorney, the City Clerk, Community Development Director, or other staff, if necessary, for review of preliminary documents prepared by PGAV and assistance in establishing meetings with the City Council, Planning and Zoning Commission, property owners or developers (or their representatives), or other parties as may be required to conduct the work. PGAV acknowledges that it will not be a client of the City Attorney and all work by the City Attorney shall be solely on behalf of the City.

III. NOTICES

The relationship between the City and PGAV necessitates mutual trust, effective collaboration, prompt sharing and evaluation of relevant information, and a commitment to timely communication and responsiveness. If either party feels that their expectations or information needs (pertaining to the other party or within their control) are not being adequately met, they agree to inform the other party about the issue. The objective of such notices is to encourage prompt communication and to prevent disputes. A notice can be delivered through a phone call, email, fax, express, or postal service.

The project representatives are Andy Struckhoff, President of PGAV, and Jason Jaggi, Director of Community Development for the City of Creve Coeur, Missouri. A party may designate a new project representative by sending a notice of the change to the other party.

IV. PROJECT STAFFING & MANAGEMENT

PGAV hereby agrees to provide the qualified professional, technical, and clerical staff available within the firm to conduct the work in accordance with the tasks as outlined in this Agreement and within each Task Order.

V. FEE AND METHOD OF COMPENSATION

- A. Compensation shall be made to PGAV on an hourly basis in accordance with the hourly rates as set forth below. The overall fee for the services as set forth herein shall not exceed \$25,000 exclusive of reimbursable expenses.

- B. The hourly rates are as set forth at right. Any invoice issued for an assigned task will be based on the hourly rate of the PGAV staff involved in conducting the assignment.

Project Staff	Hourly Rate
Principal	\$275
Vice President	\$250
Senior Director	\$225
Director	\$225
Senior Project Manager	\$210
Project Manager	\$175
Project Planner	\$150
Intern	\$65
Administrative/ Technical Assistance	\$95

- C. Official meetings of the Planning and Zoning Commission, or the City Council, requiring attendance by a PGAV staff member will be billed at a flat rate of \$250 without regard for the length of time spent at the meeting. Note that meetings that occur during normal PGAV business hours will be charged at the hourly rates as outlined above for the individual(s) in attendance at such meetings.

- D. Reimbursable expenses will consist of mileage, long distance telephone charges, express delivery charges, photographic expenses, the cost of printing or other reproduction of documents, fees or charges for documents owned by others, and other "out-of-pocket" expenses required to provide the services described. Such expenses will be billed at their direct cost to PGAV.

- E. If the City fails to make payment due PGAV for services and reimbursable expenses within 60 days after receipt of our initial statement, PGAV will suspend services under this agreement until PGAV has been paid in full the amounts due for services and expenses.

- F. If for any reason the City determines that a task properly initiated under the terms of this Agreement should not proceed, the City will inform PGAV in writing that they wish to terminate the task. The date of said termination shall occur upon receipt of the written notice of termination by PGAV via the U.S. Postal Service or facsimile (followed by receipt of an original signature copy). The City will pay to PGAV an amount representing the work performed to the date of termination in accordance with the hourly rate schedule herein for the classification of personnel involved with the work plus any reimbursable expenses which have been incurred by PGAV to that date.

VI. OWNERSHIP OF DOCUMENTS

PGAV agrees that any and all reports prepared, and conclusions reached hereunder, may be designated by the City as being for the confidential information of the City and that neither PGAV nor any member of the PGAV staff will disclose any such designated confidential materials with any person whatsoever, other than the City or their authorized representatives, except when called upon to testify in relation to such report or conclusion under oath in a judicial forum, or as may be otherwise required by law. PGAV will cooperate with the City regarding compliance with Federal or State “sunshine law” provisions. The City will have sole ownership of all documents, reports, maps, etc. prepared under this Agreement, including rights of copying and distribution.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed this _____ day of _____, 2023.

ATTEST:

CITY OF CREVE COEUR, MISSOURI

ATTEST:

PGAV PLANNERS, LLC

Andy Struckhoff
President

EXHIBIT A

SCOPE OF SERVICES

I. Site Plan Review Services

1. Attend one in-person meeting with City staff when plans are submitted for initial review.
2. Conduct an initial site visit after plans are submitted for review.
3. Perform general review of submitted site plans and provide written comments to city staff with an emphasis on appropriateness of the intended uses, market demand for proposed uses, including retail, hotel, office, and residential components, general site design for functionality and walkability in association with city requirements and best planning and site design practices. Perform a second review of resubmitted plans and provide comments related to above.
4. Attend up to two City meetings, one at Planning and Zoning Commission, one at City Council.
 - a) Attend in-person meetings with City staff to review work and to discuss presentation materials.

II. Development Financing

1. Review developer's financial information for any requests for financial assistance or incentives under any of the State of Missouri redevelopment statutes.
2. Evaluate appropriateness of the use of development financing tools or incentives under any of the State of Missouri redevelopment statutes.
 - Review the developer's request for tax abatement pursuant to the Urban Redevelopment Corporation Law, Chapter 353 RSMO ("Chapter 353") with respect to the amount of tax abatement requested and associated fiscal impact on affected taxing jurisdictions.
 - Review blight study prepared by the developer's team.
 - Review request for the establishment of a Community Improvement District and associated sales tax and special assessment.
3. Attend two (2) City Council meetings and present findings.

III. City Supplied Documents

1. Application materials submitted by developer including site plan
2. Traffic Impact Study
3. Access to comprehensive plan, city ordinances and design guidelines via City web
4. Preliminary schedule for City review of applications
5. Development financing information submitted to City in support of development financing assistance.

RESOLUTION NO. 1639

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI AUTHORIZING EXECUTION OF A MASTER SERVICES AGREEMENT WITH PGAV PLANNERS, LLC TO PROVIDE PLANNING AND DEVELOPMENT FINANCING SERVICES ON AN AS-NEEDED BASIS

WHEREAS, the City Council of the City of Creve Coeur recognizes the need for professional planning and development financing consulting services related to major redevelopment projects within the City that may involve public financing requests; and

WHEREAS, such services are necessary to effectively advise the City on these matters; and

WHEREAS, the cost for these services is task related and will be based on the scope of services for each individual project; and

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, AS FOLLOWS:

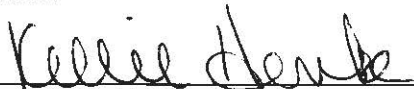
Section 1: The agreement between **PGAV Planners, LLC** and the City of Creve Coeur, attached hereto as "Exhibit 1, and Attachment A," to provide planning and development financing services for the City of Creve Coeur is hereby approved and the City Administrator is authorized to execute same. The agreement as executed shall be in the form of such exhibits with such changes as are consistent with the provisions and intent of this Resolution and necessary to achieve the purposes hereof. The City Administrator and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient or proper in order to carry out the intent of this Resolution, the matters herein authorized, and the rights and duties of the City under the agreement.

Adopted this 24th day of April, 2023.



Dr. Robert Hoffman
Mayor

Attest:



Kellie Henke
City Clerk



RESOLUTION NO. 1653

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI AUTHORIZING THE SUBMISSION OF A PURCHASE ORDER TO COMPASS MINERALS AMERICA INC., UNDER THE COOPERATIVE SALT PROGRAM, FOR PURCHASING 1050 TONS OF SALT FOR AN AMOUNT OF \$88,252.50.

WHEREAS, it is necessary to supplement the City's salt reserve in order to keep our streets safe during the winter months; and

WHEREAS, the City provides safe public rights of way for its commercial and residential communities; and

WHEREAS, the City participates in a Cooperative Salt Program with the City of Chesterfield to obtain the lowest price based on high volume purchasing; and

WHEREAS, these goods have been competitively bid per the requirements outlined in the City of Creve Coeur Code of Ordinances.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, AS FOLLOWS:

Section 1: A purchase order between Compass Minerals America Inc. and the City of Creve Coeur to purchase 1050 tons of salt for an amount of \$88,252.500 is hereby approved and the execution is hereby authorized. The City Administrator and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient or proper in order to carry out the intent of this Resolution, the matters herein authorized, and the rights and duties of the City under the Purchase.

ADOPTED THIS 26TH DAY OF JUNE, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



DEPARTMENT OF PUBLIC WORKS OFFICE MEMO

DATE: June 13, 2023

TO: Mark Perkins, City Administrator

FROM: Jim Heines, Director of Public Works

SUBJECT: Annual De-icing Salt Purchase from the Salt Co-op Program

For over 25 years, the city has participated in a Salt Co-op group to purchase road salt. The Salt Co-op is a group of cities in the St. Louis area who have joined together to purchase salt in a bulk order to obtain a better pricing. The group is headed by the City of Chesterfield who performs the bidding process as well as managing the program including the accounting and payments for the bulk salt deliveries by barge.

In past years, the City of Chesterfield who manages the Salt Coop Program would bid for salt purchase and then bid for hauling from the depot on the Mississippi to each Coop member's yard. This year they bid the salt purchase with delivery included (see attached letter from the City of Chesterfield). Recent bidding resulted in two bids received, one from Compass Minerals America Inc., and the other from Morton Salt (see attached bid tab). The low bidder to supply and deliver salt was Compass Minerals for \$84.05 per ton.

We plan to purchase 1050 tons of salt which will almost fill our salt dome which holds approximately 2400 tons. We also have 200-300 tons stored in the auxiliary storage building. The cost to purchase 1050 tons of salt for FY24 is \$88,252.50 with delivery included. Based on projected unit costs similar to last year, Staff requested a total of \$122,500 in the FY24 budget for our salt purchase, Ice Ban (liquid pre-wetting agent), and plow related supplies in account number 01-31-41-7310.

Public Works staff recommends approving the purchase of 1050 tons of de-icing salt from the Salt Co-op. Payments are to be made to the Compass Minerals America Inc. for an amount of \$88,252.50 delivery included.



690 Chesterfield Pkwy W • Chesterfield MO 63017-0760
Phone: 636-537-4000 • Fax 636-537-4798 • www.chesterfield.mo.us

May 17, 2023

Mike Fogg
City of Creve Coeur
300 N. New Ballas Road
Creve Coeur MO 63141

Re: St. Louis Metro APWA Salt Cooperative (Co-op)
2023/2024 Order and Explanation of Co-op Changes

Dear Co-op Salt Participant:

As you may know, the City of Chesterfield coordinates the purchase and delivery of deicing salt for all members of the St. Louis Metro APWA Salt Cooperative (Co-op). The Co-op is currently comprised of 49 cities and 8 school districts which combine their purchasing power to obtain the best price possible for deicing salt.

As you may recall, last year there was a substantial change in the manner in which the Co-op is administered. Previously there were two contracts – one for the salt itself and one for salt delivery. This system recently became problematic as there was only one company willing to bid on salt delivery for the Co-op. Accordingly, after numerous announcements at APWA St. Louis Branch meetings and conferring with several Co-op members, the Co-op has been modified so that there is now only one contract. The contractor who is awarded the bid for salt will now be responsible for delivering that salt to the Co-op members. Therefore, instead of two separate vendors and purchase orders you will now only need to issue one purchase order – directly to the salt vendor.

On behalf of the Co-op, the City of Chesterfield publicly opened bids for the purchase of an estimated 28,000 tons of salt on May 18, 2022. Two companies submitted bids with Compass Minerals submitting the low bid of \$78.37 per ton. Compass Minerals provided excellent service and high quality salt to the Co-op. Therefore, I negotiated an extension with Compass at an increase of 7.25%, and recommended that the City of Chesterfield City Council accept the new price of \$84.05 per ton from Compass Minerals, on behalf of the Co-op. That recommendation was approved by the City of Chesterfield City Council on May 15, 2023.

Similar to previous years, there will be two separate salt orders. The City of Chesterfield must provide the total for the initial order (known as the Fall Order) by August 15. The salt ordered as part of the Fall Order will be delivered to you between October 1 and December 20, in accordance

with the contract documents. The City of Chesterfield must provide the total for the second order (known as the Winter Order) by January 15. The salt ordered as part of the Winter Order will be delivered between February 1 and March 1.

If you desire to participate in the Co-op again in 2023/2024, your agency will need to issue a Purchase Order to Compass Minerals for the amount of salt you wish to order. The cost of your Purchase Order can be determined simply by multiplying the desired amount of salt by \$84.05. **Please note that the minimum order for each agency is 25 tons.** For this winter season the cost for the Fall Order and the Winter Order is the same. Additionally, the cost to each agency is the same - \$84.05 per ton. If you would like to proceed with an order on behalf of your agency, please proceed as follows:

- 1) **Fall Order:** Please complete the Salt Request Form and generate a Purchase Order to Compass Minerals. **All Purchase Orders must be emailed to the City of Chesterfield and received by noon on August 11, 2023.** Orders received after that date / time will NOT be included in the Fall Order. The Purchase Order must be emailed to Christine Dorough at cdorough@chesterfield.mo.us. The Purchase Order must be made out to Compass Minerals – NOT the City of Chesterfield. Note: You do not need to complete the Winter order at this time although you may choose to do so. All purchase orders submitted to the City of Chesterfield will be compiled and forwarded to Compass as part of the Fall Order. Information for Compass Minerals is as follows:

Compass Minerals
9900 West 109th Street, Suite 100
Overland Park, Kansas 66201

- 2) **Winter Order:** Please complete the Salt Request Form and generate a Purchase Order to Compass Minerals. **All Purchase Orders must be emailed to the City of Chesterfield and received by noon on January 12, 2024.** Orders received after that date / time will not be included in the Winter Order. The Purchase Order must be emailed to Christine Dorough at cdorough@chesterfield.mo.us. The Purchase Order must be made out to Compass Minerals – NOT the City of Chesterfield. All purchase orders submitted to the City of Chesterfield will be compiled and forwarded to Compass as part of the Winter Order. Information for Compass Minerals is provided above.

Please be advised that there is no flexibility in the dates provided above. The City of Chesterfield is coordinating this order on behalf of 57 agencies – it is the responsibility of each agency to assign the appropriate personnel and ensure the deadlines are met if they wish to remain a member of the Co-op.

Once each order is placed by the City of Chesterfield (on behalf of the Co-op), your agency will receive confirmation of your order along with the anticipated delivery timeframe and a project contact with Compass Minerals. At that point, all correspondence regarding your order shall be between your agency and the vendor (Compass Minerals). Please do NOT contact the City of Chesterfield to ask about the status of your order. The vendor will contact you a minimum of 36 hours prior to delivery. Once you are contacted, your agency must be prepared to accept the salt

during its scheduled delivery time. This means you must commit to having personnel available to receive salt whenever it is scheduled. This may require premium, overtime or holiday pay. The City of Chesterfield does not control the date of delivery and neither the City of Chesterfield nor the Co-op will pay demurrage.

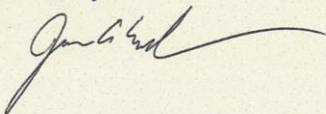
Please be advised that the City of Chesterfield's role in this process is solely to administer and coordinate the bid. We do not inspect or test the salt and we will NOT do that on your behalf. The purchase of this salt is between your agency and the vendor (Compass Minerals). If you believe the salt does not meet specification, your agency must address that directly with the vendor.

Each year, we remind the participating members that they must commit to receiving salt when it is delivered. It may arrive on a weekend or a holiday and may require overtime. **IF YOU ARE NOT PREPARED TO ACCEPT DELIVERIES WHENEVER THEY ARRIVE, DO NOT ORDER THROUGH THE CO-OP.** The City of Chesterfield and the Co-op have no ability to reschedule or delay deliveries. You must coordinate delivery directly with the vendor, and your agency will be responsible for any additional costs associated with rescheduling the deliveries or demurrage charges.

The City of Chesterfield coordinates the Co-op at no cost to the members. We only ask that you adhere to the deadlines and provide timely responses. If you do not want to participate this year, please simply email Christine Dorough at cdorough@chesterfield.mo.us. **Please note that no follow-up letters or reminders will be sent. If you want to participate in the Fall Order, we need an emailed copy of your Salt Request Form and Purchase Order by August 11, 2023. If you want to participate in the Winter Order, we need an emailed copy of your Purchase Order by January 12, 2024.**

Should you have questions or require additional information, please contact me at jeckrich@chesterfield.mo.us or 636-537-4764.

Sincerely,



James A. Eckrich, P.E.
Public Works Director/City Engineer

Enclosure

SALT REQUEST FORM
(Please type or print legibly)

City _____

Mailing Address _____

Delivery Address _____

Contact Person _____

Telephone # _____

E-Mail Address _____

Alternate Contact _____

Telephone # _____

E-Mail Address _____

Signature

Date

PLEASE CHECK HERE IF DELIVERIES NEED TO BE MADE BY TANDEM _____

SALT TONNAGE REQUESTED

FALL 2023

WINTER 2024

Tons
Min. Qty 25 Tons

Tons
Min. Qty 25 Tons

TOTAL TONS: _____

PLEASE RETURN TO:

City of Chesterfield
Attn: Christine Dorough
690 Chesterfield Parkway West
Chesterfield, MO 63017
Phone: 636-537-4762
Fax: 636-537-4796
E-mail: cdorough@chesterfield.mo.us

RESOLUTION NO. 1654

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI, AUTHORIZING THE EXECUTION OF THE NECESSARY DOCUMENTS FOR SUBMITTING THE PROJECT PROPOSAL APPLICATION AND LATER FOR EXECUTING AN AGREEMENT FOR A GRANT-IN-AID FROM THE FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM GRANT COMMISSION THROUGH THE TRANSPORTATION ALTERNATIVES PROGRAM FOR FERNVIEW DRIVE SIDEWALKS PROJECT.

WHEREAS, the City Council deems it necessary and recognizes the need to expand its existing sidewalk network for providing pedestrian connections to serve the citizens of Creve Coeur as well as those in the metropolitan area, and

WHEREAS, the City Council recognizes this Transportation Alternatives Program (TAP) Grant as an excellent opportunity to improve Fernview Drive for the benefit of the community, and

WHEREAS, City staff is hereby directed to prepare and submit a TAP grant application including the application fee for the Fernview Sidewalk Project.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, AS FOLLOWS:

1. The grant application shall be made under the TAP Grant Program for a grant-in-aid to assist with a substantial portion of the costs to improve new sidewalks on Fernview Drive between Olive Boulevard and Gallagher Road, and the connecting street network of Fernway Lane, Ferngate Lane, Ferntrails Drive, Ferntop Lane, and Gallagher Road.
2. That the project proposal described herein be prepared and submitted to the TAP Grant Commission for reimbursement.
3. The governing body hereby authorizes the City Administrator to sign and execute the necessary documents for forwarding the project proposal application for a grant-in-aid under the TAP Grant Commission.
4. If a grant is awarded, the City of Creve Coeur will enter into an agreement or contract with the Commission regarding said grant.

ADOPTED THIS 26TH DAY OF JUNE, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



DEPARTMENT OF PUBLIC WORKS STAFF MEMORANDUM

DATE: June 21, 2023

TO: Mark Perkins, City Administrator

CC: Jim Heines, Director of Public Works

FROM: Jim Heines, Director of Public Works

SUBJECT: Fernview Sidewalk Project - Transportation Alternative Project (TAP) Grant Application Recommendation

Background

City staff applied for a TAP Grant to assist with the cost to construct the Fernview Sidewalk Project August of 2022. Unfortunately, the project did not make the recommended list of successful TAP Grant projects. This being the case, city staff is recommending reapplying this year for another TAP Grant round.

Project Description

This project is the first phase of a larger project between to construct a sidewalk on Fernview Dr./Bellerive Estates Dr. from Olive Blvd. and Mason Manor Rd. This will provide connectivity from the surrounding subdivision streets to Olive, Millennium Park, Bellerive Elementary School and Mason Rd.

Key elements of this phase of the project are to construct a sidewalk along the east side of Fernview Dr. between Olive and Gallagher Rd. Connections to the existing sidewalks on intersecting side streets is also included and may require limited sections of sidewalk on the west side of Fernview Dr. from Fernway Ln. to Ferntails Ln.

Project Cost

The estimated cost of the project is approximately \$980,000.00. The grant will provide up to 80% of the cost (\$784,000.00) leaving the remaining 20% (\$196,000.00) as the city's responsibility. There is an application fee to apply for the grant which is 0.5% of the requested grant funding or \$3,920.00. In the event that the application is unsuccessful, the application fee is returned in full to the city.

Recommendation

Public Works staff is recommending approval of the resolution authorizing the city to submit an application to pursue grant funding for the Fernview Sidewalk Project.

RESOLUTION NO. 1655

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI, AUTHORIZING THE EXECUTION OF THE NECESSARY DOCUMENTS FOR SUBMITTING THE PROJECT PROPOSAL APPLICATION AND LATER FOR EXECUTING AN AGREEMENT WITH THE MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION FOR A GRANT-IN-AID THROUGH THE FEDERAL TRANSPORTATION ALTERNATIVES PROGRAM (TAP) GRANT FOR THE NORTH NEW BALLAS PHASE 3 SIDEWALK PROJECT.

WHEREAS, the City Council deems it necessary and recognizes the need to improve and expand its existing sidewalk network to serve the citizens of Creve Coeur as well as those in the metropolitan area; and

WHEREAS, the City Council recognizes this Transportation Alternatives Program (TAP) Grant as an excellent opportunity to expand sidewalk connectivity and accessibility along North New Ballas Road; and

WHEREAS, the City Council has determined that the scope of work is to construct an ADA compliant sidewalk within the project limits; and

WHEREAS, the City Council has defined the project limits as the west side of North New Ballas Road from and including the bus stop at the northeasterly corner of the De Smet Jesuit High School property to the northwestern corner of the intersection of Rocky Drive at North New Ballas Road.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, AS FOLLOWS:

1. An application shall be made under the TAP Grant for federal funding to assist with the cost to modify existing sidewalks and to add new sidewalk along the west side of North New Ballas Road, from De Smet Jesuit High School to the northwest corner of Rocky Drive at North New Ballas Road; and
2. A grant application for the project proposal described herein shall be prepared and submitted to the East West Gateway Council of Governments for consideration for grant funding; and
3. The City Administrator is hereby authorized and directed to execute the necessary documents for forwarding the project proposal application for a TAP grant; and
4. If a grant is awarded, the City of Creve Coeur will enter into an agreement or contract with the Missouri Highway and Transportation Commission regarding said grant to assist with the project to the limits stated herein.
5. Expansion of the project limits shall be at the discretion of the City of Creve Coeur.

ADOPTED THIS 26TH DAY OF JUNE, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE
CITY CLERK



DEPARTMENT OF PUBLIC WORKS STAFF MEMORANDUM

DATE: June 21, 2023

TO: Mark Perkins, City Administrator

CC: Jim Heines, Director of Public Works

FROM: Kevin Mulligan, P.E., Civil Engineer

SUBJECT: Recommendation to Pursue Federal Grant Funding
North New Ballas Sidewalk Phase 3

Public Works staff recommends that the City pursue federal funding to assist with the expansion of the sidewalk along the west side of North New Ballas Road between Magna Carta Drive and Rocky Drive.

Background

New Ballas Road is a five-lane, minor arterial roadway and is the longest and most heavily traveled roadway that the City of Creve Coeur maintains. While maintaining vehicular traffic has been the primary purpose of New Ballas Road, the City has increasingly emphasized expanding and improving the sidewalks and pedestrian facilities along New Ballas.

Highlights of these efforts include:

- | | |
|-----------|---|
| 2002 | Pedestrian Plan ranks sidewalks on New Ballas Road as a “first priority” |
| 2008 | New Ballas Resurfacing Project expands and updates sidewalks and ramps |
| 2009 | Conceptual sidewalk plan developed that included New Ballas Road from Ladue Road to Rocky Drive |
| 2010 | Sidewalk added in front of the post office (Sidewalk Phase 1) |
| 2011 | De Smet Jesuit High School adds the sidewalk along their frontage |
| 2017-2019 | Ramp and sidewalk updates through the annual concrete program |
| 2017-2020 | Accessible pedestrian signals installed at signalized intersections |
| 2019 | Sidewalk added from Ladue Road to De Smet entrance (Sidewalk Phase 2) |
| 2019 | Sidewalk replaced in front of Creve Coeur Police Building |

For about 20 years, there have been continuous sidewalks on the west side of New Ballas Road from Conway Road to Ladue Road and on the east side of New Ballas Road from Ladue Road to Olive Boulevard. Beginning in 2008, the roadway and sidewalk projects listed above began to expand the sidewalks and pedestrian facilities along the west side of New Ballas Road between Ladue and Olive with the goal of creating continuous sidewalks on both sides on North New Ballas Road.

Today, only two gaps exist in this sidewalk: the first is between Old Ballas Road and Studt Avenue, and the second is between Magna Carta Drive and Rocky Drive. The current proposal

is to use grant funding to add a sidewalk between Magna Carta and Rocky and to fill one of these gaps.

Proposed Project

The proposed project involves pedestrian improvements along the frontage of the U.S. Post Office (331 North New Ballas Road) and a new sidewalk along the frontage of the Ballas Place office building (425 North New Ballas Road). Specific aspects of the project include:

- Accessibility improvements to the bus stop between the U. S. Post Office and De Smet Jesuit High School
- Updated curb ramps along the frontage of the U. S. Post Office
- Expanded pedestrian signal at the intersection of New Ballas and Magna Carta
- New curb ramps on the west side of the intersection of New Ballas and Magna Carta
- Relocation of the retaining wall at 425 North New Ballas
- Construction of a six-foot-wide sidewalk between Magna Carta and Rocky that is separated from the curb by a tree lawn
- New curb ramps at the intersection of New Ballas and Rocky

This project would create a 335-foot-long sidewalk on the west side of New Ballas Road from Magna Carta Drive to Rocky Drive. While this sidewalk would be relatively short, it is significant for two reasons. First, it would fill the current gap in the sidewalk and would complete a continuous and accessible pedestrian path on the west side of New Ballas from Ladue to Old Ballas. Second, this sidewalk would create a direct path between Magna Carta Drive and Rocky Drive. Currently, pedestrians traveling north on the west side of New Ballas would need to cross New Ballas at Magna Carta, walk to the next traffic signal, cross New Ballas again to return to the west side of the street, and then walk south to Rocky Drive. The proposed sidewalk would shorten this path by approximately 775 feet.

The City applied for, and received, a TAP grant for this project in 2020. However, during the design phase of the project, it was discovered that a 12-inch water main is located in the project limits. This water main is relatively shallow and its location would be in conflict with the new retaining wall, and must be relocated or deepened in order to construct the project. Because the water main is installed in an easement and not right-of-way, the City is responsible for the relocation costs. These costs were not included in the original 2020 TAP grant, which made the project financially unfeasible. The City postponed the project and returned the grant money.

The attached exhibit illustrates the project limits and the connection that the new sidewalk will make between the existing sidewalks on New Ballas Road.

Project Cost Estimate and Grant Funding

The Transportation Alternatives Program (TAP) grant is a federal grant that provides up to 80% reimbursement for costs related to the design, easement acquisition, and construction of certain types of transportation, community, and environmental projects. Projects that improve the bicycle or pedestrian facilities are the most applicable to Creve Coeur. Roadway improvement projects generally do not qualify for funding through the TAP grant.

Unlike the federal roadway grant program that operates on a 4-5 year schedule, the TAP grant operates on a 2-3 year schedule. Such a schedule makes it difficult to complete the design, right-of-way, and construction phases of a project within the TAP grant. As such, the City has generally taken the option to fully fund the design phase of TAP-funded projects. Doing so allows for the design to begin sooner and for the project to progress at a reasonable pace.

The estimated costs for the design, right-of-way, and construction phases are included in the table below.

Project Phase	Total Cost	Grant Funding	City Funding	Comments
Design	\$ 50,000	\$ 0	\$ 50,000	100% City
Right of Way	\$ 10,000	\$ 8,000	\$ 2,000	80/20 grant/City
Construction	\$ 550,000	\$ 440,000	\$ 110,000	80/20 grant/City
Totals	\$ 610,000	\$ 448,000	\$ 162,000	

The City's contribution to this project would be approximately 27% of the total cost.

The Capital Improvement Program (CIP) identifies \$310,000 for City's portion of the design and construction of this project. Specifically, \$210,000 is allocated in each of FY2023 and \$100,000 is allocated in FY2026. An adjustment will need to be made to shift the money in FY2023 to FY2024 and FY 2025.

Recommendation

The gap in the sidewalk on the west side of New Ballas Road between Magna Carta Drive and Rocky Drive is not only inconvenient, but it also poses a hazardous route to travel for those who attempt to take the direct path. Although an accessible path is provided on the east side of New Ballas, pedestrians have been observed taking the direct path along the west side of the street. A new sidewalk at this location - and the connectivity and safety improvement that it provides – is warranted.

In the past three years, the City has used the funding offered through the Transportation Alternatives Program to add sidewalks along Emerson Road and a portion of North New Ballas Road. Staff finds that this program offers a significant benefit to the City by allowing the City to expand its sidewalk improvements beyond what could be accomplished through the annual allocation of maintenance funds.

The principal reasons why a sidewalk has not yet been completed between Magna Carta and Rocky are the cost to remove and relocate the retaining wall that is in the way of the project, the lack of the appropriate right of way and easements needed for the sidewalk, and the lack of support from the property owners. Previous ownership at 425 North New Ballas Road supported the sidewalk project and has donated the right of way needed for the project. The City will need to acquire the temporary easements needed for the project. Cost is now the limiting factor, and pursuit of the TAP grant helps to reduce the cost barrier.

Therefore, Public Works staff recommends that the City pursue federal Transportation Alternative Program funding to add a sidewalk on North New Ballas Road between Magna Carta Drive and Rocky Drive and to make associated accessibility improvements in the vicinity.

Attachments: Project Location Exhibit



New Ballas
Sidewalk Phase 3

**Project Location
Exhibit**

- Proposed Sidewalk
- Existing Sidewalks
- Parcel Boundaries

**END PROJECT
NORTHWEST CORNER
N NEW BALLAS AT ROCKY DRIVE**

**REPLACE RAMPS AT POST OFFICE
BEGIN NEW SIDEWALK NORTH
OF TRAFFIC SIGNAL**

**BEGIN PROJECT
BUS STOP BETWEEN DE SMET
AND POST OFFICE**

425 NORTH
NEW BALLAS
ROAD

POST OFFICE

DE SMET
JESUIT HIGH
SCHOOL

MAGNA CARTA DRIVE

CREVE COEUR
POLICE
DEPARTMENT

CREVE COEUR
GOVERNMENT
CENTER



June 21, 2023

RESOLUTION NO. 1656

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI, AUTHORIZING THE EXECUTION OF A CONTRACT WITH TOTAL MECHANICAL SERVICES, INC. FOR THE REPLACEMENT OF THE ICE RINK'S R-22 REFRIGERANT SYSTEM WITH AN AMMONIA REFRIGERANT SYSTEM, IN THE AMOUNT OF \$2,531,553.

WHEREAS, the City of Creve Coeur City Council deems it necessary to improve its facilities to serve its citizens as well as those in the metropolitan area; and

WHEREAS, the Ice Arena R-22 refrigerant system needs replacement due to the age of the system and the fact that R-22 was phased out by the Federal Government and is no longer being produced; and

WHEREAS, the project has been competitively bid as required by the City of Creve Coeur Code of Ordinances;

WHEREAS, the replacement of the refrigerant system will operate more effectively and efficiently and will eliminate shutdown time the facility has experienced with the aging system;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CREVE COEUR, AS FOLLOWS:

Section 1. The City shall issue Notice of Award to Total Mechanical Services, Inc. for the Creve Coeur Ice Arena Refrigeration System Replacement project pursuant to its bid in the amount of \$2,531,553. The City Administrator is authorized to execute the agreement for such work in the form included in the Project Manual, and the City Clerk is authorized to attest thereto. The contract as executed shall be in the aforesaid form, with such changes as are necessary, desirable, convenient or proper in order to carry out the matters herein authorized. The City Administrator and his designated representatives are hereby authorized and directed to take any and all actions necessary, desirable, convenient, or proper in order to carry out the intent of this Resolution, the matters herein authorized, and the rights and duties of the City under the Contract.

Section 2. This Resolution shall become effective upon its passage.

Adopted this 26th day of June, 2023.

DR. ROBERT HOFFMAN
MAYOR

ATTEST:

KELLIE HENKE, CITY CLERK

CITY OF CREVE COEUR



MEMORANDUM

Date: June 19, 2023
To: Mark Perkins, City Administrator
From: Jason Valvero, Director of Recreation
Subject: Ice Rink R-22 Switchover Project – Bid Recommendation

.

Staff is ready to submit for consideration the attached documents that support the city to enter into an agreement with Total Mechanical Services, Inc. for the replacement of the R-22 ice rink refrigerant system with Ammonia.

Background

The Creve Coeur Ice Arena uses a refrigerant system to cool the concrete slab beneath the ice sheet to allow the sheet to freeze and remain as ice. An evaluation of this system was completed on February 15, 2021. The findings concluded that the existing system is 19-years-old and past its prime and uses a type of refrigerant (R-22) which is no longer produced, environmentally unfriendly, difficult to find and costly to replace. All associate system components are nearing the end of their lifecycle and are not compatible with any subsequent refrigerant chosen. Based upon these findings, the City hired a consultant for conducting a refrigerant change feasibility study that was completed on November 4, 2021 (revised on April 5, 2022). The results of this study outlined refrigerant options and cost estimates for consideration.

Staff was given direction by the City Council and Facilities Task Force at the June 27, 2022 work session to continue down the path of maintaining the ice rink and replacing the R-22 refrigerant system. As a result, staff solicited qualifications from engineering consulting firms to review and evaluate the Ice Arena refrigerant system and to develop a final recommendation for the feasibility of refrigerant change. The selected engineering firm or group would then design the recommended system and provide all the necessary documents to bid its construction/installation. Staff met with the Facilities Task Force on November 7, 2022 and the members voted to recommend the services proposed by B32 Engineering Group, and as a result, staff recommended and the City Council approved the agreement with B32 Engineering Group to move the project forward at the November 28, 2022 City Council meeting.

After final review of the ice rink study and feedback from the City Council, B32 Engineering Group made a final recommendation to replace the R-22 refrigerant system with an Ammonia refrigerant system and create the necessary bid documents to bid and construct the new system.

Bid Submittals

Bids were publicly opened on June 14, 2023 at 2:00 PM at City Hall. The project received two sealed bids. Total Mechanical Services, Inc. and C. Rallo Contracting Services Co. Inc. both submitted bids. The bids results are below:

Bidder Information		Bidder No.1	Bidder No.2
Bidder Name		Total Mechanical Services, Inc.	C. Rallo Contracting Co., Inc.
Bid Security (5%)		(YES) / NO	(YES) / NO
Prequalification Info (Div 13)		(YES) / NO	(YES) / NO
Addenda Acknowledged		1, 2 & 3	1, 2 & 3
Non-Collusion Affidavit		(YES) / NO	(YES) / NO
Contractors Affidavit for Public Projects		(YES) / NO	(YES) / NO

Base Bids	Unit	Total	Total
Lump Sum Bid Price for Base Bid	LS	\$2,463,353.00	\$2,989,000.00
TOTAL BASE BIDS		\$2,463,353.00	\$2,989,000.00

Alternates	Unit	Total	Total
Alt 1 - Move all VFDs outside of Motor Control Center	Deduct	(\$3,000.00)	\$0.00
Alt 2 - Provide new electrical service to the building	Add	\$71,200.00	\$90,174.00
Total with Alternates Bids		\$2,531,553.00	\$3,079,174.00

Contractors Name		Total Mechanical Services, Inc.	C. Rallo Contracting Co., Inc.
Address		420 Broadway Avenue	5000 Kemper Avenue
Email		St. Paul Park, MN 55071 bpj/kas@totalmech.com	St. Louis, MO 63139 jakeo@crallo.com
Telephone		651-775-5006	314-664-2900
Fax			314-664-2901
Bid Signed By		Amy Crouzer	Marita Pelster
Title		President	Office Administrator

Overall Project Funding

Project design services were included in the FY23 budget. The City's FY24 budget includes \$2.2 million for construction, and \$120,000 for temporary refrigeration. The actual cost of construction including temporary refrigeration, based on the recommended contract award to Total Mechanical Services, Inc., is \$2,531,553, or \$211,553 over budget. It is recommended that the additional revenue needed to cover the overage be split equally between the Capital Fund and the Enterprise Fund.

The resulting revenues and expenses are as follows:

Revenue		Expenses	
ARPA Funds	\$1,904,985	Chiodini Rink Study (FY21)	\$20,000
Muni Grant	\$525,000	Pros Consulting Usage Study (FY22)	\$30,000
Capital Fund	\$277,491	B32 Design and Construction services (FY23)	\$231,700
Enterprise Fund	\$105,777	Total Mechanical Services, Inc. (FY24)	\$2,531,553
Total	\$2,813,253	Total	\$2,813,253

Contingency

The above costs do not include any contingency for potential change orders. Under the city's purchasing policy, the City Administrator is authorized to approved up to 10%, or \$50,000 in change orders, whichever is less. Should additional change orders beyond this amount be required, City Council approval will be requested. Staff will keep the City Council apprised of budget matters throughout the project.

Schedule/Timeline

Due to the long lead times anticipated for receipt of project components and equipment, the ice arena will stay in operation until May, and then shut down for a short period of time prior to re-establishing ice by using a temporary refrigeration system around June 1, 2024. The substantial competition date is November 4, 2024.

B32 Recommendation

After review of the two qualifying bids, a letter of recommendation from B32 to enter into an agreement with Total mechanical Services, Inc. is included in the packet for review.

Staff Recommendation

Staff is recommending to enter into a contract with Total Mechanical Services, Inc. for the R-22 switchover project for the following reasons:

1. The level of experience in the ice rink industry, both with new construction and with exchanging out existing refrigerant systems similar to ours.
2. They are the lowest qualified bidder.
3. Their reference checks all came back with very positive comments, from good communication with the owners, to completing the projects on time and within budget.
4. The company completed two local rink projects; one for the City of Brentwood in October of 2015 switching to an Ammonia refrigerant system and one with St. Louis County's Greensfelder Complex as an upgrade in the mechanical room in July of 2022.
5. B32 has vetted the company and is recommending Creve Coeur enter into an agreement for the project as well .

Staff will be happy to answer any questions the City Council may have.



Ice Arena Refrigerant Change Feasibility Study

The Deilmann Recreation Complex

For:

City of Creve Coeur
300 N New Ballas Road
Creve Coeur, MO 63141

November 4, 2021

Revision 1:

April 5, 2022

Revision 2:

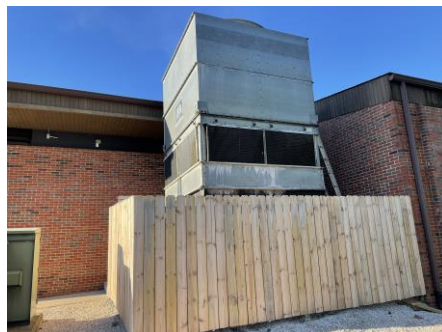
February 16, 2023

Submitted by:

Scott A. Ward, P.E.
B32 Engineering Group, Inc.
2211 O'Neil Road
Hudson, WI 54016
651.256.3090



File No. 900.16.270



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2.0 BACKGROUND AND PURPOSE

The Creve Coeur Ice Arena is located in the Deilmann Recreation Complex at 11400 Olde Cabin Road in Creve Coeur, Missouri. The Creve Coeur Ice Arena has a long tradition of ice hockey, ice skating, and curling. The highest level of play at this facility is high school practices. High School games are not played at this facility due to the limited seating. As part of a continued effort: to improve operation and efficiency at the facility; to plan for future improvements to the ice system; and to continue to provide high quality ice for its user groups; the City of Creve Coeur has commissioned this study to evaluate the options for replacing the R-22 refrigerant in the existing 18-year-old indirect R-22-based ice system, or replacing the entire refrigeration system, along with other improvements. R-22 refrigerant was phased out of importation to and production in the U.S. in 2010 due to its high ozone depleting potential (ODP). In the past 6 months or so the price of R-22 refrigerant has risen substantially and is expected to keep rising as supplies have become very limited and purchases restricted to small quantities.

B32 Engineering Group, Inc. visited the site, with Chiodini Architects, on September 23, 2021. The ice sheet was in place during the site visit. B32 Engineering Group, Inc. has reviewed the Murphy report dated February 15, 2021, agree with its findings and reference it throughout this report.

The facility was built in 2003 and currently operates in the ice mode year-round.

3.0 ICE SYSTEM REVIEW

3.1 Description of Existing Ice System

The existing ice system includes a refrigeration system, a concrete ice rink floor system and a dasher board system. The existing refrigeration system is an indirect R-22-based/glycol refrigeration system and was installed in 2003. Since 2003 the following major improvements to the refrigeration system were completed:

1. 2008 – Compressor 3 remanufactured or rebuilt.
2. 2008 – New evaporative condenser.
3. 2008 - Added heat to the snow melt pit.
4. 2019 - Compressor 1 remanufactured or rebuilt.
5. 2017 – Compressor 2 remanufactured or rebuilt.
6. 2017 – Subfloor or underfloor circulation pump.
7. 2021 – Installed new fins in existing evaporative condenser. The city will finish installing interior fins in 2021.

The existing refrigeration includes: three Carlyle reciprocating compressors Model 5H120-A219 with capacity of

approximately 20 tons each at a 0-degree saturated suction temperature providing a total capacity for the refrigeration system of approximately 120 tons; flooded-type plate and frame chiller system with two plate and frame chillers and one surge drum; rink floor pumps, one evaporative condenser, a control system and a waste heat recovery system. The existing system is considered a “skid package” system where the majority of the components are built and delivered on a single steel frame or “skid”.



Photos 1 & 2 – Existing refrigeration system

There is a waste heat recovery system that serves the subfloor heating system under the rink floor and the snowmelt pit in the resurfacer room. This system essentially provides free heat from the refrigeration system. The subfloor heating system is reportedly in good working order and there are no concerns with frost building up under the ice rink floor. The snowmelt pit heating system is reportedly performing well.



Photo 3 – Existing evaporative condenser



Photo 4 – Existing snow melt pit and coil

The existing concrete ice rink floor was installed with the original building in 2003 and extended to NHL standard

**ICE ARENA REFRIGERANT CHANGE FEASIBILITY STUDY
CREVE COEUR, MISSOURI**

11.4.21; Rev 1: 4.5.22; Rev 2: 2.16.23



size of 200' x 85' in 2008. The fluid in the subfloor heating system is glycol. The concrete is reported to be uneven which leads to uneven ice thickness and possibly increased energy use and ice quality concerns. In 2003-04 the subfloor header piping system under score keeper's box was replaced. In 2008 the size of the rink floor was extended to the NHL standard size of 200'x85'.



Photo 5 – Overall ice rink floor



Photo 6 – Bleacher seating in ice arena

The existing refrigeration room is approximately 550 square feet which is adequate in size to house a new refrigeration system. See the conceptual ice system layout at the end of the report. There is only one access door out of this room, and it opens directly to the exterior of the building. The existing life safety systems in the refrigeration room include a gas monitoring system and mechanical ventilation and are reportedly in good - working order. B32 Engineering Group did not test or witness the operation of any life safety systems.

The existing dasher board system was installed in 2003 (18 years old) and is reaching its typical life expectancy of 20-25 years. Some improvements to the existing system were completed and include the replacement of the white poly facing and the modification of the boxes and doors to meet the requirements of the Americans with Disabilities Act (ADA) in 2008. The manufacturer of the dasher board system is not known. The system appears to be in fair condition and no other concerns have been reported.



Photo 7 – Existing dasher board system



Photo 8 – Existing dasher board system – Scorer's box

4.0 ICE SYSTEM IMPROVEMENT AND REPLACEMENT OPTIONS

4.1 General

The existing 18-year-old ice system (refrigeration system, ice rink floor and dasher board systems) is nearing its expected useful and safe life of 25 years. Some improvements have been made to the refrigeration system, as outlined above.

The scope of this study did not include evaluating the existing ice rink floor or dasher board system. Murphy performed thermal imaging on the ice rink floor in 2021 and found no large differences in temperature concluding there are likely no leaks in the piping system.

The existing refrigeration room is large enough to accommodate any of the recommended refrigeration system improvement and replacement options outlined in the next section. The conceptual ice system layout, included at the end of this report, shows the layout for Option 3 – stick built ammonia system. This drawing also shows a new access door and vestibule between the refrigeration room and the resurfacer room. The additional access will provide a more convenient access for the facility staff to enter the refrigeration room and provides another layer of protection or isolation between the refrigeration room and the resurfacer room if the ammonia option is selected. The cost estimate includes these improvements and other code required improvements to the refrigeration room each of the recommended options outlined below.

4.2 The Future of Refrigerants

When discussing ice system options, refrigerants are now the key element to consider when determining what type of refrigeration system is the best fit for your ice rink facility. So, it is necessary to understand how refrigerants impact refrigeration equipment and system options. First, let's start with a little history. R-22 has been the most popular refrigerant used in ice rink applications in recent history. With the signing of the Montreal Protocol in 1987, the United States Environmental Protection Agency (EPA) implemented the final rule of Section 604 of the Clean Air Act in July 1992, limiting the production and consumption of a set of chemicals known to deplete the stratospheric ozone layer as measured by their ozone depleting potential (ODP). R-22, which also has a high global warming potential (GWP), was one of these targeted chemicals and as of 2020, is no longer manufactured or imported in the U.S and can no longer be installed in new refrigeration systems. However, R-22 can be used in existing systems until the supply runs out.

In 2016 the Kigali Amendment was applied to the Montreal Protocol focusing on the phasedown of production and consumption of HFCs to reduce greenhouse gas emissions driving down the global warming potential (GWP) of refrigerants. More than 90 countries ratified this amendment in 2019 including Canada but excluding the U.S. as of February 2020. The U.S EPA made certain HFC refrigerants unacceptable for use in the Significant New Alternatives Policy (SNAP) Rules 20 (2016) and 21 (2017). However, the U.S. courts partially vacated these rules, and the industry is awaiting the EPA rewrite expected in 2020. Despite this, states may choose to adopt and set their own timeline for implementation of the SNAP rules. Some of the refrigerants that are currently used in ice skating facilities and are on the phasedown list include: R-134A, R-404A, R-407B, R-407C, and R-507A.

California is one of the states leading the way to lower GWP refrigerants. The California Air Resources Board (CARB) Activity adopted the SNAP Rules 20 and 21 in September 2018 and approved a limit the GWP of refrigerants used in ice rinks to < 750, following the lead of other Countries such as Canada and Europe. This would eliminate R-134a which has a global warming potential of 1410 (meaning the release of one gram of R134a would have the same global warming effect as releasing 1410 grams of carbon dioxide). In late 2020 California passed legislation reducing the GWP even lower to < 150, eliminating most synthetic refrigerants. California is part of a "Climate Alliance" that approximately 22 other states participate in, which have adopted HFC transition dates.

Currently, the ice rink industry is caught in a transition period for refrigerants as new environmental regulations are implemented. Careful consideration and evaluation of the current refrigerant options should be made. The replacement refrigerants for HCFC refrigerants (e.g., R-22, etc.) and HFC refrigerants (e.g., R-507, R407C, R-134a, etc.) are fairly new with a limited history and performance data in this application. Some of those new refrigerants are R-448A, R-449A, and R513A. R-513 is a new blended synthetic refrigerant that is supported by the National Hockey League as a sustainable, non-ozone depleting, lower global warming potential (GWP) alternative refrigerant. Its GWP is 613 and its ASHRAE Safety Classification is A1 which is lower toxicity and no flame propagation.

Large global companies, such as Coca Cola, are leading the charge to ban HFCs and use natural refrigerants such as CO₂, hydrocarbons and ammonia. Since 2004, more than thirty ice skating facilities in Europe have switched over to using CO₂ as the secondary refrigerant with ammonia as the primary. The first CO₂-based ice system in North America, and the first *direct* CO₂-based system in the world, opened in 2011 in Quebec, Canada with a second rink opening in Montreal in 2012. The U.S. now has eight ice rink facilities that use CO₂. B32 Engineering Group, Inc. was

the leader in this application designing the first CO₂ based ice rink system in the U.S. in 2016 and has since designed five more.

4.3 Refrigeration System Improvement and Replacement Options

Four main options were identified for improving or replacing the existing refrigeration system at this facility. Additional information such as common terms or definitions, financial programs, cost estimates, etc. can be found at the end of this report. Where applicable, this report references the Murphy report dated February 15, 2021, for additional information and to provide a contractor's perspective to the improvements and cost estimates. The following options will be discussed in this section:

- Option 1: Maintain existing R-22 refrigeration system. Make selected improvements.
- Option 2: New indirect, HFC/HFO synthetic-based refrigeration system.
- Option 3: New indirect, ammonia-based refrigeration system. See conceptual layout in report.
- Option 4: New indirect, CO₂-based refrigeration system.

The estimated energy efficiency stated below for each refrigeration system replacement option is given to provide a rough order of magnitude only and may not be specific to this facility. The efficiency of each system can vary greatly depending on the facility type, programming, building construction, operations, weather, length of season, etc.

Cost estimates include construction cost, design, legal, financial and administration costs, and design and construction contingencies for proposed improvements. Cost estimates are based on similar work performed in ice rink facilities from 2018-2021 and recent bid results. Costs will vary depending on the time of year the projects are bid, the economic climate and the size and scope of the project. In general, costs are rising due to the number of ice rink renovation projects, cost of materials, COVID restrictions, etc.

4.3.1 Option 1: Maintain existing R-22 refrigeration system. Make selected improvements

Description: The City may elect to continue to operate the existing indirect R-22-based refrigeration system with selected improvements with the goal of replacing the system in the very near future.

Advantages:

- Lower near-term costs.
- Avoid disruption to user groups, ice schedule and revenue from construction activities.
- Allow a little more time for the new refrigerants and technology to develop. Extending the use of the existing refrigeration systems for a while longer will allow newer ice system technology, such the use of CO₂ refrigerant or new synthetic replacement refrigerants, to develop allowing manufacturing costs to decrease, and service companies to gain more experience.

Disadvantages:

- On-going maintenance and equipment costs.
- Risk disruption to schedule and loss of ice as equipment and systems become less dependable.
- Risk of catastrophic leak or failure in system and high cost of repairs and refrigerant replacement.

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- Increased environmental concerns with increasing risk of refrigerant release, etc.
- Future availability and higher cost of refrigerant. In the last 6 months or so R-22 refrigerant supplies have decreased substantially increasing the cost to record levels (approximately \$23/pound per Murphy and expected to rise significantly higher by the end of the year) and limiting the purchase of R-22 to 30-90 pounds per purchase. The existing system has an estimated charge of over 1,000 pounds of R-22 per Murphy's report.

Recommendation: Unfortunately, at this time there is no "drop-in" or replacement refrigerant for R-22 refrigerant in a flooded type of refrigeration system like the existing system. The traditional pure synthetic refrigerants like R-507 and R-134a will most likely start to be phased out as soon as 2024 based on their high global warming potential (GWP). In addition, these refrigerants substantially decrease the capacity of the refrigeration system by 50% or more as shown in the Murphy report dated February 15, 2021. New blended synthetic refrigerants such as R-513, R-448A, R-449A, etc. would have the same issues and potentially reduce the capacity of the system even further. In addition, these new refrigerants are blends of multiple refrigerants vs pure refrigerants like R-22, R-134a etc. which would likely cause additional operational issues in a flooded-type refrigeration system. Simply replacing the refrigerant in the system is not a recommended option at this time.

Since the trend toward higher cost and lower availability for R-22 refrigerant is not expected to change any time in the foreseeable future, and there are no proven refrigerant replacements for R-22 in a flooded refrigeration system or without substantially reducing capacity, we recommend the City start budgeting and planning for a full replacement of the refrigeration system. If the City elects to continue to operate the existing system, we recommend that only the improvements or repairs that required to maintain the system in a safe working condition and to improve the monitoring of the refrigerant charge and system for leaks, etc. be performed. We recommend the following improvements, etc.

- Budget for 500 pounds of refrigerant replacement and store if possible. If a surplus of R-22 refrigerant is not purchased and stored, one smaller leak in the system could force the facility to shut down until additional R-22 could be purchased. This will likely result in the loss of the ice sheet and cancellation of programming.
This is the first time in 20 plus years that the ice rink industry has faced this type of limitation and potential for substantial impacts to the operation of the facility.

Cost Estimate of items above: \$18,000

- Recoat condenser steel support system as recommended in Murphy report.
- Continued monitoring and testing:
 - Monitor the condition of all systems for life and safety concerns.
 - Monitor for refrigerant leaks in the system.
 - Monitor and test all fluids in the system twice a year.
 - Monitor the condition of the ice rink floor and surrounding perimeter concrete and walls. Document all cracking, heaving, movement, etc.
 - Monitor glycol temperatures from the subfloor heating system to assure the system is operating properly.
- Continue to perform the required maintenance on the equipment and systems.

Cost Estimate of items above: Typical maintenance.

4.3.2 Option 2: New indirect, HFC/HFO-synthetic based system (R-513, etc.)

Description: Replace the existing R-22-based indirect refrigeration system with a new R-513-based refrigeration system, or similar type refrigerant, located inside the existing refrigeration room with a water fluid cooler. The equipment used in this type of system is more commercial grade quality and may include direct expansion chillers (vs flooded), blended HFC or HFO refrigerant, semi-hermetic compressors (vs open drive) and pumps. B32 can provide a conceptual drawing of this system if desired.



Photo 9 - Example of a Carrier or Trane package systems

Advantages:

- Lower capital cost.
- Potentially less space required.
- Lower refrigerant charge.
- Potential to be converted to another synthetic refrigerant type as synthetic refrigerants are phased out in the future. R-513 is a new blended synthetic refrigerant by Opteon that is supported by the National Hockey League as a sustainable, non-ozone depleting, lower global warming potential (GWP) alternative refrigerant. Its GWP is 613 and its ASHRAE Safety Classification is A1 which is lower toxicity and no flame propagation. See the Future of Refrigerants section of this report for additional information.

Disadvantages:

- Lower quality of materials and equipment compared to the existing system. For example, the compressors would likely be replaced when they fail and not re-built, refrigerant piping is copper in place of steel, etc.
- Lower life expectancy (approx. 20 years vs. 30+ years for an ammonia industrial grade system).
- Lower efficiency than industrial grade system. Estimated to be 10-15% less energy efficient than the existing R-22 indirect system.
- Uses synthetic (HFO) refrigerant. Future regulations are uncertain regarding synthetic refrigerants.
- Less waste heat available to recover and use from system.
- Equipment arrangement (e.g., skid package) makes maintenance more difficult.

Cost Estimate: \$1,688,000

Cost of Preventative Maintenance. All of the refrigeration system options have similar preventative maintenance requirements and costs. The main difference in maintenance cost is the type of compressors. All options can use screw or reciprocating compressors. The existing R-22 refrigeration system uses reciprocating compressors and would have the highest maintenance costs. Option 2 typical uses screw compressors and could save approximately \$7,000 per year in top end maintenance on the reciprocating compressors.

Recommendation: This is a good option if the budget cannot support a natural refrigerant and these systems are currently being used in other ice rink facilities including some NHL facilities.

4.3.3 Option 3: New indirect, ammonia-based system

Description: Replace the existing R-22-based indirect refrigeration system with a new ammonia-based refrigeration system in existing refrigeration room. See figure at the end of this report for conceptual location and equipment layout.



Photo 10 - Example of a stick-built industrial grade, flooded ammonia-based system

Advantages:

- Best available proven technology for this application.
- Proven performance and dependability.
- Maximum operational efficiency. Estimate to be 20% to 25% more efficient than existing R-22 system.
- Sustainability. Ammonia is a naturally occurring refrigerant.
- Longevity of industrial grade equipment and refrigerant (30+ years). Synthetic refrigerants may be faced with future restrictions with high global warming potentials. Ammonia is also a pure refrigerant.
- Lower cost refrigerant (\$2 per pounds vs. \$15 to \$28 per pound for synthetics)
- Availability of equipment and parts.
- Refrigerant charge will be less than the existing R-22 system. Could also explore the option of a low charge ammonia system reducing the charge to under 500 pounds.

Disadvantages:

- Requires more space. Typically, an ammonia system will require more space for the equipment because of the industrial grade equipment that is used in these systems and the systems are typically built on-site and are not a package type system.
- Recommend installing a vestibule on the inside of the existing refrigeration, as shown on the figure at the end of the report, to house life safety equipment so that it can be monitored prior to entering the ammonia room. All types of refrigeration systems require certain life safety systems like a gas monitoring system and one eyewash-shower station inside the mechanical room and an emergency ventilation switch and refrigeration stop button on the outside of the refrigeration room. For ammonia, a second eyewash-shower system is required outside the refrigeration room. The only way to provide this second system and prevent it from freezing is to construct a vestibule or install in the resurfacer room. The vestibule itself is not required by code. However, it does offer a few additional safety advantages. It provides a safe space for anyone entering the room to stop and monitor any potential hazards (like an ammonia leak) before entering the room through the gas monitoring system or window in the door. It also provides another barrier between the ammonia system and anyone that might be outside the refrigeration room. The risk of an ammonia leak is no greater than any other type of refrigerant and all refrigerants are dangerous. The amount of the ammonia that would be less than the existing R-22 system and the overall charge is much less than the large industrial facilities, so fire and explosion are much less of a concern, if at all. Ammonia refrigerant has been used in ice rink applications since they started building the facilities and is now more common than ever.
- Potentially more training required for operators of the refrigeration system. All refrigerants are dangerous and should be approached with caution and operating staff should be trained. Even though additional training is not required by code to operate an ammonia system, it is recommended that the operating staff take training courses specifically for ammonia refrigeration including both the operation and safety of the system. It has been B32's experience that most ice arena facilities that use ammonia refrigeration use an outside service company that has experience with ammonia for repairs and even some routine maintenance and system checks.
- Potentially greater health/safety hazards in comparison to synthetic refrigerants.
- Reporting requirements. There may be additional annual reports that are required depending on the volume of ammonia that will be in the system. The US EPA has been more aggressive at requiring additional reporting for ice rinks (mainly on the east coast) that operate with more than 500 pounds of ammonia. The proposed system could require as much as 900 pounds. If a low charge ammonia system was used that quantity could be much less, maybe even less than 500 pounds. The reporting for any facility that has less than 10,000 pounds is fairly straightforward. The cost estimates are based on a typical ammonia system.
- Higher capital costs.

Cost Estimate: **\$1,954,000**

Cost of Preventative Maintenance. All of the refrigeration system options have similar preventative maintenance requirements and costs. The main difference in maintenance cost is the type of compressors. All options can use screw or reciprocating compressors. The existing R-22 refrigeration system uses reciprocating compressors and

would have the highest maintenance costs. Option 3 has historical used reciprocating compressor but in the past 5 years more screw compressors have been used. The use of screw compressors could save approximately \$7,000 per year in top end maintenance on the reciprocating compressors.

Recommendations: This option should be strongly considered because of its increased efficiency and use of natural refrigerants as well as the ever-changing phase-out of synthetic or artificial refrigerants. However, the City should be mindful of the potentially greater health hazard over synthetic or artificial refrigerants such as R-513, etc. Although all refrigerants are hazardous. It would be prudent to start discussions of the replacement options with the fire marshal, the City's insurance carrier, and other interested parties to educate them on all aspects of ammonia refrigerant.

4.3.4 Options 4: New indirect carbon dioxide (CO2)-based system

Description: Replace the existing R-134a-based refrigeration system with a new CO2-based indirect refrigeration system located inside the refrigeration room and using an air-cooled gas cooler system. The use of CO2 refrigerant may likely be the next substantial "innovation" in the ice rink industry. This option is based on a multiple semi-hermetic compressor system of approximately 200-ton, plate and shell chiller, pumps, etc. operating at leaving glycol temperatures of 10°F and entering glycol temperatures of 13°F. It's likely that this option will fit in the existing refrigeration. B32 can provide a conceptual drawing of this system to confirm. See the Future of Refrigerants section in this report for additional information on CO2 and the use of CO2 in ice rink facilities.



Photo 11 - Example of an Indirect CO2 Chiller Package

Advantages:

- Higher efficiency. CO2 indirect is estimated to be approximately 5% less efficient than an ammonia system.
- Potentially higher heat recovery temperatures.
- Potentially less space required than an industrial grade system.
- Uses an air-cooled gas cooler system which is shorter in height than the water fluid cooler proposed in Options 2 and 3.

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Disadvantages:

- Higher equipment costs due to limited availability.
- Fewer contractors familiar with technology.
- Proprietary control systems used with this technology.
- Efficiency drops off in warmer temperatures.
- Additional safety devices and systems may be required.
- There is a U.S. patent on some or all of this technology as it applies to ice rinks and therefore manufacturers may be limited.

Cost Estimate: **\$2,092,000**

Cost of Preventative Maintenance. All of the refrigeration system options have similar preventative maintenance requirements and costs. The main difference in maintenance cost is the type of compressors. All options can use screw or reciprocating compressors. The existing R-22 refrigeration system uses reciprocating compressors and would have the highest maintenance costs. Option 4 typically uses semi-hermetic reciprocating compressors which are typically not rebuilt but rather discarded and replaced when a failure occurs.

Recommendations: It is recommended that a CO2 refrigerant-based indirect refrigeration system be considered. If the City is interested in pursuing the use of CO2 refrigerant, we encourage a site visit to at least one facility that is currently using this type of system, along with in-depth discussion with the facility's management and operation personnel and manufacturer's representatives. B32 Engineering Group has extensive experience with CO2 refrigerant applications in ice rink facilities.

It is also recommended that a more in-depth study of CO2 system options and code requirements be performed during a pre-design or preliminary design phase for this project to determine the feasibility of a CO2 ice system in this facility.

5.0 PROJECT SCHEDULE

The improvements should be planned well in advance of the desired construction time so equipment and materials can be ordered and delivered to the site. Minimizing disruption to the facility's busy schedules and user groups will be a key element to the success of this project.

A very general, typical schedule for similar ice rink type projects is as follows:

Design Phase:	June-September (3-4 months)
Bidding:	October-November (October is the ideal bidding time for this type of work)
Order Materials:	November – March
Construction:	March – October (we estimate construction on this project to take 3-4 months)

If construction is started later and the new refrigeration system is not operational by October, a temporary chiller could be used until the new refrigeration system is complete. The cost of a temporary chiller system is approximately \$23,000 per month plus utilities. These costs are not included in the cost estimate.

B32 Engineering Group, Inc. has extensive experience in working closely with clients to evaluate and identify renovation and improvement solutions for existing ice systems. We understand the City will use the information in this report to determine the scope of the refrigeration system replacement project. Once the project scope and funding sources have been identified, we will work closely with the City to develop a detailed project schedule.

6.0 SUPPLEMENTAL INFORMATION

6.1 General Definitions

Included in this section are definitions for the basic terminology used throughout this report.

Ice System: A term that collectively refers to the refrigeration system, ice rink floor system, waste heat recovery system and dasher board system. This is the type of system that is currently installed in this facility.

Direct System: A *direct* refrigeration system circulates the primary refrigerant (e.g., R-22) directly through the ice rink floor. There is no secondary solution or refrigerant. These types of systems were very common in the 1970's and early 1980's. Today, indirect refrigeration systems, where glycol solutions are circulated in the rink floor, are more common due to costs and environmental concerns with large quantities of refrigerant required to operate the system.

Indirect-type System (existing system at the Hockey Center): In an *indirect* system the primary refrigerant (e.g., R-22, ammonia, etc.) stays in the refrigeration room. Heat is removed from the ice rink floor through a secondary refrigerant or glycol solution that is circulated in the floor. The heat exchange between the glycol solution and the primary refrigerant takes place in the refrigeration room.

HCFC: Hydrochlorofluorocarbon (e.g., R-22, etc.) – synthetic refrigerant with less ozone depleting than CFCs (e.g., R-12, etc.) but deplete natural resources and contribute to global warming. These are phased out by the Montreal Protocol.

HFC: Hydrofluorocarbon (e.g., R404A, R407C, R-507, etc.) – synthetic refrigerant that deplete natural resources and contribute to global warming. Many have a high global warming potential (GWP) and are now to being phased out of production.

HFO: Hydrofluro-Olefins (e.g., R513A, 1234YF, etc.) – a new class of synthetic refrigerant that have a much lower global warming potential (GWP) than HCFCs or HFCs. These new refrigerants are blends of several refrigerants and are not pure refrigerants as many of the HCFCs and HFCs are.

u-HFC: Unsaturated Hydrofluorocarbons - Low GWP HFCs that produce dangerous hydrogen fluoride when they burn and transform to trifluoro-acetic acid in the atmosphere. These are generally patented and much costlier.

Natural Refrigerants: Naturally occurring refrigerants such as ammonia (R-717), carbon dioxide (CO₂) and hydrocarbons.

6.2 Financial Assistance Programs.

There are several financial programs that have traditionally been used on ice rink renovation projects. The local utility companies should be consulted to determine what programs are available and apply to this project(s). They may include:

1. **Engineering Assistance Study Program.** Some utilities offer this program. The purpose of this program is to provide the City with the necessary business case justification to implement energy-saving opportunities. This evaluation report can be expanded to identify energy conservation opportunities, energy modeling, etc. to meet the programs requirements. Some utilities will reimburse their users up to 75% of the cost of this study. One example where the user would benefit from this additional energy analysis is in selecting a refrigerant (ammonia, CO₂, etc.) or refrigeration system to replacing the existing synthetic (R-22, etc.) refrigerant or system. It is typically required that the program be pre-approved by the utility prior to starting any work on the study.
2. **Rebate Programs.** Rebate programs are often available through utilities for many energy improvement measures that can be performed such as lighting replacement, motor replacement, installation of variable frequency drives, improving insulation systems, etc. Custom rebate programs are also available and may apply to the refrigeration system replacement depending on the type of system selected. The utilities should be contacted to identify possible rebates prior to starting any improvement project relating to energy savings. Some rebates require preapproval prior to purchasing and installation.

END

Opinion of Probable Project Costs - Refrigerant Change Feasibility Study
Deilmann Recreation Complex, Creve Coeur MO
Creve Coeur, MO
B32 File No. 900.21.437



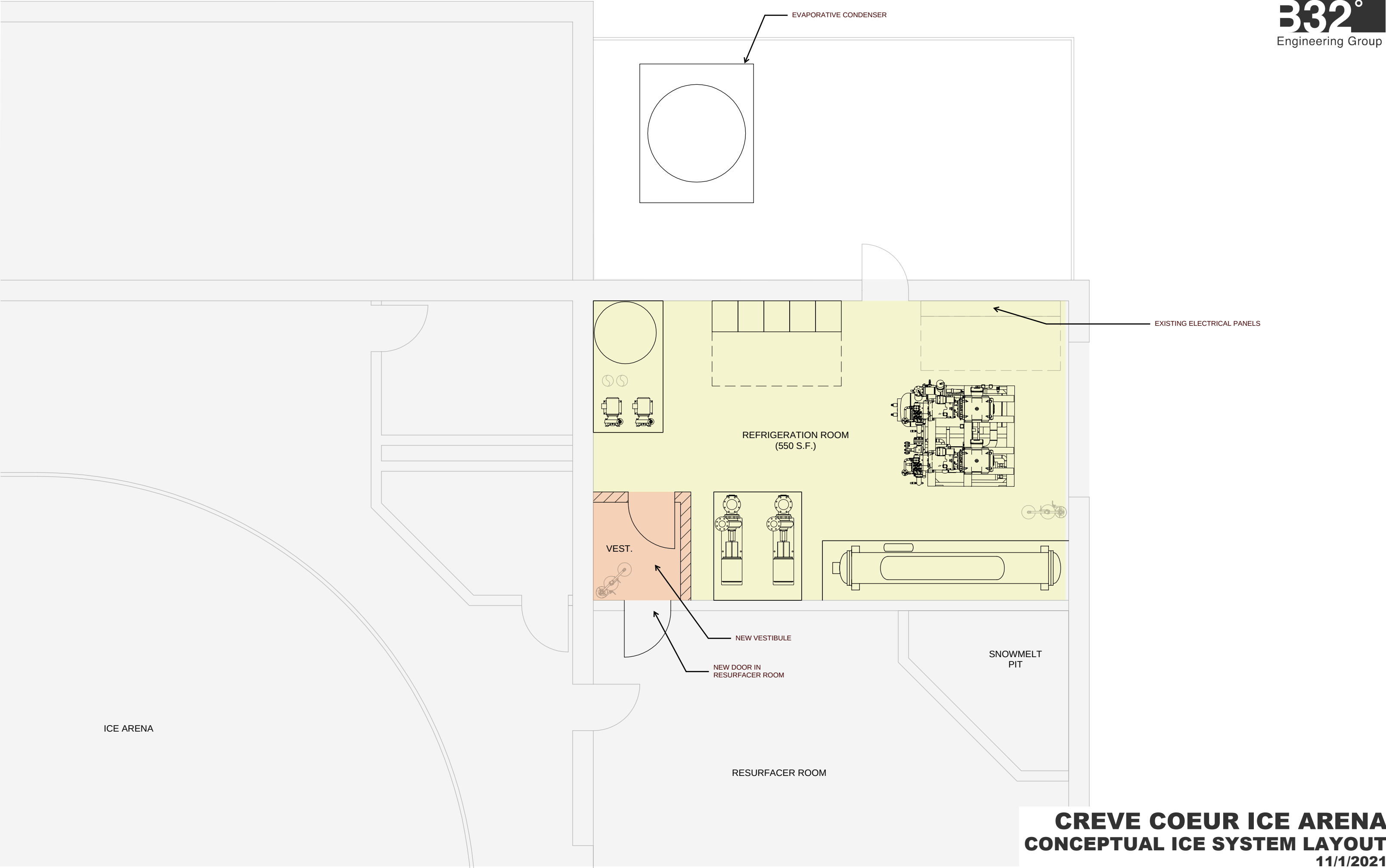
Costs include: escalation, general conditions, ice rink contractors profit, insurance, bonds

Date: 11.4.21 SAW
Revised: 7.26.22 SAW
Revised: 2.07.23 PAF

Item	Cost Estimate ¹		
	Option 2	Option 3	Option 4
Refrigerant type	R-513	Ammonia	CO2
Grade of system	Commercial	Industrial	Mix
Demolition of existing refrigeration system and condenser	\$28,000	\$28,000	\$28,000
Misc. HVAC demolition	\$7,000	\$7,000	\$7,000
Misc. Electrical demolition	\$7,000	\$7,000	\$7,000
Remove and dispose of existing glycol and flush existing rink floor, transmission mains and refrigeration system (option to test and reuse)	\$25,000	\$25,000	\$25,000
New 120 ton refrigeration system (includes new motor control center or panels, condenser , pumps, glycol, refrigerant, etc.)	\$925,000	\$1,100,000	\$1,216,000
New glycol solution	\$60,000	\$60,000	\$60,000
Preheat for resurfacer water	Not available	Not included	Not included
Reuse existing snowmelt pit	\$0	\$0	\$0
Concrete equipment pads	\$4,500	\$4,500	\$4,500
Rework existing condenser supports	\$8,000	\$8,000	\$8,000
New electric service if required	\$37,000	\$0	\$37,000
Eyewash and shower stations (1 for synthetic and CO2 and 2 for ammonia)	\$15,000	\$27,000	\$15,000
New ventilation system in refrigeration room	\$50,000	\$65,000	\$50,000
Misc. plumbing in refrigeration room (water lines, move or add drains, etc.)	\$20,995	\$20,995	\$20,995
Misc. electrical in refrigeration room (receptacles, panels, lights, etc.)	\$30,000	\$30,000	\$30,000
Replace existing single exterior door	\$13,000	\$13,000	\$13,000
New vestibule and door into resurfacer room (vestibule for ammonia only)	\$22,000	\$57,000	\$22,000
Misc. sitework improvements around existing refrigeration room	\$0	\$0	\$0
New screen wall (ammonia and R513) or modify existing for CO2 option	\$0	\$0	\$15,000
Paint interior of existing refrigeration room	\$4,500	\$4,500	\$4,500
Subtotal of estimated construction costs	\$1,256,995	\$1,456,995	\$1,562,995
Estimate, design and constr. Contingency (20%) ¹	\$251,399	\$291,399	\$312,599
Total estimated construction costs	\$1,508,394	\$1,748,394	\$1,875,594
Engineering, legal, financial and administrative (20%) ¹	\$301,679	\$349,679	\$375,119
Total estimated project costs (2024)	\$1,810,073	\$2,098,073	\$2,250,713
Expected useful life - refrigeration system (yrs.)	15-20	30+	25
Adjusted Costs for 2025²	\$1,954,879	\$2,265,919	\$2,430,770

Footnotes:

1. See cost estimate narrative in report.
2. Applied escalation costs of 8% per year.



June 21, 2023

Mr. Jason Valvero
Director of Recreation
City of Creve Coeur
11400 Olde Cabin Road
Creve Coeur, MO 63141

Via email: jvalvero@crevecoeurmo.gov

**RE: Creve Coeur Ice Arena – Refrigeration System Replacement
Bid Award Recommendation Letter**
B32 File No. 900.23.486

Dear Mr. Valvero:

On Wednesday, June 14, 2023 bids were opened for the Refrigeration System Replacement at the Creve Coeur Ice Arena. The table below summarizes the two (2) bids that were received. The engineer's estimate is also included and based on the February 7, 2023 cost estimate presented to the City.

	Engineer's Estimate*	Total Mechanical Services	C Rallo Contracting Co.
Total Base	\$1,456,995	\$2,463,353	\$2,989,000
Alt 1: Move all VFDs outside of Motor Control Center	Not provided	(\$3,000)	\$0
Alt 2: Provide new electrical service to the building (ADD)	Not provided	\$71,200	\$90,174

*The Engineer's Estimate does not include the approximately \$150,000 for a temporary chiller and a recommended 8% construction contingency.

There was limited interest in this project most likely due to the high volume of ice rink projects taking place nationally at this time. The spread between the base bids indicates that this project was bid fairly competitively. However, the bids are much higher than the Engineers Estimate. After discussing the cost breakdown with the apparent low bidder, Total Mechanical Services, the cost of the refrigeration system cost was approximately \$300,000 higher than the Engineers Estimate of \$1,341,500 and the cost of all other work (HVAC, electrical, plumbing, building, etc.) was approximately \$550,000 higher than the Engineers Estimate of \$115,495.

We have reviewed the lowest bid submitted by Total Mechanical Services and find no irregularities that would cause us to be concerned with the bid. We have performed a brief phone interview with Total Mechanical Services to discuss their bid and they have no concerns with their bid. Total Mechanical Services has experience with similar work at ice arena facilities and has a good reputation for this type of work.

Unfortunately, we don't see the cost of these facilities coming down anytime in the distant future. Costs have continued to rise drastically over the past 2 years. We recommend awarding the contract base bid to Total Mechanical Services. We also recommend awarding Alternate Bid 1 for moving the VFDs outside the motor



control center. There is not much of a cost advantage for awarding Alternate Bid 1 but there is a substantial schedule advantage of 3 to 4 months. Total Mechanical Services has stated they are concerned with meeting the base bid construction schedule mainly due to the lead time of the motor control center with the VFD's incorporated into the motor control center. Alternate Bid 2 does not need to be awarded unless the City would like to upgrade the existing electrical switchgear.

The award should be based on the condition that the Contractor will execute the contract documents and return them to B32 Engineering Group within ten (10) days in conformance with the bidding documents. As a reminder and as will all construction projects, we recommend budgeting an 8% contingency in addition to the construction cost for any changes or unforeseen site conditions that may arise during construction.

Enclosed is a bid tabulation of the two (2) bids received. The City retained the original bid forms from each bidder.

I would be more than happy to discuss the bid results in more detail with you, your staff and the City Council. If you have any questions after reviewing the information in this letter please feel free to call me at our office at 651.256.3090 or on my mobile at 651.492.1376.

Sincerely,

B32 ENGINEERING GROUP, INC.

A handwritten signature in black ink, appearing to read "Scott A. Ward", written in a cursive style.

Scott A. Ward, P.E.
President

C: Patrick Fournier – B32

Enclosure: Bid Tabulation

Bid Tabulation

Project Name: Creve Coeur Ice Arena - Refrigeration System Replacement

Location: Creve Coeur, Missouri

Date and Time: Wednesday, June 14th, 2023 at 2PM local time

B32 File No.: 900-23-486



Bidder Information	Bidder No.1	Bidder No.2
Bidder Name	Total Mechanical Services, Inc.	C. Rallo Contracting Co., Inc.
Bid Security (5%)	YES / NO	YES / NO
Prequalification Info (Div 13)	YES / NO	YES / NO
Addenda Acknowledged	1, 2 & 3	1, 2 & 3
Non-Collusion Affidavit	YES / NO	YES / NO
Contractors Affidavit for Public Projects	YES / NO	YES / NO

Base Bids	Unit	Total	Total
Lump Sum Bid Price for Base Bid	LS	\$2,463,353.00	\$2,989,000.00
TOTAL BASE BIDS		\$2,463,353.00	\$2,989,000.00

Alternates	Unit	Total	Total
Alt 1 - Move all VFDs outside of Motor Control Center	Deduct	(\$3,000.00)	\$0.00
Alt 2 - Provide new electrical service to the building	Add	\$71,200.00	\$90,174.00
Total with Alternates Bids		\$2,531,553.00	\$3,079,174.00

Contractors Name	Total Mechanical Services, Inc.	C. Rallo Contracting Co., Inc.
Address	420 Broadway Avenue	5000 Kemper Avenue
Email	St. Paul Park, MN 55071 bpvlkas@totalmech.com	St. Louis, MO 63139 jakeo@crallo.com
Telephone	651-775-5006	314-664-2900
Fax		314-664-2901
Bid Signed By	Amy Crouzer	Marita Pelster
Title	President	Office Administrator

copy

Total Mechanical

SECTION 004113

BID FORM

Creve Coeur Ice Arena – Refrigeration System Replacement

Creve Coeur, MO

B32 Project No. 900.23.486

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Creve Coeur, City Government Office located at 300 New Ballas Road, Creve Coeur, MO 63141.

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
One	May 23, 2023
Two	June 6, 2023
Three	June 8, 2023

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- E. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- F. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- G. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- I. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Lump Sum Bid Price for Base Bid	\$ 2,463,353.-
Alternate 1 – Move all VFDs outside of Motor Control Center [Add] [Deduct]	\$ (\$3,000)
Alternate 2 – Provide new electrical service to the building [Add] [Deduct]	\$ 71,200.-

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete on or before November 4, 2024, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before November 22, 2024 and Milestone 1 for start up of temporary chiller system and ice rink floor to temperature on or before June 1, 2024.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - D. Contractor's License No.: TBD OR Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - E. Required Bidder Quality Assurance Information as required in Section 131811 – Ice Rink General Requirements;
 - F. Non-Collusion Affidavit. See Instructions to Bidders Section.
 - G. Affidavit for Construction Projects. See Instructions to Bidders Section.

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

Total Mechanical Services, Inc.

By:
[Signature]

[Printed name]

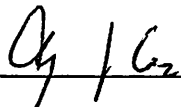
Bruce Pylkas

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature]

[Printed name]



Amy Crouzer

Title:

President

Submittal Date:

June 9, 023

Address for giving notices:

Total Mechanical Services, Inc.

420 Broadway Avenue

St. Paul Park, MN 55071

Telephone Number:

651-775-5006

Fax Number:

Contact Name and e-mail address:

bpylkas@totalmech.com

Bidder's License No.:

TBD

(where applicable)

NOTE TO USER: *Use in those states or other jurisdictions where applicable or required.*

NON-COLLUSION AFFIDAVIT

Project: Creve Coeur Ice Arena – Refrigeration System Replacement
11400 Olde Cabin Rd, Creve Coeur, Missouri 63141

STATE OF MISSOURI,
COUNTY OF ST. LOUIS,

Bruce Pylkas, being first duly sworn, deposes and says that he is
President *(sole owner, partner, president, secretary, etc.) of
Total Mechanical Services, Inc., the party making the foregoing bid; that
such bid is not made in the interest of or on behalf of any undisclosed person, partnership, company,
association, organization or corporation; that such bid is genuine and not collusive or sham; that said
bidder had not directly or indirectly induced or solicited any other bidder to put in a false or sham bid,
and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else
to put in a sham bid, or that any one shall refrain from bidding; that said bidder has not in any manner,
directly or indirectly, sought by agreement, communication or conference with anyone to fix the bid price
of said bidder or of any other bidder, or to fix any overhead, profit or cost element of such bid price, or of
that of any other bidder, or to secure any advantage against the public body awarding the contract or
anyone interested in the proposed contract; that all statements contained in such bid are true; and,
further, that said bidder had not, directly or indirectly, submitted his bid price or any breakdown thereof,
or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee
in connection therewith to any corporation, partnership, company, association, organization, bid
depository, or to any member or agent thereof, or to any other individual except to such person or persons
as have a partnership or other financial interest with said bidder in his general business.

Affiant further certifies that bidder is not financially interested in, or financially affiliated with, any other
bidder for the above project.

SIGNED: _____

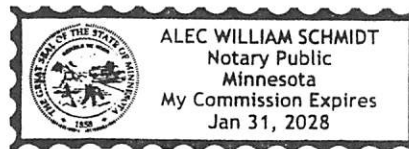
Title: President

Subscribed and sworn to before me this 7th day of June, 2023.

Seal of Notary

Alec Schmidt

Notary Public



My Commission Expires: Jan. 31, 2028

* In completing this form the title that is not applicable should be struck out. For example, if the Contractor is a corporation and this form is to be executed by its president, the words "Sole owner, a partner, secretary, etc." should be struck out.

CONTRACTOR'S AFFIDAVIT FOR PUBLIC CONSTRUCTION PROJECTS

STATE OF MISSOURI)
) ss
COUNTY OF ST. LOUIS)

The undersigned, being duly sworn, does state and depose as follows:

1. I am the President (title) of Total Mechanical Services, Inc. (company) which is a contractor on the Creve Coeur Ice Arena – Refrigeration System Replacement (the Project), and authorized to sign this Affidavit on the Company's behalf.

2. I have verified the information set forth in this Affidavit for the Contractor. If any subcontractors have been retained on the Project, I have also verified the information as to any subcontractor.

3. The Contractor and its subcontractors have Workers' Compensation Insurance that covers its employees working on the Project and such insurance meets or exceeds the requirements established by law.

4. The Contractor and its subcontractors have verified the U.S. citizenship or lawful status of all workers employed on the Project and do not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

5. The Contractor and its subcontractors have been informed by the City of the requirements to pay prevailing wage and will pay the prevailing wages to all workers employed on the Project as established by the applicable Annual Wage Order for the St. Louis County, Missouri, or the federal wage order, whichever is greater.

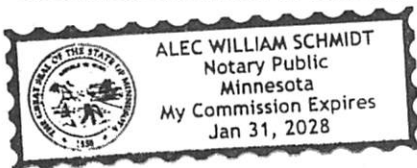
6. The Contractor and its subcontractors are in compliance with federal law requiring an accredited apprenticeship program, if applicable.

7. The Contractor and its subcontractors are enrolled and participate in a federal work authorization program with respect to employees working in connection with the contracted services. Further Affiant sayeth naught.

Bruce Pylkas, President

Authorized Officer of Contractor

Subscribed and sworn to before me this 7th day of June, 2023.



Notary Public

My commission expires: Jan. 31, 2028

SECTION 004115

FIRST-TIER SUBCONTRACTOR LIST

FIRST-TIER SUBCONTRACTOR NAMES (Legal name of company as registered with the Secretary of State)	Name of City where company home office is located
Total Mechanical Services, Inc. Refrigeration Work	St. Paul Park, MN 55071
Haberberger HVAC and Plumbing	St. Louis, MO
Bell Electrical Electrical Power and Controls	St. Louis

SECTION 004170

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (Name and Address):

Total Mechanical Services, Inc.
420 Broadway Avenue
Saint Paul Park, MN 55071

SURETY (Name, and Address of Principal Place of Business):

Atlantic Specialty Insurance Company
605 Highway 169 North, Suite 800
Plymouth, MN 55441

OWNER (Name and Address): City of Creve Coeur, City Government Office located at 300 New Ballas Road, Creve Coeur, MO 63141.

BID

Bid Due Date: ~~XXXXXX~~ June 9, 2023

Description (Project Name— Include Location): Creve Coeur Ice Arena – Refrigeration System Replacement

BOND

Bond Number: AB0001310

Date: June 7, 2023

Penal sum Ten Percent of Bid Amount \$ 10% of Bid Amount
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

Total Mechanical Services, Inc. (Seal)

Bidder's Name and Corporate Seal

By:

Signature

Bruce Pylkas

Print Name

President

Title

Attest:

Signature

Andrea Connolly-Dees, Witness

Title

Creve Coeur Ice Arena – Refrigeration System Replacement
Creve Coeur, MO
Project No. 900-23-486

SURETY

Atlantic Specialty Insurance Company (Seal)

Surety's Name and Corporate Seal

By:

Signature (Attach Power of Attorney)

Troy Staples

Print Name

Attorney-in-Fact

Title

Attest:

Signature

Andrea Connolly-Dees, Witness

Title

Bid Bond
00 41 70-1

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

2. The second part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

3. The third part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

4. The fourth part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.



5. The fifth part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

6. The sixth part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

7. The seventh part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

8. The eighth part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

9. The ninth part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

10. The tenth part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it is the first official communication from the President to the Congress since the inauguration of Abraham Lincoln.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

ACKNOWLEDGMENT OF PRINCIPAL (Individual)

State of _____)
County of _____)

On this _____ day of _____, in the year _____, before me personally come(s) _____, to me known and known to me to be the person(s) who (is) (are) described in and executed the foregoing instrument and acknowledge(s) to me that he/she executed the same.

Notary Public

ACKNOWLEDGMENT OF PRINCIPAL (Partnership)

State of _____)
County of _____)

On this _____ day of _____, in the year _____, before me personally come(s) _____, a member of the co-partnership of _____, to me known and known to me to be the person who is described in and executed the foregoing instrument and acknowledges to me that he/she executed the same as for the act and deed of the said co-partnership.

Notary Public

ACKNOWLEDGMENT OF PRINCIPAL (Corporation)

State of Minnesota)
County of Dakota)

On this 7 day of June, in the year 2023, before me personally come(s) Bruce Turkay, to me known, who, being duly sworn, deposes and says that he/she is the President of the Total Mechanical Service Inc the corporation described in and which executed the foregoing instrument; that he/she knows the seal of the said corporation; the seal affixed to the said instrument is such corporate seal; that it was so affixed by the order of the Board of Directors of said corporation, and that he/she signed his/her name thereto by like order.



Adrian
Notary Public

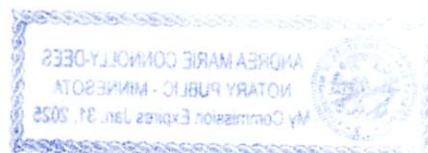
ACKNOWLEDGMENT OF SURETY

State of Minnesota)
County of Dakota)

On this 7th day of June, in the year 2023, before me personally come(s) Troy Staples, Attorney(s)-in-Fact of Atlantic Specialty Insurance Company with whom I am personally acquainted, and who, being by me duly sworn, says that he/she is (are) the Attorney(s)-in-Fact of Atlantic Specialty Insurance Company company described in and which executed the within instrument; that he/she know(s) the corporate seal of such company; and that seal affixed to the within instrument is such corporate seal and that it was affixed by order of the Board of Directors of said company, and that he/she signed said instrument as Attorney(s)-in-Fact of the said company by like order.



Adrian
Notary Public





Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Jonathan Pate, Zachary Pate, Jennifer Boyles, Nicholas Hochban, Thomas Lahl, Thomas Kemp, Troy Staples**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this first day of January, 2023.

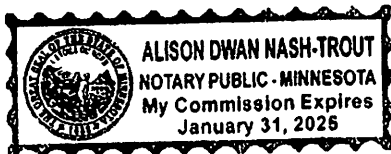
STATE OF MINNESOTA
HENNEPIN COUNTY



By

Sarah A. Kolar, Vice President and General Counsel

On this first day of January, 2023, before me personally came Sarah A. Kolar, Vice President and General Counsel of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and she acknowledged the execution of the same, and being by me duly sworn, that she is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.



Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 7th day of June, 2023.

This Power of Attorney expires
January 31, 2025



Kara L.B. Barrow, Secretary

Please direct bond verifications to secretary@atlanticinsurance.com





420 Broadway Avenue
St. Paul Park, MN 55071
651-768-9367
FAX 651-768-9258

May 15, 2022

Page 1 of 6

The following is a partial list of ice rink projects with the required supporting information:

1) Project Name: **Washington Canal Park**

Project Location: **Washington DC**

Project Size: **(Overall Project Size) \$12,000,000. Ice Ribbon Contract \$1,441,000**

Project Type: **Trail Type Ice Ribbon**

Brief narrative of complexity: **9,000 square foot ice ribbon type outdoor ice rink with an ammonia refrigeration system that is located in an adjacent building. Completed November of 2012.**

Reference Name: **Mr. Bill Fay, WC Smith Company**

Reference Phone #: **202-465-7064**

Reference Name: **Mr. Tom Gnecco, James G. Davis Construction Company**

Reference Phone #: **301-881-2990**

Architect/Engineer: **Stantec, Gary Kristofitz 651-604-4877**

2) Project Name: **Schmitz-Maki Ice Arena Rehab**

Project Location: **Farmington Minnesota**

Project Size **\$ 750,000**

Project Type: **Indoor Ice Rink**

Brief narrative of complexity: **Replacement of ice rink floor and complete new ammonia refrigeration plant. Completed January 2011**

Reference Name: **Mr. Randy Distad, City of Farmington, MN**

Reference Phone #: **651-280-6851**

Architect/Engineer: **Stantec, Gary Kristofitz 651-604-4877**

3) Project Name: **Wakota Arena Improvements**

Project Location: **So. St. Paul, MN**

Project Size **\$ 1,445,326**

Project Type: **Indoor Ice Rink**

Brief narrative of complexity: **Complete mechanical room up grade and new transmission piping to two existing ice sheet. Completed September 2014**

Reference Name: **Mr. Jayson Dwelle, City of South St. Paul**

Reference Phone #: **651-554-3331**

Architect/Engineer: **Stevens Engineers**

4) Project Name: Skokie Ice Skatium

Project Location: Skokie, Illinois

Project Size \$ 701,505

Project Type: Indoor Ice Rink

Brief narrative of complexity: New outdoor package chiller and concrete floor of a reduced size hockey practice rink.

Reference Name: Mr. Mike Rea, Skokie Park District

Reference Phone #: 847-929-7802

Architect/Engineer: Stantec, Gary Kristofitz 651-604-4877

5) Project Name: Ridgeland Common Recreation Center Remodel

Project Location: Oak Park, Illinois

Project Size \$ 995,000

Project Type: Indoor Ice Rink

Brief narrative of complexity: New ice rink floor and complete new ammonia refrigeration plant. Completion May of 2014

Reference Name: City of Oak Park, Park District prefers all contact thru Engineer

Reference Phone #: 651-604-4877

Architect/Engineer: Stantec, Gary Kristofitz 651-604-4877

6) Project Name: Braemar Ice Arena

Project Location: Edina, MN

Project Size \$ 1,343,025

Project Type: Indoor/Outdoor Ice Rink

Brief narrative of complexity: Complete mechanical room up grade and new transmission piping to one existing ice sheet and one new outdoor ice sheet. Completion March 2015

Reference Name: Ms. Chad Eischens, City of Edina

Reference Phone #: 952-833-9502

Architect/Engineer: Stevens Engineers

7) Project Name: Brentwood Recreation Complex

Project Location: Brentwood, MO

Project Size \$ 1,084,934

Project Type: Indoor Ice Rink

Brief narrative of complexity: New ice rink floor and complete new ammonia refrigeration plant. Completion October 2015

Reference Name: City of Brentwood, Eric Gruenenfelder

Reference Phone #: 314-963-8681

Architect/Engineer: KJWW, Russ Arneson 314-951-2518

8) Project Name: Ice Rink Replacement at the Mohegan Sun Arena at Casey Plaza

Project Location: Wilkes-Barre, PA

Project Size \$ 869,900

Project Type: Indoor Ice Rink

Brief narrative of complexity: Replacement ice rink floor and brine pumping system.

Completion September 2017

Reference Name: Mike Wilczynski, Director of Operations

Reference Phone #: 570-970-7601

Architect/Engineer: NEPA Engineering 570-885-4125, Bob Becker

9) Project Name: Duluth Entertainment and Convention Center North Pioneer Hall Curling Rink Replacement

Project Location: Duluth, MN

Project Size \$ 115,000

Project Type: Indoor Curling Rink

Brief narrative of complexity: Replacement curling rink floor. Completion October 2016

Reference Name: Joe Polo, Lakehead Constructors

Reference Phone #: 715-395-2642

Architect/Engineer: Stevens Engineers

10) Project Name: Northern Arizona University Fieldhouse Ice Rink

Project Location: Flagstaff, AZ

Project Size \$ 546,585

Project Type: Indoor Ice Rink

Brief narrative of complexity: Conversion of fieldhouse to an indoor ice rink. Completion March 2017

Reference Name: David Nixon, Core Construction

Reference Phone #: 928-592-2551

Architect/Engineer: IMEG (Formerly KJWW) Russel Birch 317-580-6901

11) Project Name: St. Paul Parks and Rec Outdoor Ice Rink Rehab

Project Location: St. Paul, MN

Project Size \$697,810

Project Type: Two Outdoor Ice Rinks

Brief narrative of complexity: Remove portable mats and provide complete concrete ice rink floor surfaces. Connection to existing air cooled packaged out door refrigeration systems.

Northdale Rec Center Rink completed November of 2016. Phalen Rec Center Rink Completed November of 2017.

Reference Name: Joe Buzicky, City of St. Paul Parks and Rec

Reference Phone #: 651-632-2419

Architect/Engineer: City of St. Paul

12) Project Name: Indian Creek Plaza

Project Location: Caldwell, Idaho

Project Size: (Overall Project Size) \$15,000,000. Ice Ribbon Contract \$1,300,000

Project Type: Trail Type Ice Ribbon

Brief narrative of complexity: 10,000 square foot ice ribbon type outdoor ice rink with an ammonia refrigeration system that is located in an adjacent building. Completed November of 2018.

Reference Name: City of Caldwell prefers all contact to go through the engineer.

Reference Phone #:

Reference Name: Ms. Macy Lui, McAlvain Companies

Reference Phone #: 208-908-5989

Architect/Engineer: Stantec, Jim Maland 612-712-2084

13) Project Name: Howard Park Redevelopment

Project Location: South Bend, IN

Project Size: (Overall Project Size) \$25,000,000. Ice Ribbon Contract \$1,621,400

Project Type: Trail Type Ice Ribbon

Brief narrative of complexity: 16,146 square foot ice ribbon type outdoor ice rink with an ammonia refrigeration system that is located in an adjacent building. Completion November of 2019.

Reference Name: City of South Bend prefers all contact to go through the engineer.

Reference Phone #:

Reference Name: Mr. Darin Meyer, Larson-Danielson Construction Co.

Reference Phone #: 219-362-2127

Architect/Engineer: **Stantec, Jim Maland 612-712-2084**

14) Project Name: Apple Valley Sports Arena

Project Location: Apple Valley, MN

Project Size \$ 1,900,900

Project Type: Indoor Ice Rink Replacement

Brief narrative of complexity: Complete mechanical room up grade and concrete hockey rink floor replacement. Completion November 2019

Reference Name: Mr. Brian Christenson, City of Apple Valley

Reference Phone #: 952-953-2367

Architect/Engineer: B32 Engineering Group

15) Project Name: Cottage Grove Arena

Project Location: Cottage Grove, MN

Project Size \$ 2,667,754

Project Type: Indoor Ice Rinks

Brief narrative of complexity: Complete mechanical room up grade and replacement of one hockey rink floor and one studio rink sand floor. Completion November 2019.

Reference Name: Mr. Jordan Hirman, City of Cottage Grove.

Reference Phone #: 651-458-3415

Architect/Engineer: B32 Engineering Group

16) Project Name: Casper Ice Arena

Project Location: Casper, Wyoming

Project Size \$ 1,430,938

Project Type: Indoor Ice Rinks

Brief narrative of complexity: Removal of ammonia system from Casper events center and installation in Casper Ice Arena along with a new ice rink floor. Completion November 2020.

Reference Name: Mr. Adam Haass, Haas Construction, Casper Wyoming.

Reference Phone #: 307-259-5230

Architect/Engineer: B32 Engineering Group

17) Project Name: David S Palmer Ice Arena

Project Location: Danville, IL

Project Size \$ 2,596,313.

Project Type: Indoor Ice Rinks

Brief narrative of complexity: Complete mechanical room up grade and replacement of one hockey rink floor. Completion November 2020.

Reference Name: Mr. Don Wright, City of Danville.

Reference Phone #: 217-431-2424

Architect/Engineer: B32 Engineering Group.

18) Project Name: Andover YMCA Ice Arena

Project Location: Andover, MN

Project Size \$ 1,615,598.

Project Type: Indoor Ice Rinks

Brief narrative of complexity: Complete mechanical room up grade and addition of one hockey rink floor. Completion November 2020.

Reference Name: Contact thru Engineer

Reference Phone #:

Architect/Engineer: B32 Engineering Group.

19) Project Name: Champlin Ice Forum

Project Location: Champlin, MN

Project Size \$ 1,696,61.

Project Type: Indoor Ice Rinks

Brief narrative of complexity: Complete mechanical room up grade and replacement of one hockey rink floor. Completion November 2021.

Reference Name: Mr. Charlie Lehn

Reference Phone #: 763-923-7163

Architect/Engineer: B32 Engineering Group.

20) Project Name: Greensfelder Recreational Complex

Project Location: St. Louis, MO

Project Size \$ 915,511.

Project Type: Indoor Ice Rinks

Brief narrative of complexity: Complete mechanical room up grade and repair of hockey rink floor. Completion July 2022.

Reference Name: K&S Associates, Inc. (owner prefers contact thru General Contractor or Engineer)

Reference Phone #: 314-647-3535

Architect/Engineer: B32 Engineering Group.

21)

Total Mechanical Services, Inc.

Ice Rink Experience

Additional project references can be provided upon request.



420 Broadway Avenue
St. Paul Park, MN 55071
651-768-9367
FAX 651-768-9258

ICE RINK CONTROL SYSTEM QUALIFICATIONS

October 28, 2020

Page 1 of 5

The following is a partial list of ice rink control system projects with the required supporting information:

1) Project Name: **Washington Canal Park**

Project Location: **Washington DC**

Project Size: **(Overall Project Size) \$12,000,000. Ice Ribbon Contract \$1,441,000**

Project Type: **Trail Type Ice Ribbon**

Brief narrative of complexity: **9,000 square foot ice ribbon type outdoor ice rink with an ammonia refrigeration system that is located in an adjacent building. Control system consisted of Vil-Tech compressor control panels and various electrical control components. Completed November of 2012.**

Reference Name: **Mr. Bill Fay, WC Smith Company**

Reference Phone #: **202-465-7064**

Reference Name: **Mr. Tom Gnecco, James G. Davis Construction Company**

Reference Phone #: **301-881-2990**

Architect/Engineer: **Stantec, Gary Kristofitz 651-604-4877**

2) Project Name: **Schmitz-Maki Ice Arena Rehab**

Project Location: **Farmington Minnesota**

Project Size **\$ 750,000**

Project Type: **Indoor Ice Rink**

Brief narrative of complexity: **Replacement of ice rink floor and complete new ammonia refrigeration plant. Control system consisted of Vil-Tech compressor control panels and various electrical control components. Completed January 2011**

Reference Name: **Mr. Randy Distad, City of Farmington, MN**

Reference Phone #: **651-280-6851**

Architect/Engineer: **Stantec, Gary Kristofitz 651-604-4877**

3) **Project Name: Ridgeland Common Recreation Center Remodel**

Project Location: Oak Park, Illinois

Project Size \$ 995,000

Project Type: Indoor Ice Rink

Brief narrative of complexity: New ice rink floor and complete new ammonia refrigeration plant. Control system consisted of Vil-Tech compressor control panels and various electrical control components. Completion May of 2014

Reference Name: City of Oak Park, Park District prefers all contact thru Engineer

Reference Phone #: 651-604-4877

Architect/Engineer: Stantec, Gary Kristofitz 651-604-4877

4) **Project Name: Brentwood Recreation Complex**

Project Location: Brentwood, MO

Project Size \$ 1,084,934

Project Type: Indoor Ice Rink

Brief narrative of complexity: New ice rink floor and complete new ammonia refrigeration plant. Control system consisted of Vil-Tech compressor control panels and various electrical control components. Completion October 2015

Reference Name: City of Brentwood, Eric Gruenenfelder

Reference Phone #: 314-963-8681

Architect/Engineer: KJWW, Russ Arneson 314-951-2518

5) **Project Name: Indian Creek Plaza**

Project Location: Caldwell, Idaho

Project Size: (Overall Project Size) \$15,000,000. Ice Ribbon Contract \$1,300,000

Project Type: Trail Type Ice Ribbon

Brief narrative of complexity: 10,000 square foot ice ribbon type outdoor ice rink with an ammonia refrigeration system that is located in an adjacent building. Control system consisted of Wykon Tridium Niagara based BACNET front end and field controllers to control the entire system. Completed November of 2018.

Reference Name: City of Caldwell prefers all contact to go through the engineer.

Reference Phone #:

Reference Name: Ms. Macy Lui, McAlvain Companies

Reference Phone #: 208-908-5989

Architect/Engineer: Stantec, Jim Maland 612-712-2084

6) Project Name: **Howard Park Redevelopment**

Project Location: **South Bend, IN**

Project Size: **(Overall Project Size) \$25,000,000. Ice Ribbon Contract \$1,621,400**

Project Type: **Trail Type Ice Ribbon**

Brief narrative of complexity: **16,146 square foot ice ribbon type outdoor ice rink with an ammonia refrigeration system that is located in an adjacent building. Control system consisted of Vykon Tridium Niagara based BACNET front end and field controllers to control the entire system. Completion November of 2019.**

Reference Name: **City of South Bend prefers all contact to go through the engineer.**

Reference Phone #:

Reference Name: **Mr. Darin Meyer, Larson-Danielson Construction Co.**

Reference Phone #: **219-362-2127**

Architect/Engineer: **Stantec, Jim Maland 612-712-2084**

7) Project Name: **Casper Ice Arena**

Project Location: **Casper, Wyoming**

Project Size **\$ 1,430,938**

Project Type: **Indoor Ice Rinks**

Brief narrative of complexity: **Removal of ammonia system from Casper events center and installation in Casper Ice Arena along with a new ice rink floor. Control modifications and additions to the existing Wago PLC control system. Added Honeywell electronic controls for subsoil and cooling tower control. Completion November 2020.**

Reference Name: **Mr. Adam Haass, Haas Construction, Casper Wyoming.**

Reference Phone #: **307-259-5230**

Architect/Engineer: **B32 Engineering Group**

8) Project Name: **David A Palmer Ice Arena**

Project Location: **Danville, IL**

Project Size **\$ 2,596,313.**

Project Type: **Indoor Ice Rinks**

Brief narrative of complexity: **Complete mechanical room up grade and replacement of one hockey rink floor. Control system consisted of Vykon Tridium Niagara based BACNET front end and field controllers to control the entire system. Completion November 2020.**

Reference Name: **Mr. Don Wright, City of Danville.**

Reference Phone #: **217-431-2424**

Architect/Engineer: **B32 Engineering Group.**

9) **Project Name: Coon Rapids Ice Arena**

Project Location: Coon Rapids, MN

Project Size \$ 800,000

Project Type: Indoor Ice Rinks

Brief narrative of complexity: Replaced condenser and rebuilt three reciprocating compressors and upgraded control system. Control system consisted of Vykon Tridium Niagara based BACNET front end and field controllers to control the entire system. Completion November June 2022.

Reference Name: Mr. Dzevad Mahmutovic, City of Coon Rapids.

Reference Phone #: 763-767-6586

Architect/Engineer: B32 Engineering Group.

Additional project references can be provided upon request.

Joel Anderson (name) of Total Mechanical (company)

HAS SUCCESSFULLY COMPLETED THE

- ☐ Audit (no hands-on or testing)
☐ Field Training (no written evaluation or destructive testing required)
☐ M&I Qualification (w/ written & destructive testing)
☒ 49 CFR Part 192 & 195 Individual Qualification (w/ written & destructive testing)
☒ Initial (no prior qualification to Part 192, or in excess of 12 months prior)
☐ Renewal (prior Wolseley qualification class to Part 192 within prior 12 months)

INDUSTRIAL PLASTICS DIVISION'S POLYETHYLENE JOINING PROCEDURES and EQUIPMENT OPERATIONS CLASS
2012, v3.0, FOR THE PROCESSES OF

CONVENTIONAL FUSION, Per the Heat Fusion Joining procedures defined in ASTM F2620-xx (-12 or -13) and utilizing McElroy Mfg., Inc.'s fusion equipment

- ☒ SMALL DIAMETER FUSION (1/2" CTS - 6" DIPS)
☒ MANUAL BUTT (1/2" CTS - 6" DIPS) ☐ SADDLE ($\leq 4"$ OUTLET) ☒ SOCKET (1/2" CTS - 4" IPS)
☒ MEDIUM DIAMETER HYDRAULIC FUSION (2" IPS - 20" OD)
☒ BUTT FUSION (2" IPS - 20" DIPS) ☐ SADDLE FUSION (4" IPS - 18" IPS OUTLET)
☐ LARGE DIAMETER HYDRAULIC BUTT FUSION (8" IPS - 65" OD)
☐ 824/T630 ☐ 1236/T900 ☐ 1648 / ☐ 2065 / ☐ 1600 EQUIPMENT SPECIFIC CLASSES
☒ ELECTRONIC DATA RECORDING EQUIPMENT OPERATIONS
☐ DataLogger 3 (☐ Wired ☐ Wireless) ☐ DataLogger 4 ☒ DataLogger 5

ELECTROFUSION, Per the electrofusion processor manufacturer's defined operations and the fitting manufacturer's defined installation instructions

- ☒ SMALL DIAMETER ELECTROFUSION ($\leq 12"$) ☐ LARGE DIAMETER ELECTROFUSION ($\geq 14"$)
Per the electrofusion processor operations defined by:
☒ Georg Fischer Central Plastics ☐ IPEX Friatec ☐ Raptor ☐ Other _____
And per fitting installation instruction defined by:
☒ Georg Fischer Central Plastics ☐ IPEX Friatec ☐ Other _____
☐ Coupling ☐ Saddle/Tapping Tee ☐ Restraint

(Instructor)

(date)

Authorized by:

Bill Breckenridge, Manager of Training and Developing,
Wolseley Industrial Group, Industrial Plastics Division
william.breckenridge@wolseleyind.com

This is a temporary certificate. A permanent replacement document will be issued by the Manager of Training and Developing.

The individual's Field Training, M&I Qualification or Individual Qualification (49CFR Part 192) will remain in effect for a period of no more than two years, as long as the individual completes a documentable fusion, for which they have been previously qualified, within each consecutive six month period; or shall require requalification if (a) there is a specific reason to question the fusion-specific knowledge, skills and abilities of the individual, and/or (b) the project-specific requirements require requalification. A proof of completion is not a warrant of workmanship or a guarantee of pipeline integrity for any work completed by the above named individual.

CREVE COEUR ICE ARENA REFRIGERATION SYTEM REPLACEMENT

Creve Coeur, MO

PROJECT MANUAL

May, 2023

B32 Project No. 900-23-486



B32 Engineering Group, Inc.
2211 O'Neil Road
Hudson, Wisconsin 54016
www.b32eng.com

Ph: (651) 256-3090
Fax: (715) 808-0842

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SECTION 000105
CERTIFICATION PAGE

Ice System / Civil Engineer's Certification:

I hereby certify these specification sections (DIV. 13,31,32) were prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the Missouri.



Scott A. Ward, P.E.
PE-2016014289
B32 ENGINEERING GROUP, INC.

Architects Certification:

I hereby certify these specification sections (DIV. 02,03,04,05,06,07,08,09,10) were prepared by me or under my direct supervision and that I am a duly registered Professional Architect under the laws of the Missouri.



L.G. CHIODINI
A-2006
CHIODINI ARCHITECTS

Structural Engineer Certification:

I hereby certify these specification sections (DIV xx) were prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Missouri.

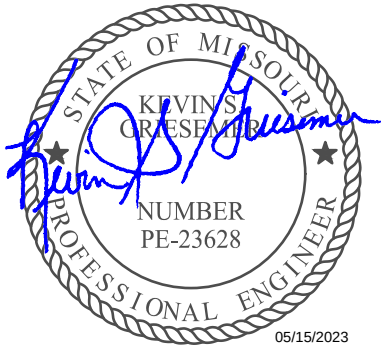
Name:

License number:

Company Name:

Mechanical/Plumbing Engineer Certification:

I hereby certify these specification sections (DIV 22,23) were prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Missouri.



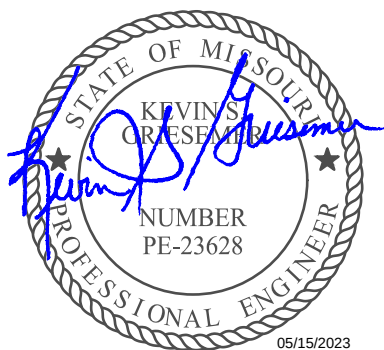
Kevin Griesemer

PE-23628

G&W Engineering

Electrical Engineer Certification:

I hereby certify these specification sections (DIV 26) were prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Missouri.



Kevin Griesemer
PE-23628
G&W Engineering

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SECTION 000110

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004143	BID FORM
004170	BID BOND
005100	NOTICE OF AWARD
005213	AGREEMENT
005500	NOTICE TO PROCEED
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007200	GENERAL CONDITIONS
007300	SUPPLEMENTARY CONDITIONS
011000	SUMMARY OF WORK
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013300	SUBMITTAL PROCEDURES
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015000	TEMPORARY FACILITIES AND CONTROLS
015100	TEMPORARY UTILITIES
016000	PRODUCT REQUIREMENTS
017000	EXECUTION AND CLOSEOUT REQUIREMENTS
024100	DEMOLITION
030516	UNDERSLAB VAPOR BARRIER – STEGO
033000	CAST-IN-PLACE CONCRETE
033511	CONCRETE FLOOR FINISHES
042000	UNIT MASONRY
061000	ROUGH CARPENTRY
072100	THERMAL INSULATION
072500	WEATHER BARRIERS
078400	FIRESTOPPING
079200	JOINT SEALANTS
084123	FIRE RATED ALUMINUM FRAMED ENTRANCES AND STOREFRONTS – FIREFRAMES* ALUMINUM SERIES
088813	FIRE-RATED GLASS – FIRELITE*
081113	HOLLOW METAL DOORS AND FRAMES
083344	OVERHEAD COILING FIRE CURTAINS – DOOR SYSTEMS INC.
083613	SECTIONAL DOORS
087100	DOOR HARDWARE
092116	GYPSUM BOARD ASSEMBLIES
099000	PAINTING AND COATING – COMMERCIAL FACILITY GUIDE SPECIFICATION – SHERWIN WILLIAMS
131811	ICE RINK GENERAL REQUIREMENTS
131812	ICE RINK REFRIGERATION SYSTEM
131814	ICE RINK PIPING, VALVES AND ACCESSORIES

131815	ICE RINK WASTE HEAT RECOVERY
131817	ICE RINK CENTRAL CONTROL SYSTEM
211313	WET-PIPE SPRINKLER SYSTEMS
220523.12	BALL VALVES FOR PLUMBING PIPING
220529	HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT
220719	PLUMBING PIPING INSULATION
221116	DOMESTIC WATER PIPING
221316	SANITARY WASTE AND VENT PIPING
221319	SANITARY WASTE PIPING SPECIALTIES
224500	EMERGENCY PLUMBING FIXTURES
230593	TESTING, ADJUSTING, AND BALANCING FOR HVAC
233416	CENTRIFUGAL HVAC FANS
233423	HVAC POWER VENTILATORS
260010	SUPPLEMENTAL REQUIREMENTS FOR ELECTRICAL
260519	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
260526	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
260529	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
260533	RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
260544	SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
260548	VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS
260553	IDENTIFICATION FOR ELECTRICAL SYSTEMS
260923	LIGHTING CONTROL DEVICES
262416	PANELBOARDS
262816	ENCLOSED SWITCHES AND CIRCUIT BREAKERS
265119	LED INTERIOR LIGHTING

265213	EMERGENCY AND EXIT LIGHTING
265619	LED EXTERIOR LIGHTING

SECTION 000115
LIST OF DRAWINGS

The plans for the construction of this project are hereby made a part of the specifications and include:

Sheet 1:	Title, Location and Index
Sheet 2:	Code Data and Life Safety
Sheet 3:	Overall Floor Plan
Sheet 4:	First Floor Demo Plan
Sheet 5:	Enlarged Floor Plan
Sheet 6:	Reflected Ceiling Plan
Sheet 7:	Wall Sections/ Window Details
Sheet 8:	Door Finish Schedule and Wall Partitions
Sheet 9:	Door Hardware Sets
Sheet 10:	Enlarged Demolition Floor Plan – Electrical
Sheet 11:	Electrical Title Sheet
Sheet 12:	Electrical Details & Schedules
Sheet 13:	Bid Alternate Electrical Details & Schedules
Sheet 14:	Electrical Details & Schedules
Sheet 15:	Overall Plan – Electrical
Sheet 16:	Enlarged Floor Plan – Electrical
Sheet 17:	Enlarged Ceiling Plan – Lighting
Sheet 18:	Enlarged Demolition Plan – Mechanical
Sheet 19:	Mechanical Title Sheet
Sheet 20:	Mechanical Schedules
Sheet 21:	Overall Plan – Mechanical
Sheet 22:	Enlarged Ceiling Plan – Mechanical
Sheet 23:	Roof Plan – Mechanical

Creve Coeur Ice Arena – Refrigeration System Replacement
Creve Coeur, MO
Project No. 900-23-486

List of Drawings
00 01 15-1

Sheet 24:	First Floor Plan – Fire Protection
Sheet 25:	Plumbing Title Sheet
Sheet 26:	Overall Plan – Plumbing
Sheet 27:	Enlarged Floor Plan – Plumbing
Sheet 28:	Ice Rink Legend and Symbols
Sheet 29:	Refrigeration Demo Plan
Sheet 30:	Refrigeration Room Plan
Sheet 31:	Refrigeration Details and Equipment Schedules
Sheet 32:	Refrigeration Details and Equipment Schedules
Sheet 33:	Primary Refrigerant Flow Diagram
Sheet 34:	Secondary Refrigerant Flow Diagram
Sheet 35:	Waste Heat Recovery Flow Diagrams

END OF SECTION

SECTION 001113
ADVERTISEMENT FOR BIDS

City of Creve Coeur
Creve Coeur, Missouri
Creve Coeur Ice Arena – Refrigeration System Replacement

General Notice

The City of Creve Coeur (Owner) is requesting Bids for the construction of the following Project:

Creve Coeur Ice Arena – Refrigeration System Replacement
B32 Project No. 900-23-486

Bids for the construction of the Project will be received at the **City Government Office located at 300 New Ballas Road, Creve Coeur, MO 63141**, until **June 1, 2023 at 2:00 PM** local time. At that time the Bids received will be **publicly** opened and read.

The Project includes the following Work:

In general, work consists of constructing a new ammonia-based refrigeration system and improvements to the existing refrigeration room including demolition of the existing R-22 based refrigeration system, demolition of mechanical and electrical system and doors, new refrigeration equipment, piping, insulation, electrical, control systems, electrical, mechanical, doors, and related work.

Bids are requested for the following Contract: **Creve Coeur Ice Arena – Refrigeration System Replacement**

Obtaining the Bidding Documents

Information and Bidding Documents for the Project can be found at the following designated websites: Quest CDN at <http://www.questcdn.com> (eBidDoc Number 8522532) and www.b32eng.com

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

The Issuing Office for the Bidding Documents is B32 Engineering Group, Inc. 2211 O'Neil Road, Hudson, WI (651)256-3090

Prospective Bidders may obtain or examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of 8:30 am and 4:30 pm, and may obtain copies of the Bidding Documents from the Issuing Office as described below. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office.

Pre-bid Conference

A pre-bid conference for the Project will be held on **May 25, 2023 at 1:00 PM (local time)** at the **Creve Coeur Ice Arena located at 11400 Olde Cabin Rd, Creve Coeur, MO 63141**. Attendance at the pre-bid conference is encouraged but not required.

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

Bidders are hereby advised that the prevailing wage rates for this project, set under the authority of Missouri Statutes, shall be as listed in the Wage Rate Determination that is included in the specifications. Further compliance of the Contractor with said prevailing wage rates will be required.

This Advertisement is issued by:

Owner: **City of Creve Coeur**

By: **Jim Heines**

Title: **Public Works Director**

Date: **May 15, 2023**

SECTION 002113

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website(s) as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Registered plan holders will receive Addenda issued by Owner.
- 2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.06 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version (most recent version) or later. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and

Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
 - A. Evidence of authority to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - B. Bidder's state or other contractor license number, if applicable.
 - C. List of proposed Subcontractors.
 - D. Quality Assurance information required in Section 131811 – Ice Rink General Requirements
 - E. Other required information regarding qualifications.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 5.01 *Site and Other Areas*
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:

1. **None**

Owner will make copies of these other Site-related documents available to any Bidder on request.

- B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.
- C. The other Site-related documents are not part of the Contract Documents.
- D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.

- E. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.
- C. A Site visit is scheduled for **May 25, 2023 at 1pm (local time)** Maps to the Site will be made available upon request.
- D. Bidders visiting the Site are required to arrange their own transportation to the Site.
- E. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: **Jason Valvero, Director of Recreation, City of Creve Coeur. O.314.432.3961, jvalvero@crevecoeurmo.gov.** Bidder must conduct the required Site visit during normal working hours.
- F. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- G. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- H. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- I. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder’s examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. Scott Ward, P.E. B32 Engineering Group, Inc. via email at scott.ward@b32eng.com.**
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **10%** percent of Bidder’s maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond, cashier’s check, or certified check issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner’s damages in the case of a damages-form bond. Such forfeiture will be Owner’s exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the

Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The dates by which the Work is to be (a) substantially completed and (b) ready for final payment, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:
- A. Not Applicable.**
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute without an increase in bid price.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable

to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder’s name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder’s authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder’s licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such

certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Lump Sum*

A. Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.

13.02 *Base Bid with Alternates*

A. Bidders must submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.

ARTICLE 14—SUBMITTAL OF BID

14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.

14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.

14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

14.04 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

14.05 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.

14.06 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid and

the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 15—OPENING OF BIDS

- 15.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 16—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 16.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 17—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 17.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 17.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 17.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 17.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 17.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 17.06 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.
- 17.07 Local and Regional Buying Preferences. The Contractor is requested to use American products in the performance of this Contract whenever the quality and price are comparable with other goods.
- 17.08 Environmental Preference. The City of Creve Coeur promotes environmentally sustainable practices by purchasing environmentally preferable products when cost, quality, variety, quantity, delivery time, and other defined specifications are no significantly inferior to competing commodities and services. Whenever possible, proposals shall provide applicable information relating to how the vendor's product is environmentally preferable. Environmentally preferable products are commodities or services that carry the certification of one (1) of the following national independent environmental certifying programs:

EPEAT (Electronic Product Environmental Assessment)

Energy Star

Environmental Choice (Canada EcoLogo)

Forest Stewardship Council

Green Guard for Children and Schools

Green Seal

Green-e

USDA Organic

Or that assume one (1) or more of the following qualities to a greater degree than comparable commodities and services:

Biobased

Biodegradable

Carcinogen-free

Chlorofluorocarbon-free (CFC-free)

Compostable

Durable or reusable, as opposed to single-use or disposable

Energy efficient

Heavy-metal free (e.g. no lead, mercury, cadmium)

Less hazardous

Low volatile organic compound (VOC) content

Low-toxicity

Made from rapidly renewable materials

Persistent, bioaccumulative toxic free (PBT-free)

Procured from vendors and contractors that follow green policies in their own operations.

Produced locally or regionally (to minimize environmental costs associated with shipping)

Recyclable

Recycled content

Reduced greenhouse gas emissions

Reduced packaging, especially polystyrene

Refurbished

Resource efficiency

Upgradeable

Water Efficient

ARTICLE 18—BONDS AND INSURANCE

- 18.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any),

and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

- 18.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 19—SIGNING OF AGREEMENT

- 19.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 20—PREVAILING WAGE RATES

- 20.01 Contracts for work described herein shall be subject to the State Prevailing Wage Statutes. A wage rate determination has been obtained from the State, as published on March 10, 2022 and has been included in these specifications. Award of this project is subject to the statutes as listed. The Contractor is responsible for changes in the wage rate determination for Work performed through the slated completion date of the project without an increase in cost to the Owner.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is exempt from Missouri state sales and use taxes on materials and equipment to be incorporated in the Work. (Exemption No. 12487813). Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions

ARTICLE 22—MISCELLANEOUS FORMS

- 22.01 The following forms for Non-Collusion Affidavit and Contractor's Affidavit for Public Construction Projects shall be included with the Bid Form.

NON-COLLUSION AFFIDAVIT

Project: Creve Coeur Ice Arena – Refrigeration System Replacement
11400 Olde Cabin Rd, Creve Coeur, Missouri 63141

STATE OF MISSOURI,
COUNTY OF ST. LOUIS,

_____, being first duly sworn, deposes and says that he is
_____*(sole owner, partner, president, secretary, etc.) of
_____, the party making the foregoing bid; that
such bid is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization or corporation; that such bid is genuine and not collusive or sham; that said bidder had not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that any one shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the bid price of said bidder or of any other bidder, or to fix any overhead, profit or cost element of such bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in such bid are true; and, further, that said bidder had not, directly or indirectly, submitted his bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, or to any other individual except to such person or persons as have a partnership or other financial interest with said bidder in his general business.

Affiant further certifies that bidder is not financially interested in, or financially affiliated with, any other bidder for the above project.

SIGNED: _____

Title: _____

Subscribed and sworn to before me this ____ day of _____, 2023.

Seal of Notary

Notary Public
My Commission Expires: _____

* In completing this form the title that is not applicable should be struck out. For example, if the Contractor is a corporation and this form is to be executed by its president, the words "Sole owner, a partner, secretary, etc." should be struck out.

CONTRACTOR'S AFFIDAVIT FOR PUBLIC CONSTRUCTION PROJECTS

STATE OF MISSOURI)
) ss
COUNTY OF ST. LOUIS)

The undersigned, being duly sworn, does state and depose as follows:

1. I am the _____(title) of _____(company) which is a contractor on the **Creve Coeur Ice Arena – Refrigeration System Replacement (the Project)**, and authorized to sign this Affidavit on the Company's behalf.

2. I have verified the information set forth in this Affidavit for the Contractor. If any subcontractors have been retained on the Project, I have also verified the information as to any subcontractor.

3. The Contractor and its subcontractors have Workers' Compensation Insurance that covers its employees working on the Project and such insurance meets or exceeds the requirements established by law.

4. The Contractor and its subcontractors have verified the U.S. citizenship or lawful status of all workers employed on the Project and do not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

5. The Contractor and its subcontractors have been informed by the City of the requirements to pay prevailing wage and will pay the prevailing wages to all workers employed on the Project as established by the applicable Annual Wage Order for the St. Louis County, Missouri, or the federal wage order, whichever is greater.

6. The Contractor and its subcontractors are in compliance with federal law requiring an accredited apprenticeship program, if applicable.

7. The Contractor and its subcontractors are enrolled and participate in a federal work authorization program with respect to employees working in connection with the contracted services. Further Affiant sayeth naught.

Authorized Officer of Contractor

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My commission expires:_____

SECTION 004115

FIRST-TIER SUBCONTRACTOR LIST

FIRST-TIER SUBCONTRACTOR NAMES (Legal name of company as registered with the Secretary of State)	Name of City where company home office is located

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SECTION 004113

BID FORM

Creve Coeur Ice Arena – Refrigeration System Replacement

Creve Coeur, MO

B32 Project No. 900.23.486

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Creve Coeur, City Government Office located at 300 New Ballas Road, Creve Coeur, MO 63141.

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.

Addendum, Date

_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- E. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- F. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- G. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- I. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Lump Sum Bid Price for Base Bid	\$
Alternate 1 – Move all VFDs outside of Motor Control Center [Add] [Deduct]	\$

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete on or before November 4, 2024, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before November 22, 2024 and Milestone 1 for start up of temporary chiller system and ice rink floor to temperature on or before June 1, 2024.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - D. Contractor's License No.: OR Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - E. Required Bidder Quality Assurance Information as required in Section 131811 – Ice Rink General Requirements;
 - F. Non-Collusion Affidavit. See Instructions to Bidders Section.
 - G. Affidavit for Construction Projects. See Instructions to Bidders Section.

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature] _____

[Printed name] _____

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____

(where applicable)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

SECTION 004170

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*): City of Creve Coeur, City Government Office located at 300 New Ballas Road, Creve Coeur, MO 63141.

BID

Bid Due Date: June 1, 2023

Description (*Project Name— Include Location*): Creve Coeur Ice Arena – Refrigeration System Replacement

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Creve Coeur Ice Arena – Refrigeration System Replacement
Creve Coeur, MO
Project No. 900-23-486

Bid Bond
00 41 70-1

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SECTION 005100
NOTICE OF AWARD

Date of Issuance:

Owner:	City of Creve Coeur, MO	Owner's Project No.:	NA
Engineer:	B32 Engineering Group, Inc.	Engineer's Project No.:	900-23-486
Project:	Creve Coeur Ice Arena – Refrigeration System Replacement		
Contract Name:			
Bidder:			
Bidder's Address:			

You are notified that Owner has accepted your Bid dated **June 1, 2023** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Base bid work described in the contract documents.

The Contract Price of the awarded Contract is \$[**Contract Price**]. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

4 unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **4** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **None**

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **City of Creve Coeur, Missouri**

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

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SECTION 005213

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and
between

City of Creve Coeur, Missouri

("Owner") and

("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: In general, work consists of constructing a new ammonia-based refrigeration system and improvements to the existing refrigeration room including demolition of the existing R-22 based refrigeration system, demolition of mechanical and electrical system and doors, new refrigeration equipment, piping, insulation, electrical, control systems, electrical, mechanical, doors and related work.

ARTICLE 2 – THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Refrigeration System Replacement

ARTICLE 3 – ENGINEER

- 3.01 The Project has been designed by B32 Engineering Group, Inc..
- 3.02 The Owner has retained B32 Engineering Group, Inc. ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

- A. The Work will be substantially completed on or before November 4, 2024, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before November 22, 2024.
- B. Parts of the Work shall be substantially completed on or before the following Milestone(s):
1. Milestone 1: Temporary chiller connected and ice rink floor temperature at temperature required for Owner to make ice on or before June 1, 2024.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. Substantial Completion: Contractor shall pay Owner \$ 1,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$ 1,000 for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.
 4. Milestones: Contractor shall pay Owner \$ 1,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work other than Unit Price Work, a lump sum of: \$.
- B. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15 day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 97.5 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 150 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

- 7.01 All amounts not paid when due shall bear interest at the rate of 1.0 percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.
- K. Contractor certifies that the company is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to ■■■, inclusive).
 - 2. Performance bond (pages ■■■ to ■■■, inclusive).
 - 3. Payment bond (pages ■■■ to ■■■, inclusive).
 - 4. Other bonds.
 - a. ■■■ (pages ■■■ to ■■■, inclusive).
 - 5. General Conditions (pages ■■■ to ■■■, inclusive).
 - 6. Supplementary Conditions (pages ■■■ to ■■■, inclusive).
 - 7. Specifications as listed in the table of contents of the Project Manual.
 - 8. Drawings (not attached but incorporated by reference) consisting of ■■■ sheets with each sheet bearing the following general title: ■■■ [or] the Drawings listed on the attached sheet index.

9. Addenda (numbers █ to █, inclusive).
10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages █ to █, inclusive).
11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

10.07 *Equal Opportunity and Non-Discrimination*

- A. The Contractor will comply with all provisions of federal, state, and local codes, ordinances, and regulations governing the regulation of Equal Employment Opportunity and Non-Discrimination.
- B. In the event that any or all of the provision(s) of this Article conflict with federal, state, or other local laws, ordinances, or regulations, then the requirements of such federal, state, or local laws, ordinances, or regulations shall prevail. Compliance with the foregoing provisions shall not relieve the Contractor from adherence to any and all additional requirements regarding equal employment or non-discrimination set forth in such federal, state, or other local laws, ordinances, or regulations.
- C. During the performance of this contract, the Contractor, for itself, its assignees and successors, in interest (hereinafter referred to as the "Contractor") agrees, as follows:
1. Compliance with Regulations: The Contractor shall comply with Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

Further, on any federal assisted contract, the Contractor and sub-contractor agree to comply with the Equal Employment Opportunity

provisions cited in CFR 23, Subpart D – Construction Contract Equal Employment Opportunity Compliance Procedures, CFR 49 – Non-Discrimination in Federally-assisted Programs of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964, E.E. 11246 and Title VII of the Civil Rights Act of 1964.

2. Nondiscrimination: The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, national origin, income, limited English proficiency, sex, gender identity, sexual orientation, age or disability in the selection, retention, and treatment of subcontractors, including procurements of materials in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contractor covers a program set for in Appendix B of the Regulations.
3. Solicitation for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under the contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, income, limited English proficiency, sex, gender identity, sexual orientation, age or disability.
4. Information and Reports: The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the State Highway Department of the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the State Highway Department or the Federal Highway Administration, as appropriate, and shall set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event the contractor's noncompliance with the nondiscrimination provisions of this contract, the State Highway Department shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - i. Withholding payments to the contractor under the contract until the contractor complies and/or
 - ii. Cancellation, termination or suspension of the contract, in whole or in part.
6. Incorporation of Provisions: The contractor shall include provisions of paragraphs (1) through (5) in every subcontract, including procurement of material and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the State Highway Department or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a contractor

becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the State Highway Department to enter into such litigation to protect the interests of the State, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

City of Creve Coeur, Missouri

By: _____

By: _____

Title: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

300 New Ballas Road

Creve Coeur, MO 63141

License No.: _____

(where applicable)

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

SECTION 005500
NOTICE TO PROCEED

Owner: City of Creve Coeur, MO Owner's Project No.: NA
Engineer: B32 Engineering Group, Inc. Engineer's Project No.: 900-23-486
Contractor: _____ Contractor's Project No.: NA
Project: Creve Coeur Ice Arena - Refrigeration System Replacement
Contract Name: Creve Coeur Ice Arena - Refrigeration System Replacement
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The date by which Substantial Completion must be achieved is **November 4, 2024**, and the date by which readiness for final payment must be achieved is **November 22, 2024**.

Before starting any Work at the Site, Contractor must comply with the following: **None**.

Owner: City of Creve Coeur, Missouri
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____
Copy: Engineer

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SECTION 006113.13
PERFORMANCE BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*: City of Creve Coeur, Government Office located at 300 Ballas Road, Creve Coeur, MO 63141

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*: Creve Coeur Ice Arena – Refrigeration System Replacement

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)

Contractor's Name and Corporate Seal

By: _____

Signature

Print Name

Title

Attest: _____

Signature

Title

(seal)

Surety's Name and Corporate Seal

By: _____

Signature *(attach power of attorney)*

Print Name

Title

Attest: _____

Signature

Title

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed

by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all

valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows: None.

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SECTION 006113.16

PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*: City of Creve Coeur, Government Office located at 300 Ballas Road, Creve Coeur, MO 63141

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*: Creve Coeur Ice Arena – Refrigeration System Replacement

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows: None.

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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GUIDELINES FOR USE OF EJCDC® C-700, STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), is the foundation document for the EJCDC Construction Series. The General Conditions define the basic rights, responsibilities, risk allocations, and contractual relationship of the Owner and Contractor, and establish how the Contract is to be administered.

2.0 OTHER DOCUMENTS

EJCDC documents are intended to be used as a system and changes in one EJCDC document may require a corresponding change in other documents. Other EJCDC documents may also serve as a reference to provide insight or guidance for the preparation of this document.

These General Conditions have been prepared for use with either EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price), or EJCDC® C-525, Agreement Between Owner and Contractor for Construction Contract (Cost-Plus-Fee) (2018 Editions). The provisions of the General Conditions and the Agreement are interrelated, and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018).

The full EJCDC Construction series of documents is discussed in the EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018).

3.0 ORGANIZATION OF INFORMATION

All parties involved in a construction project benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. Careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition) when preparing documents. EJCDC® N-122/AIA® A521 is available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC's sponsoring organizations.

If CSI MasterFormat™ is used for organizing the Project Manual, consult CSI MasterFormat™ for the appropriate document number (e.g., under 00 11 00, Advertisements and Invitations), and accordingly number the document and its pages.

4.0 EDITING THIS DOCUMENT

Remove these Guidelines for Use. Some users may also prefer to remove the two cover pages.

Although it is permissible to revise the Standard EJCDC Text of C-700 (the content beginning at page 1 and continuing to the end), it is common practice to leave the Standard EJCDC Text of C-700 intact and unaltered, with modifications and supplementation of C-700's provisions set forth in EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018). If the Standard Text itself is revised, the

user must comply with the terms of the License Agreement, Paragraph 4.0, Document-Specific Provisions, concerning the tracking or highlighting of revisions. The following is a summary of the relevant License Agreement provisions:

1. The term “Standard EJCDC Text” for C-700 refers to all text prepared by EJCDC in the main body of the document. Document covers, logos, footers, instructions, or copyright notices are not Standard EJCDC Text for this purpose.
2. During the drafting or negotiating process for C-700, it is important that the two contracting parties are both aware of any changes that have been made to the Standard EJCDC Text. Thus, if a draft or version of C-700 purports to be or appears to be an EJCDC document, the user must plainly show all changes to the Standard EJCDC Text, using “Track Changes” (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions.
3. If C-700 has been revised or altered and is subsequently presented to third parties (such as potential bidders, grant agencies, lenders, or sureties) as an EJCDC document, then the changes to the Standard EJCDC Text must be shown, or the third parties must receive access to a version that shows the changes.
4. Once the document is ready to be finalized (and if applicable executed by the contracting parties), it is no longer necessary to continue to show changes to the Standard EJCDC Text. The user may produce a final version of the document in a format in which all changes are accepted, and the document at that point does not need to include any “Track Changes,” redline/strikeout, highlighting, or other indication of additions and deletions to the Standard EJCDC Text.

5.0 LICENSE AGREEMENT

This document is subject to the terms and conditions of the **License Agreement, 2018 EJCDC® Construction Series Documents**. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC’s sponsoring organizations.

END NOTES (DELETE ALL ABOVE INFORMATION BEFORE PRINTING FINAL)

SECTION 007200

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
- 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 - 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 - 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 - 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 - 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 - 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 - 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 - 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 - 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 - 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
 - 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 Patent Fees and Royalties

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 Delegation of Professional Design Services

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.
- B. *Change Proposal Procedures*
 - 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
 - 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:
 - 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
 - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 6. Expenses incurred in preparing and advancing Claims.
 - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
 - 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
 - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:* Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance:* Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 007300

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No suggested Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

- B. *Electronic Documents Protocol:* The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol ("EDP" or "Protocol") for exchange of electronic transmittals.
 - 1. *Basic Requirements*
 - a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.

- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
 - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **24** MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.

- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.
- h. The Owner may operate a Project information management system (also referred to in this EDP as "Project Website") for use of Owner, Engineer and Contractor during the Project for exchange and storage of Project-related communications and information. Except as otherwise provided in this EDP or the General Conditions, use of the Project Website by the parties as described in this Paragraph will be mandatory for exchange of Project documents, communications, submittals, and other Project-related information. The following conditions and standards will govern use of the Project Website:
 - 1) Describe the period of time during which the Project Website will be operated and be available for reliance by the parties;
 - 2) Provide any minimum system infrastructure, software licensing and security standards for access to and use of the Project Website;

- 3) Describe the types and extent of services to be provided at the Project Website (such as large file transfer, email, communication and document archives, etc.); and
- 4) Include any other Project Website attributes that may be pertinent to Contractor's use of the facility and pricing of such use.

C. *Software Requirements for Electronic Document Exchange; Limitations*

1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.
 - a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. *Requests by Contractor for Electronic Documents in Other Formats*

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
 - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely, and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of

accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.

- b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
 - c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
 - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at **\$125** per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

No suggested Supplementary Conditions in this Article.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

No suggested Supplementary Conditions in this Article.

4.05 *Delays in Contractor's Progress*

No suggested Supplementary Conditions in this Article.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.03 *Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		None

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
None		None

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at **City Government Office located at 300 Ballas Road, Creve Coeur, MO 63141** during regular business hours, or may request copies from Engineer.

5.06 Hazardous Environmental Conditions

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		None

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
None		None

ARTICLE 6—BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

6.03 *Contractor's Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **Chiodini Architects and G&W Engineering Corporation.**
- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$1,000,000
Bodily injury by disease—aggregate	\$1,000,000
Employer's Liability	
Each accident	\$1,000,000
Each employee	\$1,000,000
Policy limit	\$1,000,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and

3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
 6. Any limitation or exclusion based on the nature of Contractor's work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$1,000,000
Products—Completed Operations Aggregate	\$1,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

- J. *Automobile Liability*: Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$1,000,000
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$1,000,000
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

- K. *Umbrella or Excess Liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$2,000,000
General Aggregate	\$2,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements*: Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of \$[specify amount] after accounting for partial attribution of its limits to underlying policies, as allowed above.
- M. *Contractor's Pollution Liability Insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of

pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	N/A
General Aggregate	N/A

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provisions:

F. *Builder's Risk Requirements:* The builder's risk insurance must:

1. be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).
 - a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
 - b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to Owner and Contractor.
2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).
4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

5. extend to cover damage or loss to insured property while in transit.
6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
8. include performance/hot testing and start-up, if applicable.
9. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.
10. include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:
 - a. None.
11. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties:
 - a. None.

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provision:

- G. *Coverage for Completion Delays:* The builder's risk policy will include, for the benefit of Owner, loss of revenue and soft cost coverage for losses arising from delays in completion that result from covered physical losses or damage. Such coverage will include, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, compensation for loss of net revenues, rental costs, and attorneys' fees and engineering or other consultants' fees, if not otherwise covered.

ARTICLE 7—SC-6.04 CONTRACTOR'S RESPONSIBILITIES

7.03 Labor; Working Hours

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be **7am to 6pm daily Monday through Friday and 9am to 6pm Saturday through Sunday**

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

- D. **Contractor** shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 8—OTHER WORK AT THE SITE

No suggested Supplementary Conditions in this Article.

ARTICLE 9—OWNER’S RESPONSIBILITIES

No suggested Supplementary Conditions in this Article.

ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

SC-10.03 Add the following new subparagraph immediately after Paragraph 10.03.A:

1. On this Project, by agreement with the Owner, the Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work.

ARTICLE 11—CHANGES TO THE CONTRACT

No suggested Supplementary Conditions in this Article.

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.03 *Substantial Completion*

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.03 *Attorneys' Fees*

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18—MISCELLANEOUS

18.01 *Labor and Material*

- A. Unless otherwise specifically noted, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work
- B. The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him. If the City reasonably objects to any person employed by the Contractor, the employee shall be immediately dismissed.
- C. The Contractor shall comply with, and shall be bound by, the provisions of Missouri law pertaining to the payment of wages on public works projects contained in MO.Rev.Stat. SS290.210 through 290.340, and any amendments thereto (which are incorporated herein by reference), including, but not limited to the following:
 - 1. In accordance with MO.Rev.Stat. S290.250, the Contractor shall not pay less than the prevailing hourly rate of wages specified by the Missouri Department of Labor and Industrial Relations Division of Labor Standards to all workmen performing work under the Contract.
 - 2. In accordance with MO.Rev.Stat. S290.250, the Contractor shall forfeit as a penalty to the City one hundred dollars (\$100.00) for each workman employed for each calendar day, or portion thereof, such workman is paid less than the said stipulated rates for any work done under the Contract, by him or by any Subcontractor under him and shall include provisions in all bonds guaranteeing the faithful performance of said prevailing hourly wage clause.
 - 3. In accordance with MO.Rev.Stat. S290.265, the Contractor and each Subcontractor shall post a clearly legible statement of all prevailing hourly wage rates to be paid to all workmen employed to complete the Work in a prominent and easily accessible place at the site of the Work and such notice shall remain posted during the full time that any workmen shall be employed on the Work. Certified payrolls shall also be submitted prior to final payment for all work completed by the Contractor or Subcontractors.

4. In accordance with MO.Rev.Stat. SS290.290, before final payment is made an affidavit must be filed by the Contractor stating that he has fully complied with the prevailing wage law. No payment shall be made unless and until this affidavit is filed in proper form and order.
- D. The Contractor shall execute and complete the Work in such a manner that avoids jurisdictional and other disputes among labor unions.

18.02 *Alien Registration, Compliance, and Enforcement*

- A. DEFINITIONS. As used in this Section 5.8, the following terms shall have the following meanings:
 1. "Business entity" – any person or group of persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood. The term "business entity" shall include but not be limited to self-employed individuals, partnerships, corporations, contractors, and subcontractors. The term "business entity" shall include any business entity that possesses a business permit, license, or tax certificate issued by the state, any business entity that is exempt by law from obtaining such a business permit, and any business entity that is operating unlawfully without such a business permit. The term "business entity" shall not include a self-employed individual with no employees or entities utilizing the services of direct sellers as defined in subdivision (17) of subsection 12 of section 288.034, RSMo;
 2. "Contractor" – a person, employer, or business entity that enters into an agreement to perform any service or work or to provide a certain product in exchange for valuable consideration. This definition shall include but not be limited to a general contractor, subcontractor, independent contractor, contract employee, project manager, or a recruiting or staffing entity;
 3. "Employee" – any person performing work or service of any kind or character for hire within the state of Missouri;
 4. "Employer" – any person or entity employing any person for hire within the state of Missouri, including a public employer. Where there are two or more putative employers, any person or entity taking a business tax deduction for the employee in question shall be considered an employer of that person for purposes of this section;
 5. "Employment" – the act of employing or state of being employed, engaged, or hired to perform work or service of any kind or character within the state of Missouri;
 6. "Federal work authorization program" – any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L.99-603;
 7. "Knowingly" – a person acts knowingly or with knowledge:
 - i. With respect to the person's conduct or to attendant circumstances when the person is aware of the nature of the person's conduct or that those circumstances exist; or

- ii. With respect to a result of the person's conduct when the person is aware that the person's conduct is practically certain to cause that result;
- 8. "Municipality" – the City of Creve Coeur, Missouri.
- 9. "Public employer" – every department, agency, or instrumentality of the state of Missouri or any political subdivision of the state of Missouri;
- 10. "Unauthorized alien" – an alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. 1324a(h)(3);
- 11. "Work" – any job, task, employment, labor, personal services, or any other activity for which compensation is provided, expected or due, including but not limited to all activities conducted by business entities.

B. ILLEGAL ACTS.

- 1. No business entity or employer may knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the municipality.
- 2. Accordingly, if the amount to be paid pursuant to this contract or grant exceeds five thousand dollars by the municipality the contracting or grant recipient business entity shall, as a condition of the award of contract or grant, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. No such business entity or employer shall violate Subsection 5.8.2.1 of this Section.
- 3. The affidavit shall be approved as to form by the municipal attorney.
- 4. An employer may enroll and participate in a federal work authorization program and shall verify the employment eligibility of every employee in the employer's hire whose employment commences after the employer enrolls in a federal work authorization program. The employer shall retain a copy of the dated verification report received from the federal government. Any business entity that participates in such program shall have an affirmative defense that such business entity has not violated Subsection 5.8.2.1 of this Section.
- 5. A general contractor or subcontractor of any tier shall not be liable under Subsection 5.8.2.1 of this Section when such general contractor or subcontractor contracts with its direct subcontractor who violates Subsection 5.8.2.1 of this Section, if the contract binding the contractor and subcontractor affirmatively states that the direct subcontractor is not knowingly in violation of Subsection 5.8.2.1 of this Section and shall not henceforth be in such violation and the contractor or subcontractor receives a sworn affidavit under the penalty of perjury attesting to the fact that the direct subcontractor's employees are lawfully present in the United States.
- 6. The determination of whether a worker is an unauthorized alien shall be made by the federal government. A determination of such status of an individual by the federal government shall create a rebuttable presumption as to that individual's status in any judicial proceedings brought under this section.

7. Should the federal government discontinue or fail to authorize or implement any federal work authorization program, the municipality shall review this section for the purpose of determining whether this section is no longer applicable and should be repealed.

18.03 *Advance Notice and Hours of Work*

- A. All work is to be accomplished between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, unless alternate hours are approved and agreed upon by the City. No work shall be performed on Saturdays, Sundays, or legal holidays (as defined in Section 7.6 below) unless approved by the Director of Public Works.
- B. The Contractor may perform night-time operations with approval from the City. A written request shall be submitted to the City seven (7) calendar days prior to the proposed commencement of night-time operations. All night-time operations shall be accomplished between the hours of 8:00 p.m. and 6:00 a.m. Sunday through Thursday.
- C. The Contractor electing to perform night-time operations may do so with no additional cost to the City.

18.04 *Overtime and Holidays*

- A. In order to provide sufficient control of the work, the Contractor shall be required to inform the City of scheduled overtime work, including work on Saturdays, Sundays, and City holidays as given below at least forty-eight (48) hours in advance of any such work. If the Contractor fails to appear on a scheduled overtime period, the City shall deduct the cost for the City's assigned personnel from the Contract Sum for the time period scheduled.
- B. City Holidays.
 1. There are ten (10) holidays observed by the City and designated as "City holidays." They are:
 - i. New Year's Day
 - ii. Martin Luther King, Jr. Day
 - iii. Presidents Day
 - iv. Memorial Day
 - v. Independence Day (Fourth of July)
 - vi. Labor Day
 - vii. Veterans' Day
 - viii. Thanksgiving Day
 - ix. Day after Thanksgiving
 - x. Christmas Day
 2. No work shall be performed on a City holiday, or the day(s) designated by the City to be in observance of these holidays, unless otherwise ordered or approved by the Director of Public Works.

3. If a City holiday falls on a Saturday, that holiday shall be observed on the preceding Friday. Similarly, should a City holiday fall on a Sunday, that holiday shall be observed on the following Monday.

C. Other Holidays

1. Numerous religious and secular holidays are observed by many residents. Examples include Hanukah, Halloween, etc. The City reserves the right to require that the Contractor take special care to coordinate the work, site cleanliness, vehicle storage, and other aspects of the project to accommodate these holidays.

18.05 *Safety Programs, Compliance and Penalties*

A. As used in this section, the following terms shall mean:

1. "Construction" shall mean: construction, reconstruction, demolition, painting, and decorating, or major repairs;
2. "Department" shall mean the Missouri Department of Labor and Industrial Relations;
3. "Person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity;
4. "Municipality" shall mean the City of Creve Coeur, Missouri;
5. "Public works" shall mean all fixed works constructed for public use or benefit or paid for wholly or in part out of public funds.

B. Any person signing a contract to work on the construction of public works for the municipality shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty (60) days of beginning work on such construction project.

C. Any employee found on a worksite subject to this section without documentation of the successful completion of the course required under Section 7.7.2 herein shall be afforded twenty (20) days to produce such documentation before being subject to removal from the project.

D. The contractor to whom the contract is awarded and any subcontractor under such contractor shall require all on-site employees to complete the ten-hour training program required under Section 7.7.2 herein. The contractor shall forfeit as a penalty to the municipality, two thousand five hundred dollars (\$2,500.00) plus one hundred dollars (\$100.00) for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training. The penalty shall not begin to accrue until the time period in Sections 7.7.2 and 7.7.3 herein have elapsed. The municipality shall withhold and retain therefrom, all sums and amounts due and owing as a result of any violation of this section when making payments to the contractor under the contract. The contractor may withhold from any subcontractor, sufficient sums to cover any penalties the public body has withheld from the contractor resulting from the subcontractor's failure to comply with the terms of this section. If the payment has been

made to the subcontractor without withholding, the contractor may recover the amount of the penalty resulting from the fault of the subcontractor.

- E. In determining whether a violation of this section has occurred, and whether the penalty under Section 7.7.4 herein shall be imposed, the department shall investigate any claim of violation. Upon completing such investigation, the department shall notify the municipality and any party found to be in violation of this section of its findings and whether a penalty shall be assessed. Determinations under this section may be appealed in the Circuit Court of St. Louis County.
- F. If the Contractor or Subcontractor fails to pay the penalty within forty-five days following notification by the department, the department shall pursue an enforcement action to enforce the monetary penalty provisions of subsection 4 of this section against the Contractor or Subcontractor found to be in violation of this section. If the court orders payment of the penalties as prescribed under Section 7.7.4 herein, the Department shall be entitled to recover its actual cost of enforcement in addition to such penalty amount.

18.06 *Payments and Completion*

- A. Subject to Section 34.057 RSMo, the final payment shall not become due until the Contractor submits to the City:
 - 1. Affidavit that all payrolls, bills for materials and equipment, and other indebtedness incurred in connection with the execution and completion of the Work for which the City or its property might in any way be responsible, have been paid or otherwise satisfied;
 - 2. consent of the surety, if any, to final payment;
 - 3. an affidavit stating the Contractor has fully complied with the provisions and requirements of the Prevailing Wage Law, Section 290.210 through 290.340 as amended by MO.Rev. Stat.; and
 - 4. if required by the City, other data establishing payment or satisfaction of all such obligations, such as receipts, releases, and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the City. If any Subcontractor refuses to furnish a release or waiver required by the City, the Contractor may furnish a bond satisfactory to the City indemnifying the City against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all moneys that the City may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

EXHIBIT A—SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contactors Submittals (Shop Drawings, "or equal" requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner's and Engineer's responses to Contractor's Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version (most recent) or later			
DWG	Autodesk® AutoCAD .dwg format Version (most recent)			
DOC	Microsoft® Word .docx format Version (most recent)			
EXC	Microsoft® Excel .xls or .xml format Version (most recent)			
DB	Microsoft® Access .mdb format Version (most recent)			

SECTION 01 10 00
SUMMARY OF WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project Information (name, location, owner, engineer)
- B. Work Covered by the Contract Documents (in general)
- C. Work by Owner
- D. Work by Others
- E. Work Restrictions (access to site, use of site)
- F. Project Utility Sources

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions

1.03 PROJECT INFORMATION

- A. Project Identification
 - 1. Project Name: Creve Coeur Ice Arena – Refrigeration System Replacement
 - 2. Project Location: Creve Coeur, MO
 - 3. Project Description: In general, work consists of constructing a new ammonia-based refrigeration system and improvements to the existing refrigeration room including demolition of the existing R-22 based refrigeration system, demolition of mechanical and electrical system and doors, new refrigeration equipment, piping, insulation, electrical, control systems, electrical, mechanical, doors, and related work.
- B. Owner
 - 1. City of Creve Coeur, City Government Office located at 300 New Ballas Road, Creve Coeur, MO 63141.
 - 2. Owner's Representative: Jason Valvero, O. 314.432.3961 jvalvero@crevecoeurmo.gov.
- C. Engineer
 - 1. B32 Engineering Group, Inc.
2211 O'Neil Road
Hudson, Wisconsin 54016
Phone: 651.256.8837
Fax: 715.808.0842
 - 2. Engineer's Representative: Scott Ward, P.E. M. 651.492.1376
- D. A pre-bid walkthrough is scheduled for May 25, 2023 at 1pm.

1.04 START AND COMPLETION DATES

- A. Start Date: Work shall start on May 16, 2024.

- B. Completion dates as defined in the General Conditions:
 - 1. Substantial Completion: November 4, 2024
 - 2. Final Completion: November 22, 2024
 - 3. Milestone 1: Temporary chiller connected and ice rink floor at temperature: June 1, 2024

1.05 WORK BY OWNER

- A. None.

1.06 WORK BY OTHERS

- A. None.

1.07 WORK RESTRICTIONS

- A. Construction Operations:
 - 1. The construction area is located in the refrigeration room and outside the ice rink facility as shown on the plans.
 - 2. Limits: The Contractor shall confine his activities to the Owner's property and to the refrigeration room, resurfacers room and outside the ice rink facility where work is being performed unless approved by the Owner. The limits of construction shall be subject to the review and approval of the Engineer to insure that the contractor's operations do not encroach on private property or areas of the site that will unnecessarily limit the Owner's or public's access, use of the site, or interfere with the use of the facility.
- B. Access:
 - 1. During construction provide access for the Owner, Owner's representatives, work by others and work by Owner.
 - 2. Provide access to and from the site as required by law and by Owner.
 - 3. Keep all existing routes required by code open during the construction period; provide temporary exist signs and barriers if exist routes are temporally altered.
 - 4. Do not obstruct roadways, sidewalks, or other public ways without a permit.
 - 5. Provide safe access to areas remaining in operation during construction.
- C. Existing building spaces may not be used for storage unless approved by the Owner.
- D. Protection: Provide appropriate temporary barriers between stages of work when areas require differing limitations on allowed work.
- E. Advance Notice and Hours of Work: See Supplementary Conditions.
- F. The contractor shall be responsible for the following:
 - 1. Security of materials, facilities, etc. used to perform the work.
 - 2. Safety of all areas used during construction.
 - 3. Snow removal and disposal from the property as necessary to access the site and perform the work.
 - 4. Proper storage of materials and equipment.
- G. Existing Utility Interruptions:

1. Notify the Owner a minimum of 48 hours in advance of any interruptions to existing utilities. Do not proceed without written permission from the Owner or Owner's representative.

1.08 PROJECT UTILITY RESTRICTIONS

- A. The Contractor shall be responsible for utility notification according to State Statutes and coordination with others as required for this work. The following telephone numbers are provided for the Contractor's convenience.
 1. City of Creve Coeur Public Works. 314-872-2538
 2. Call before you dig: 1-800-344-7483
- B. Cost for utility coordination shall be incidental to project costs.

1.09 UTILITY REBATES AND GRAND FUNDING

- A. Utility Rebates: With the assistance of the local utility companies and associated agencies, the Owner is incorporating qualifying energy-efficient materials and equipment that will provide energy savings and eligibility for incentives. All contractors, sub-contractors and material and equipment suppliers shall cooperate with the Owner, Project Manager, Engineer, and the local utilities companies and associate agencies in providing and installing the specified energy-efficient equipment. Contractors, subcontractors, vendors, and material and equipment suppliers shall provide invoices itemizing the equipment and materials eligible for rebates and installed in the project. The invoices must indicate date of purchase, the size, type, make, model, serial number, project assembly identification tag, part number and/or equipment manufacturer (OEM) specification sheets. All invoices must be delivered to the Owner/Engineer within 10 calendar days of project Substantial Completion and all remaining required forms and documentation must be completed and submitted prior to final payment. For more information on invoice requirements, refer to the utility companies' websites.
- B. Grant Funding Requirements: See the Supplementary Conditions for additional requirements.

PART 2 - MATERIALS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

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SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments
- B. Documentation of changes in Contract Price and Contract Time
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED SECTIONS

- A. Sections in 004000 and 005000 – Contracting Forms and Supplements: Forms to be used.
- B. Section 005213 - Agreement Form. Contract Price, retainages, payment period, monetary values of unit prices.
- C. Section 007200 - General Conditions. Additional requirements for progress payments, final payment, changes in the Work.
- D. Section 007300 - Supplementary Conditions. Percentage allowances for Contractor's overhead and profit.
- E. Division 1 Sections.

1.03 SCHEDULE OF VALUES

- A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Engineer for approval.
- B. Forms filled out by hand will not be accepted.
- C. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- D. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization.
- E. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- F. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.
- G. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATION FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Engineer for approval.
- C. Forms filled out by hand will not be accepted.

- D. For each item, provide a column for listing each of the following:
 - 1. Item Number.
 - 2. Description of work.
 - 3. Scheduled Values.
 - 4. Previous Applications.
 - 5. Work in Place and Stored Materials under this Application.
 - 6. Authorized Change Orders.
 - 7. Total Completed and Stored to Date of Application.
 - 8. Percentage of Completion.
 - 9. Balance to Finish.
 - 10. Retainage.
- E. Execute certification by signature of authorized officer.
- F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- H. Submit one (1) electronic copy of each Application for Payment.
- I. Include the following with the application:
 - 1. Transmittal letter as specified for Submittals in Section 013000.
 - 2. Construction progress schedule, revised and current as specified in Section 013000.
 - 3. Current construction photographs specified in Section 013000.
 - 4. Partial release of liens from major Subcontractors and vendors.
 - 5. Project record documents as specified in Section 017000, for review by Owner which will be returned to the Contractor.
 - 6. Affidavits attesting to off-site stored products.
- J. When Engineer requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

- A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes not involving an adjustment to the Contract Price or Contract Time, Engineer will issue instructions directly to Contractor.
- C. For other required changes, Engineer will issue a document signed by Pasadena Convention Center instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
 - 1. The document will describe the required changes and will designate method of determining any change in Contract Price or Contract Time.
 - 2. Promptly execute the change.

- D. For changes for which advance pricing is desired, Engineer will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 7 days.
- E. Contractor may propose a change by submitting a request for change to Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 016000.
- F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
 - 1. For change requested by Engineer for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
 - 2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Engineer.
 - 3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
 - 4. For change ordered by Engineer without a quotation from Contractor, the amount will be determined by Engineer based on the Contractor's substantiation of costs as specified for Time and Material work.
- G. Substantiation of Costs: Substantiation of Costs: Provide full information required for evaluation.
 - 1. On request, provide following data:
 - a. Quantities of products, labor, and equipment.
 - b. Taxes, insurance, and bonds.
 - c. Overhead and profit.
 - d. Justification for any change in Contract Time.
 - e. Credit for deletions from Contract, similarly documented.
 - 2. Support each claim for additional costs with additional information:
 - a. Origin and date of claim.
 - b. Dates and times work was performed, and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
 - 3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- H. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.
- J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

- K. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Price, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
 - 1. All closeout procedures specified in Section 017000.
 - 2. Insurance certificates for all products and equipment where required.
 - 3. Proof that taxes, fees, and similar obligations are paid.
 - 4. Contractors Affidavit of Payment of Debts and Claims, AIA Document G706.
 - 5. Contractors Affidavit of Release of Liens, AIA Document G706A.
 - 6. Consent of Surety to Final Payment, AIA Document G707.
 - 7. Final pay request document shall accurately reflect all changes to the contract amount.
 - 8. All outstanding shopdrawings.
 - 9. Final liquidated damages settlement statement.
- C. Payments for all submittals shall be incidental to the cost of the project.

PART 2 - MATERIALS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 23 00
ALTERNATES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Description of Alternate Bids for this project.
- B. Refer to the technical specifications and drawings for additional information.

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Specifications

1.03 DEFINITIONS AND GENERAL REQUIREMENTS

- A. Alternate: Work that is added or deducted from the Base Bid amount if the Owner decides to accept the corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
- B. The cost or credit for each alternate is the net addition to, or deduction from, the Contract Sum to incorporate the alternate into the Work. No other adjustments are made to the Contract Sum.
- C. Alternates may be accepted by the Owner in any order and may be used to determine the low bidder.
- D. The bidder shall bid on each alternate specified as part of the specifications. Alternates not specifically requested will not be considered unless prior approval has been granted by the Engineer.

1.04 MEASUREMENT AND PAYMENT

- A. Measurement and Payment for Alternates shall be as stated on the Proposal Form and shall include all labor and materials required for a complete installation whether or not stated in the Alternate Schedule.

PART 2 - MATERIALS

2.01 DESCRIPTION OF ALTERNATE BIDS:

- A. Alternate 1: Move all Variable Frequency Drives (VFDs) to a location outside of the Motor Control Center (MCC).

PART 3 - EXECUTION

Not used.

END OF SECTION

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SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Preconstruction meeting
- B. Site mobilization meeting
- C. Progress meeting
- D. Construction progress schedule
- E. Progress photographs
- F. Coordination drawings

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Sections

1.03 REFERENCES

- A. Missouri Standard Specification for Highway Construction, 2022 or most recent version.

1.04 PROJECT COORDINATION

- A. Project Coordinator: General Contractor or Ice Rink Contractor.
- B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.
- C. During construction, coordinate use of site and facilities through the Project Coordinator.
- D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolutions of ambiguities and conflicts.
- E. Comply with instructions of the Project Coordinator's for use of temporary utilities and construction facilities.
- F. Coordinate field engineering and layout work under instructions of the Project Coordinator.
- G. Make the following types of submittals to the Engineer through the Project Coordinator:
 - 1. Requests of interpretations.
 - 2. Requests for substitutions.
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Manufacturer's instructions and field reports.
 - 6. Applications for payment and change order requests.
 - 7. Progress schedules.

8. Coordination drawings.
9. Closeout submittals.

PART 2 - MATERIALS

Not Used

PART 3 - EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. Engineer will schedule a meeting after Notice of Award.
- B. Attendance Required:
 1. Owner Representative
 2. Project Engineer
 3. Contractor
- C. Agenda:
 1. Execution of Owner-Contractor Agreement.
 2. Submission of executed bonds and insurance certificates.
 3. Distribution of Contract Documents.
 4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
 5. Designation and personnel representing the parties of Contract, Owner, Contractor and Engineer.
 6. Procedures and processing of field decisions, submittals, substitutions, applications for payment, proposal requests, Change Orders, and Contract closeout procedures.
 7. Scheduling.
- D. Record minutes and distribute copies within two(2) days after meeting to participants, with two (2) copies to Engineer, Owner, participants and those affected by decisions made.

3.02 SITE MOBILIZATION MEETING

- A. Engineer will schedule a meeting at the Project site prior to Contractor occupancy.
- B. Attendance Required:
 1. Contractor.
 2. Owner Representative.
 3. Engineer.
 4. Special Consultants.
 5. Contractor's Superintendent.
 6. Major Subcontractors.
- C. Agenda:
 1. Use of premises by Owner and Contractor.

2. Owner's requirements and occupancy prior to completion.
 3. Construction facilities and controls provided by Owner.
 4. Temporary utilities provided by Owner.
 5. Survey and site and building layout.
 6. Security and housekeeping procedures.
 7. Schedules.
 8. Application for payment procedures.
 9. Procedures for testing.
 10. Procedures for maintaining record documents.
 11. Requirements for start-up of equipment.
 12. Inspection and acceptance of equipment put into service during construction period.
- D. Record minutes and distribute copies within two (2) days after meeting to participants, with two (2) copies to Engineer, Owner, participants and those affected by decisions made.

3.03 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner's representatives, Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
1. Review minutes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems that impede, or will impede, planned progress.
 5. Review of submittal schedule and status of submittals.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.
- E. Record minutes and distribute copies within two (2) days after meeting to participants, with two (2) copies to Engineer, Owner, participants and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE

- A. See also requirements in General Conditions, Special Conditions and Section 013300 – Submittals.
- B. Submit a project progress schedule to the Engineer within ten (10) days after the date of the Effective Date of the Agreement and prior to starting work. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- C. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated on the schedules.
- D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- E. Indicate estimated percentage of completion for each item of Work at each submission.
- F. Provide separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products, and dated reviewed submittals will be required from Engineer. Indicate decision dates for selection of finishes.
- G. Submit updated and accurate construction schedule with each Application for Payment. If the construction schedule is not accurate, Application for Payment will not be processed.

3.05 PROGRESS PHOTOGRAPHS

- A. Submit photographs with each application for payment, taken not more than three (3) days prior to submission of application for payment.
- B. Photography Type: Digital; electronic files.
- C. Provide photographs of site and construction throughout progress of Work produced by an experienced photographer, acceptable to the Engineer.
- D. In addition to periodic, recurring views, take photographs of each of the following events:
- E. Views:
 - 1. Provide non-aerial photographs from four (4) cardinal views at each specified time, until Date of Substantial Completion.
 - 2. Consult with Engineer for instructions on views required.
 - 3. Provide factual presentation.
 - 4. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
- F. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
 - 1. Delivery Medium: Via email with project record photo CD.
 - 2. File Naming: Include project identification, date and time of view and view identification.
 - 3. PDF File: Assemble all photos into printable pages in PDF format, with 2 or 3 photos per page; each photo labeled with file name; one PDF file per submittal.
 - 4. Photo CD(s): Provide one (1) copy including all photos cumulative to date and PDF file(s), with files organized in separate folders by submittal date.
 - 5. Hard Copy: Printed hardcopy (grayscale) of PDF file and point of view sketch.

3.06 COORDINATION DRAWINGS

- A. Provide information required by Project Coordinator for preparation of coordination drawings.
- B. Review drawings prior to submission to Engineer.

END OF SECTION

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SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submittal Procedures.
- B. Construction Progress Schedule.
- C. Proposed Product List.
- D. Product Data.
- E. Shop Drawings.
- F. Samples.
- G. Design Data.
- H. Test Reports.
- I. Certificates.
- J. Manufacturer's Instructions.
- K. Manufacturer's Field Reports.
- L. Erection Drawings.

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Sections

1.03 SUBMITTAL PROCEDURES

- A. See also requirements in General Conditions and Special Conditions.
- B. Transmit each submittal with a letter of transmittal sequentially numbered. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, subcontractor, and supplier; pertinent drawing and detail number, and specification section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project. Coordinate submission of related items.
- F. Route all submittals as follows:
 - 1. General Contractor to Engineer. Submit one (1) electronic copy.
 - 2. Engineer to Owner and to Contractor.
- G. Submit one (1) complete electronic copy of each submittal unless specified otherwise.
- H. For each submittal for review, allow 15 days excluding deliver time to and from the Contractor excluding delivery time.

- I. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work.
- J. Provide space for Contractor and Engineer review stamps.
- K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with the requirements.
- L. Submittals not requested will not be recognized or processed.

1.04 CONSTRUCTION PROGRESS SCHEDULE

- A. See also requirements in General Conditions and Special Conditions and Section 013000-Administrative Requirements.
- B. Submit a project progress schedule to the Engineer prior to starting work. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- C. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated on the schedules.
- D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- E. Indicate estimated percentage of completion for each item of Work at each submission.
- F. Provide separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products, and dated reviewed submittals will be required from Engineer. Indicate decision dates for selection of finishes.
- G. Submit updated and accurate construction schedule with each Application for Payment. If construction schedule is not accurate, Application for Payment will not be processed.

1.05 PROPOSED PRODUCT LIST

- A. Within fifteen (15) days after date of Notice of Award, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.06 PRODUCT DATA

- A. See also requirements in General Conditions and Special Conditions.
- B. Product Data; Submit to Engineer for review for the limited purpose of checking conformance with information given and the design concept expressed in the contract documents. Provide copies and distribute in accordance with the General Conditions, Submittal Procedures and record documents.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents.

1.07 SHOP DRAWINGS

- A. See also requirements in General Conditions and Special Conditions.
- B. Shop Drawings: Submit to the Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Produce copies and distribute in accordance with the General Conditions and Submittal Procedures article and for record documents.
- C. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1.08 SAMPLES

- A. See also requirements in General Conditions and Special Conditions.
- B. Samples: Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Produce copies and distribute in accordance with the General Conditions and Submittal Procedures article and for record documents.
- C. Samples: For Selection as Specified in Product Sections:
 - 1. Submit to Engineer for aesthetic, color or finish selection.
 - 2. Submit samples to finishes from the full range of manufacturer's standard colors, textures, and patterns for Engineer's selection.
- D. Submit samples to illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- E. Include identification on each sample, with full Project information.
- F. Submit a minimum of two (2) samples; one of which will be retained by the Engineer and one of which will be retained by the Owner.
- G. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- H. Samples will not be used for testing purposes unless specifically stated in the specification section.

1.09 DESIGN DATA

- A. Submit for the Engineer's knowledge as contract administrator and for the Owner.
- B. Submit for information for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

1.10 TEST REPORTS

- A. Submit for the Engineer's knowledge as contract administrator and for the Owner.
- B. Submit test reports for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

1.11 CERTIFICATES

- A. When specified in individual specifications sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Engineer, in quantities specified for Product Data.

- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on materials or product, but must be acceptable to Engineer.

1.12 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.13 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for the Engineer's benefit as contract administrator and for the Owner.
- B. Submit report within fifteen (15) days of observation to Engineer for information.
- C. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.14 ERECTION DRAWINGS

- A. Submit reports for the Engineer's benefit as contract administrator and for the Owner.
- B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by the Engineer or Owner.

1.15 MEASUREMENT AND PAYMENT

- A. Measurement and payment for all work required in this Section shall be incidental to the project costs.

PART 2 - MATERIALS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Administrative and procedural requirements for quality assurance and quality control.

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Sections

1.03 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to references standard by date or issue current on date of Contract Documents, except when a specified date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. Should specified references standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. Neither the contractual relationships, duties, nor responsibilities of the parties in Contract nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.04 DEFINITIONS

- A. Quality Assurance: Activities, actions and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality Control: Tests, inspections, procedures, and related actions during and after the execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by the Engineer or Owner representative.

1.05 QUALITY ASSURANCE AND QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturer's instructions in full detail, including each step in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards of minimum quality for the Work except where more stringent tolerances, codes and specified requirements indicate higher standards or more precise workmanship.

- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements areas indicated on Shop Drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.06 TESTING AND INSPECTION SERVICES

- A. The Owner will employ and pay for specified services of an independent firm to perform testing and inspection of concrete, soils, and aggregates materials unless otherwise stated elsewhere in the Contract Documents. Employment of agency in no way relieves Contractor of obligations to perform Work in accordance with requirements of Contract Documents.
- B. The Contractor shall employ and pay for services of an independent agency or laboratory acceptable to the Owner to perform all other specified testing.
 - 1. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of the full time registered Engineer and responsible officer.
 - 2. Submit a copy of report of laboratory facilities inspection made by NITS Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
 - 3. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
 - 4. Testing agency shall comply with requirements ASTM E 329, ASTM E 543, ASTM C 1021, ASTM C 1077, and ASTM C 1093.
 - 5. Laboratory: Authorized to operate in the State of Missouri.
 - 6. Laboratory Staff: Maintain a full time professional registered Engineer, in the state where the project is located, on staff to review services.
- C. Testing, inspections and source quality control may occur on or off the project site. Perform off-site testing as required by the Engineer or the Owner.
- D. Agency Reports: After each test, promptly submit one (1) copy of report to Owner, Engineer and Contractor. When requested by Owner or Engineer, provide interpretation of test results. Include the following:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and specifications section.
 - 6. Location in the Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- E. Limits of Testing Agency:
 - 1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.

2. Agency of laboratory may not approve or accept any portion of Work.
3. Agency of laboratory may not assume any duties of Contractor.
4. Agency of laboratory has no authority to stop of Work.

1.07 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to references standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable codes.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Engineer prior to proceeding.
- F. Neither the contractual relationships, duties, nor responsibilities of the parties in Contract nor those of Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

PART 2 - MATERIALS

Not Used

PART 3 - EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with Manufactures' instructions, including each step in sequence.
- C. Should Manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

- A. Monitor fabrications and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of service.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
 - 5. Perform additional tests and inspections required by Engineer.
 - 6. Submit reports of all tests/inspections specified.
- B. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Engineer and laboratory 48 hours prior to expected time for operations requiring testing/inspection services unless a longer notification is required elsewhere in the Project Manual.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- C. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions to Engineer.
- D. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

3.04 MANUFACTURERS' FIELD SERVICE

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, and adjust and balance of equipment as applicable, and to initiate instructions when necessary.

- B. Submit qualifications of observer to Owner and Engineer 30 days in advance of required observations. Observer subject to approval of Owner.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufactures' written instructions.

3.05 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct an appropriate remedy or adjust payment.

END OF SECTION

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SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary telecommunications services.
- B. Temporary sanitary facilities.
- C. Temporary Controls: Barriers, enclosures, and fencing.
- D. Security requirements.
- E. Vehicular access and parking.
- F. Waste removal facilities and services.
- G. Project identification sign.
- H. Field office.

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Sections
- D. Section 015100 - Temporary Utilities
- E. Section 022200 – Selective Demolition

1.03 QUALITY ASSURANCE

- A. Standards and Regulations: Comply with applicable laws and regulations and the following:
 - 1. NFPA Code 241, "Building Construction and Demolition Operations".
 - 2. ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition".
 - 3. NECA Electrical Design Library "Temporary Electrical Facilities".
- B. Conditions of Use: Keep facilities clean and neat. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

1.04 SECURITY

- A. Provide security and facilities to protect Site, Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.05 VEHICULAR ACCESS AND PARKING

- A. Coordinate access and haul routes with governing authorities and Owner.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Existing parking areas may be used for construction parking. Coordinate with Owner.

PART 2 - PRODUCTS

2.01 CONSTRUCTION FENCE

- A. Provide 6-foot-high fence around construction site; equip with vehicular and pedestrian gates with locks if needed for protection of materials and safety of pedestrians.

2.02 ROOF PROTECTION

- A. Roofing Protection: Provide protective measures for areas on existing roof used for construction access, where materials are being moved or stored.
- B. Provide 1 1/2" ISO insulation with 3/4" plywood over ISO at all areas of work and foot traffic. Plywood is to be tied together.
- C. Prevent debris from entering the roof drains by placing filter fabric over the drains. When cleaning is complete, remove the filter fabric and properly dispose of collected debris.

2.03 FIELD OFFICES

- A. A separate field office is not required. Set up a location for a field work space in the existing building.

PART 3 - EXECUTION

3.01 BARRIERS AND ENCLOSURES

- A. Barriers: In general, provide barriers and covered walkways:
 - 1. Between active construction operations and completed areas of work, and between construction activity and Owner-occupied areas.
 - 2. To prevent unauthorized entry to construction areas, to allow for Owner's use of site and to protect existing facilities and adjacent properties from damage from construction operation and demolition.
 - 3. As required by governing authorities for public rights-of-way and for public access to existing building.
 - 4. For protection for plants designated to remain. Replace damaged plants.
 - 5. To protect non-owned vehicular traffic, stored materials, site, and structure from damage.
- B. Dust Barriers: In general, provide dust barriers between active construction operations and completed areas of work, and between construction activity and Owner-occupied areas. Provide dust barriers as required by Owner's Representative.
 - 1. Provide dust covers over Owner's equipment and furnishings. Use 6 mil thick clear plastic sheet and thoroughly tape seams to provide dust-proof cover.
 - 2. Speakers, lighting and other electronic equipment shall be covered **in accordance with manufacturer's recommendations**.
- C. Exterior Enclosures: Provide temporary insulated weather tight closure of exterior opening to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperature identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

- D. Interior Enclosures: Provide temporary partitions to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment. Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces. Where temporary enclosures are required to prevent noise transmission from interruption of Owner's Normal operations, sheath and insulate as needed.

3.02 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.
- B. Telecommunications services shall include:
 - 1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.
 - 2. Telephone: Mobile phone.
 - 3. Internet Connections: Minimum of one; DSL modem or faster.
 - 4. All necessary equipment for digital photography of project conditions and the transmittal thereof via e-mail to engineer and other parties.

3.03 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily clean and sanitary conditions.

3.04 PROTECTIONS

- A. Openings Between Floors: Shaft and chase spaces may terminate above occupied areas within building. Existing barriers between floors are not designed to prevent debris from falling through to bottom level. Provide appropriate barriers at all unprotected openings between floors during construction operations.
 - 1. Protect openings between floors with appropriate materials, providing full coverage of opening in a manner which will prevent personnel, equipment, construction materials and debris, from falling through; capable of withstanding loads imposed during construction operations; and secured to prevent unintentional removal.
- B. Roofing Protection: Provide protective measures for areas on existing roof and around curbed openings during installation of fans or other roof mounted units and areas where materials are being moved or stored.
- C. Construction Fence Erection: Provide fence panels with posts and post base-plates. Do not drive posts into ground, concrete walks or pavement.
 - 1. Fence Panels: 6'-0" high X 12'-0" long max.
 - 2. Provide hasp and pad lock at each gate.
 - 3. Secure wire mesh to outside face of posts with 9 ga. galvanized metal wire ties spaced not less than 16 inches on center. Install mesh to align with top of posts.
 - 4. Secure fabric screen to outside face of construction fence using 9 gage galvanized steel wire. Fasten fabric sheets at 18-inches o.c. through grommets to top rail, each line and corner post, and at bottom to wire mesh.

3.05 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition.

3.06 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- D. Dispose of all waste in accordance with all local, state, and federal regulations.

END OF SECTION

SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, and water.

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Sections
- D. Section 015000 - Temporary Facilities and Control

1.03 REFERENCES

- A. Missouri Standard Specification for Highway Construction, 2022 or most recent version.

1.04 TEMPORARY ELECTRICITY

- A. Comply with NEMA, NECA and UL standards and regulations for temporary electrical service. Install service in compliance with National Electrical Code (NFPA 70). Provide outlets and lighting as required for operations. Comply with applicable provisions of Division-26.
- B. Owner will pay for reasonable use of electricity related to the Work.
- C. Provide power service required from utility source.
- D. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.
- E. Provide main service disconnect and over-current protection at convenient location and meter.
- F. Permanent convenience receptacles may be utilized during construction.
- G. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.05 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Comply with NEMA, NECA and UL standards and regulations for temporary electrical service. Install service in compliance with National Electrical Code (NFPA 70). Provide outlets and lighting as required for operations. Comply with applicable provisions of Division-26
- B. Provide and maintain incandescent lighting for construction operations.
- C. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- D. Maintain lighting and provide routine repairs.
- E. Permanent building lighting may be utilized during construction.

1.06 TEMPORARY HEATING

- A. Existing facilities can be used to maintain air temperature in work area but cannot be used for frost removal operations.

1.07 TEMPORARY VENTILATION

- A. Provide temporary ventilation as required for a safe work site.

1.08 TEMPORARY WATER SERVICE

- A. Cost of Water Used: By Contractor.
- B. Connect to existing water source. Comply with applicable provisions of Division 22.
 - 1. Owner will pay for reasonable use of water related to the Work.
 - 2. Exercise measures to conserve water.
- C. Use trigger-operated nozzles for water hoses to avoid waste of water.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General Product Requirements
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations and procedures.
- F. Procedures for Owner-supplied products.
- G. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED SECTIONS

- A. Section 007200- General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Sections

1.03 SUBMITTALS

- A. Product Data Submittals: Submit manufacturers' standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 - MATERIALS

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.
- C. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

- A. Provide new products unless specially required or permitted by the Contract Documents.
- B. Do not use products having any of the following characteristics:
 - 1. Made using or containing CFC's or HCFC's.
- C. Where all other criteria are met, Contractor shall give preference to products that:
 - 1. Are extracted, harvested, and/or manufactured closer to the location of the project.
 - 2. Have longer documented life span under normal use.
 - 3. Result in less construction waste.
- D. Sustainably Harvested Wood:
 - 1. Definition: Wood-based materials include but are not limited to structural framing, dimension lumber, flooring, wood doors, finishes, and furnishings that are permanently installed in the project. Wood and wood-based products not permanently installed in the project are not included in the definition.
 - 2. Specific Wood-Based Fabrications. Fabricate of sustainably harvested wood when so specified elsewhere.
 - 3. Certification: Provide wood certified or labeled by an organization accredited by one of the following:
 - a. The Forest Stewardship Council: the Principles for Natural Forest Management; for Canada visit <http://www.fsccanad.org>, for the USA visit <http://www.fscus.org>.

2.03 PRODUCT OPTIONS

- A. Products Specified by References Standards or by Description Only: Use any product meeting those standards of description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specifications sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 - EXECUTION

3.01 SUBSTITUTION PROCEDURES

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- C. A request for substitution constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 2. Will provide the same warranty for the substitution as for the specified product.
 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete at no additional cost to the Owner.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- D. Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. Substitutions Submittal Procedure:
1. Submit one (1) electronic copy of request for substitution for consideration. Limit each request to one proposed substitution.
 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 3. The Engineer/Architect will notify Contractor in writing of decision to accept or reject request.

3.02 OWNER-SUPPLIED PRODUCTS

- A. See Section 011000 – Summary for identification of Owner-supplied products.
- B. Owner Responsibilities:
1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
 2. Arrange and pay for product delivery to site.
 3. On delivery, inspect products jointly with Contractor.
 4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
 5. Arrange for manufacturers' warranties, inspections, and service.
- C. Contractor Responsibilities:
1. Review Owner reviewed shop drawings, product data, and samples.
 2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
 3. Handle, store, install and finish products.
 4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturers' instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and place convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- H. Prevent contact with material that may cause corrosion, discoloration, or staining.
- I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures
- B. Requirements for alteration work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.
- C. Pre-installation meetings.
- D. Cutting and patching
- E. Surveying for layout out the work.
- F. Cleaning and protection.
- G. Starting of systems and equipment.
- H. Demonstration and instruction of Owner personnel.
- I. Closeout procedures, except payment procedures.
- J. General requirements for spare parts and maintenance service.
- K. Testing, Adjusting and Balancing.
- L. Protecting Installed Construction.
- M. Project Record Documents.
- N. Operation and Maintenance Data.
- O. Warranties and Bonds.
- P. Measurement and Payment.

1.02 RELATED SECTIONS

- A. Section 007200 - General Conditions
- B. Section 007300 - Supplementary Conditions
- C. Division 1 Sections

1.03 REFERENCES

- A. NFPA 241 – Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2009.

1.04 SUBMITTALS

- A. See Section 013000 – Administrative Requirements, for submittal procedures.
- B. Cutting and Patching: Submit written request in advance of cutting or alterations that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.

4. Visual qualities of sight exposed elements.
5. Work of Owner or separate Contractor.
- C. Project Record Documents:
 1. Accurately record actual locations of capped and active utilities.
 2. Submit final record documents to Engineer prior to claim for final Application for Payment.
- D. Final Application for Payment: See Section 012000 – Price and Payment Procedures.
- E. Provide submittals to Engineer and Owner that are required by governing or other authorities: See Section 012000 – Price and Payment Procedures.
- F. Operation and Maintenance Manuals:
 1. Submit draft electronic copy of one (1) volume of the Operation and Maintenance (O&M) Manuals within forty five (45) days of final inspection, start of training and substantial completion (whichever comes first).
 2. Engineer will review and return comments to the Contractor for revisions, additions, corrections, etc.
 3. Revise manuals and submit three (3) final hardcopy of the manuals and one (1) electronic copy prior to start of training.
 4. The O&M Manuals shall include the following:
 - a. Three ring binder with index and tabs separating information.
 - b. System description including:
 - 1) Description of controls including a step by step written description of how to operate the control system.
 - 2) Start-up and shut-down procedures description including a step by step written description of how to start up and shutdown the system including, but not limited to, system checks, safety device checks, valves number references, typical levels in vessels, etc.
 - c. Equipment and valve information including:
 - 1) Approved shop drawings.
 - 2) Parts list.
 - 3) Detailed wiring diagrams of all electrical and control systems and all other electrical and control information.
 - 4) Maintenance and operation information.
 - 5) Trouble shooting information.
 - 6) Current address and telephone information of manufacturers and service representatives for each piece of equipment.
 - 7) Warranties: Including project warranty and all equipment and material warranties.
 - 8) Valve list that includes: valve number, description, manufacturer, operation (normal closed or open, etc.). Provide schematic drawing of refrigeration system that show locations of each valve.
 - d. Test records.
 - 1) Material and fluid tests for concrete, sand, glycol, etc.

- 2) Pipe pressure tests for refrigeration system piping, rink floor piping, and transmission mains.
 - e. Certifications of inspections by regulatory agencies.
 - f. Record plan information of pipe routing, joint locations on all underground transmission mains, wiring diagrams, equipment layout, valve locations, etc.
 - g. Training and reporting forms.
 - 1) Provide daily checklist form for recording operation of refrigeration system.
- G. Warranties and Bonds:
- 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents with ten (10) days of acceptance.
 - 2. Make other submittals with ten (10) days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten (10) days after acceptance, listing the date of acceptance as the beginning of the warranty period.
- H. Rebate and Grant Programs: With the assistance of the local utilities companies and associated agencies, the Owner is incorporating qualifying energy-efficient materials and equipment that will provide energy savings and eligibility for incentives. All contractors, sub-contractors and material and equipment suppliers shall cooperate with the Owner, Project Manager, Engineer, and the local utilities companies and associate agencies in providing and installing the specified energy-efficient equipment. Contractors, subcontractors, vendors, and material and equipment suppliers shall provide invoices itemizing the equipment and materials eligible for rebates and installed in the project. The invoices must indicate date of purchase, the size, type, make, model, serial number, project assembly identification tag, part number and/or equipment manufacturer (OEM) specification sheets. All invoices must be delivered to the Owner/Engineer within 10 calendar days of project Substantial Completion and all remaining required forms and documentation must be completed and submitted prior to final payment. For more information on invoice requirements, refer to the utility companies websites.

1.05 QUALIFICATIONS

- A. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Engineer. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.
- B. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in the State in which the Project is located.
- C. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.06 PROJECT CONDITIONS

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barrier as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors and gases.

- D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
 - 1. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.
 - 2. See Section 015000 Temporary Facilities and Controls for additional requirements.
- E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
 - 1. Minimize amount of bare soil exposed at one time.
 - 2. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
 - 3. Provide erosion control systems around all stockpiles, storm sewer inlets and other areas to control erosion and sediment.
 - 4. Periodically inspect earthwork to detect evidence of erosion or sedimentation; promptly apply corrective measures.

1.07 COORDINATION

- A. See Section 011000 – Summary of Work, for occupancy-related requirements.
- B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- C. Notify affected utility companies and comply with their requirements.
- D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connection to, and placing in service, such equipment.
- E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spacers efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and clean-up of work of separate sections.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.08 MEASUREMENT AND PAYMENT

- A. Measurement and payment for all work required in this Section shall be incidental to the project costs.

PART 2 - MATERIALS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product section; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000 – Product Requirements.

2.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for all work required in this Section shall be incidental to the project costs.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristic, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Engineer four (4) days in advance of meeting.
- D. Prepare agenda and preside at meeting:

1. Review conditions of examination, preparation and installation procedures.
 2. Review coordination with related work.
- E. Record minutes and distribute copies within two (2) days after meeting to participants, with two (2) copies to Engineer, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Engineer of any discrepancies discovered.
- C. Contractor shall locate and protect survey control and reference points.
- D. Control datum for survey is that indicated on Drawings.
- E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines and levels. Locate lay out by instrumentation and similar appropriate means:
 1. Site improvements including pavement; stakes for grading, fill and topsoil placement; utility locations; slopes; and invert elevations.
 2. Grid or axis for structures.
 3. Building foundation, column locations, ground floor elevations.
- H. Periodically verify layouts by same means.

3.05 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERNATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents (if available) only.
 1. Verify that construction and utility arrangements are as shown.
 2. Report discrepancies to Engineer before disturbing existing installation.
 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 in locations indicated on drawings.

- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
 - 1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
 - 2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.
- D. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 - 2. Remove items indicated on drawings.
 - 3. Relocate items indicated on drawings.
 - 4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
 - 5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
 - 2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment required.
 - 3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
 - b. See Section 011000 – Summary of Work for other limitations on outages and required notifications.
 - c. Provide temporary connections as required to maintain existing systems in service.
 - 4. Verify that abandoned services serve only abandoned facilities.
 - 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- F. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing as necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
- G. Adapt existing work to fit new work:

1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.
 2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceiling to a smooth plane without breaks, steps, or bulkheads.
 3. Where a change of plane of ¼ inch or more occurs in existing work, submit recommendation for providing a smooth transition for Engineer review and request instructions.
 4. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.
- H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- I. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
 2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- J. Clean existing systems and equipment.
- K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site according to local, state and federal regulations; do not burn or bury.
- L. Do not begin new construction in alterations areas before demolition is complete.
- M. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
1. Complete the work.
 2. Fit products together to integrate with other work.
 3. Provide openings for penetration of mechanical, electrical, and other services.
 4. Match work that has been cut to adjacent work.
 5. Repair areas adjacent to cuts to required condition.
 6. Repair new work damaged by subsequent work.
 7. Remove samples of installed work for testing when requested.
 8. Remove and replace defective and non-conforming work.
- D. Execute work by methods that avoid damage to other work that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed with our prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 078400 – Firestopping or other related sections, to full thickness of the penetrated element.
- J. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.08 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site in accordance with all local, state and federal regulations; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

- A. Protect installed Work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products and equipment. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 SYSTEM STARTUP

- A. Coordinate schedule of start-up of various equipment and systems.
- B. Notify Engineer and Owner ten (10) days prior to start-up of each item unless specified elsewhere.

- C. Verify that each piece of equipment or systems has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment and system manufacturer.
- E. Execute start up under supervision of applicable manufacturer's representative in accordance with manufacturer's instructions.
- F. Verify that wiring and support components for equipment are complete and tested.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with 013300 Submittal Procedures that equipment or system has been properly installed and is functioning correctly.
- I. Provide all other start up requirements specified in the individual specification Sections.

3.11 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, alarms, and shutdown of each item of equipment at scheduled time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Provide a qualified person who is knowledgeable about the project to perform demonstration and instruction of owner personnel.

3.12 TESTING, ADJUSTING AND BALANCING

- A. Provide testing, adjusting and balancing as required or specified in individual specification Sections.
- B. Adjust operating Products and equipment to assure smooth and unhindered operation.

3.13 FINAL CLEANING

- A. Execute final cleaning prior to Substantial Completion.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stain and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Clean and replace filters of operating equipment.
- G. Clean debris from structure surfaces and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.
- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in accordance with all local, state and federal regulations; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities:
 - 1. Provide copies to Engineer and Owner.
- B. Notify Engineer when work is considered ready for Substantial Completion.
- C. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer review.
- D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- E. Notify Engineer when work is considered finally complete.
- F. Complete items of work determined by Engineer's final inspection.

3.15 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, service, touch up paint, and extra products in quantities specified in individual specification Sections.
- B. Maintenance Period: As indicated in specification sections or, in not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

3.16 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents use for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product selection description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.

3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish main floor datum.
 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 4. Field changes of dimensions and detail.
 5. Details not on original Contract drawings.
- G. Submit documents to Engineer with claim for final Application of Payment.

3.17 OPERATION AND MAINTENANCE DATA

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in form of an instructional manual.
- C. Binders: Commercial quality, 8 ½ x 11 inch text pages, three D size, 3 ring binders with durable plastic covers, 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- E. Sheets: Printed sheets in Part 1 shall have page protectors for each sheet. Printed sheets at the start and end of each additional section of the manual shall have page protectors.
- F. Drawings: Provide with reinforced
- G. Manual covers to have printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of manual when multiple manuals are required.
- H. Contents of Manuals:
 1. Table of Contents: Provide for each volume with each product or system identified, typed on white paper.
 2. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, subcontractors, and major equipment suppliers for each product or system.
 3. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of subcontractors and suppliers. Identify the following:
 - a. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
 - b. Description of each unit, equipment or system.
 - c. Significant design criteria, normal operating characteristics and limiting conditions for each equipment and system. Include performance curves, engineering data and tests.
 - d. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include winter, summer, and any other special operating instructions.

- e. Instructions of care and maintenance instructions for equipment and systems including, but not limited to, manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
 - f. Maintenance Requirements: Include routine maintenance procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - g. Detailed description of controls including a step-by-step written description of how to operate the control system.
 - h. Start-up and shut-down procedure description including a step by step written description of how to start up and shutdown the system including, but not limited to, system checks, safety device checks, valves number references, typical levels in vessels, etc.
 - i. List of equipment.
 - j. Parts list for each component.
 - k. Valve list that includes: valve number, description, manufacturer, operation (normal closed or open, etc.). Provide schematic drawing of refrigeration system that shows locations of each valve.
 - l. Servicing and lubrication schedule, list of lubricants required.
 - m. Troubleshooting information.
4. Part 3: Project documents and certificates, including the following:
- a. Approved shop drawings and product data.
 - b. Manufacturer's printed operation and maintenance instructions.
 - c. Wiring diagrams and other electrical information.
 - d. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
 - e. Air and water balance reports.
 - f. Test records
 - g. Certificates.
 - h. Photocopies of warranties. Including project warranty and all equipment and material warranties.
 - i. Maintenance Drawings – Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
 - j. Record Drawings – reduce to half size and insert into back of manual

3.18 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten (10) days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.
- B. Verify documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 02 4100 - DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Selective demolition of built site elements.
- B. Selective demolition of building elements for alteration purposes.

1.2 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Site Plan: Showing:
 - 1. Areas for temporary construction and field offices.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 3 EXECUTION

2.1 SCOPE

- A. Remove paving and curbs as required to accomplish new work.
- B. Remove all other paving and curbs within site boundaries.
- C. Remove other items indicated, for salvage, relocation, and recycling.
- D. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 31 2200.

2.2 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 3. Provide, erect, and maintain temporary barriers and security devices.
 - 4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 5. Do not close or obstruct roadways or sidewalks without permit.
 - 6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 - 7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- D. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

2.3 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.

- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.4 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove items indicated on drawings.
- C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - 3. Verify that abandoned services serve only abandoned facilities before removal.
 - 4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- D. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

2.5 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 0516 - UNDERSLAB VAPOR BARRIER - STEGO

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sheet vapor barrier under concrete slabs on grade.

1.2 REFERENCE STANDARDS

- A. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- B. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products.
- C. Samples: Submit samples of underslab vapor barrier to be used.
- D. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Underslab Vapor Barrier:
 - 1. Water Vapor Permeance: Not more than 0.010 perms, maximum.
 - 2. Complying with ASTM E1745 Class A.
 - 3. Thickness: 15 mils.
 - 4. Basis of Design:
 - a. Stego Industries LLC; Stego Wrap Vapor Barrier (15-mil): www.stegoindustries.com/#sle.
 - b. Substitutions: See Section 01 6000 - Product Requirements.
- B. Accessory Products: Vapor barrier manufacturer's recommended tape, adhesive, mastic, etc., for sealing seams and penetrations in vapor barrier.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surface over which vapor barrier is to be installed is complete and ready before proceeding with installation of vapor barrier.

3.2 INSTALLATION

- A. Install vapor barrier in accordance with manufacturer's instructions and ASTM E1643.
- B. Install vapor barrier under interior slabs on grade; lap sheet over footings and seal to foundation walls.
- C. Lap joints minimum 6 inches.
- D. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.
- E. No penetration of vapor barrier is allowed except for reinforcing steel and permanent utilities.
- F. Repair damaged vapor retarder before covering with other materials.

END OF SECTION

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SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Floors and slabs on grade.
- B. Concrete foundations and anchor bolts for pre-engineered building.
- C. Joint devices associated with concrete work.
- D. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks, and manholes.
- E. Concrete curing.

1.2 RELATED REQUIREMENTS

- A. Section 03 1000 - Concrete Forming and Accessories: Forms and accessories for formwork.
- B. Section 03 2000 - Concrete Reinforcing.
- C. Section 03 3511 - Concrete Floor Finishes: Densifiers, hardeners, applied coatings, and polishing.
- D. Section 07 9200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.3 REFERENCE STANDARDS

- A. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide.
- B. ACI 301 - Specifications for Concrete Construction.
- C. ACI 302.1R - Guide to Concrete Floor and Slab Construction.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
- E. ACI 305R - Guide to Hot Weather Concreting.
- F. ACI 306R - Guide to Cold Weather Concreting.
- G. ACI 308R - Guide to External Curing of Concrete.
- H. ACI 318 - Building Code Requirements for Structural Concrete.
- I. ASTM C33/C33M - Standard Specification for Concrete Aggregates.
- J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
- L. ASTM C150/C150M - Standard Specification for Portland Cement.
- M. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.
- N. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- O. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.
- P. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete.
- Q. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
- R. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- S. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
- T. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete.
- U. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
- V. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
- W. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
- X. ASTM D471 - Standard Test Method for Rubber Property--Effect of Liquids.
- Y. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting.
- Z. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
- AA. ASTM E1155M - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers (Metric).

- BB. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- CC. NSF 61 - Drinking Water System Components - Health Effects.
- DD. NSF 372 - Drinking Water System Components - Lead Content.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
 - 1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.
- C. Mix Design: Submit proposed concrete mix design.
 - 1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
- D. Samples for Pigment Color Selection: Submit manufacturer's complete sample chip set, including pigment number and required dosage rate for each color.
- E. Samples: Submit samples of underslab vapor retarder to be used.
- F. Test Reports: Submit report for each test or series of tests specified.
- G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.5 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.
- D. For slabs required to include moisture vapor reduction admixture (MVRA), do not proceed with placement unless manufacturer's representative is present for every day of placement.

1.6 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Slabs with Moisture Vapor Reducing Admixture (MVRA): Provide warranty to cover cost of flooring failures due to moisture migration from slabs for life of the concrete.
 - 1. Include cost of repair or removal of failed flooring, placement of topical moisture remediation system, and replacement of flooring with comparable flooring system.
- C. Moisture Emission-Reducing Curing and Sealing Compound, Membrane-Forming: Provide warranty to cover cost of flooring delamination failures for 10 years.
 - 1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

PART 2 PRODUCTS

2.1 FORMWORK

- A. Comply with requirements of Section 03 1000.

2.2 REINFORCEMENT MATERIALS

- A. Comply with requirements of Section 03 2000.

2.3 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
- C. Lightweight Aggregate: ASTM C330/C330M.
- D. Fly Ash: ASTM C618, Class C or F.
- E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
- F. Color Additives: Pure, concentrated mineral pigments specifically intended for mixing into concrete and complying with ASTM C979/C979M.
- G. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.4 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
- E. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
- F. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
- G. Retarding Admixture: ASTM C494/C494M Type B.
- H. Water Reducing Admixture: ASTM C494/C494M Type A.
- I. Moisture Vapor Reduction Admixture (MVRA): Liquid, inorganic admixture free of volatile organic compounds (VOCs) and formulated to close capillary systems formed during curing to reduce moisture vapor emission and transmission with no adverse effect on concrete properties or finish flooring.

2.5 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder: Sheet material complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
 - 1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
 - 2. Manufacturers:
 - a. Fortifiber Building Systems Group ; Moistop Ultra 10: www.fortifiber.com/#sle.
 - b. ISI Building Products; Viper VaporCheck II 15-mil (Class A): www.isibp.com/#sle.

2.6 BONDING AND JOINTING PRODUCTS

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
- B. Epoxy Bonding System:
 - 1. Complying with ASTM C881/C881M and of Type required for specific application.
- C. Waterstops: Bentonite and butyl rubber, complying with NSF 61 and NSF 372.
- D. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.

2.7 CURING MATERIALS

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
- B. Moisture-Retaining Sheet: ASTM C171.
 - 1. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch.
- C. Polyethylene Film: ASTM D2103, 4 mil, 0.004 inch thick, clear.
- D. Water: Potable, not detrimental to concrete.

2.8 CONCRETE MIX DESIGN

- A. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- B. Normal Weight Concrete:
 - 1. Water-Cement Ratio: Maximum 40 percent by weight.
 - 2. Maximum Aggregate Size: 5/8 inch.
- C. Structural Lightweight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
 - 2. Water-Cement Ratio: Maximum 40 percent by weight.
 - 3. Total Air Content: 3 percent, determined in accordance with ASTM C173/C173M.
 - 4. Maximum Slump: 3 inches.
 - 5. Maximum Aggregate Size: 5/8 inch.

2.9 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.
- B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.2 PREPARATION

- A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in accordance with bonding agent manufacturer's instructions.
 - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
 - 2. Use latex bonding agent only for non-load-bearing applications.
- B. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
 - 1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as indicated on drawings. Do not use sand.

3.3 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.4 SLAB JOINTING

- A. Locate joints as indicated on drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
- D. Load Transfer Construction and Contraction Joints: Install load transfer devices as indicated; saw cut joint at surface as indicated for contraction joints.
- E. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

3.5 SEPARATE FLOOR TOPPINGS

- A. Prior to placing floor topping, roughen substrate concrete surface and remove deleterious material. Broom and vacuum clean.
- B. Place required dividers, edge strips, reinforcing, and other items to be cast in.
- C. Apply bonding agent to substrate in accordance with manufacturer's instructions.
- D. Place concrete floor toppings to required lines and levels.

3.6 FLOOR FLATNESS AND LEVELNESS TOLERANCES

- A. An independent testing agency, as specified in Section 01 4000, will inspect finished slabs for compliance with specified tolerances.
- B. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values:
 - 1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15, on-grade only.
 - 2. Under Thick-Bed Tile: F(F) of 20; F(L) of 15, on-grade only.
 - 3. Under Carpeting: F(F) of 25; F(L) of 20, on-grade only.
 - 4. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25, on-grade only.
- C. Measure F(F) Floor Flatness and F(L) Floor Levelness in accordance with ASTM E1155 (ASTM E1155M), within 48 hours after slab installation; report both composite overall values and local values for each measured section.

- D. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.
- E. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.7 CONCRETE FINISHING

- A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
 - 1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
 - 2. Decorative Exposed Surfaces: Trowel as described in ACI 302.1R; take measures necessary to avoid black-burnish marks; decorative exposed surfaces include surfaces to be stained or dyed, pigmented concrete, surfaces to receive liquid hardeners, surfaces to receive dry-shake hardeners, surfaces to be polished, and all other exposed slab surfaces.

3.8 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Surfaces Not in Contact with Forms:
 - 1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
 - 2. Final Curing: Begin after initial curing but before surface is dry.

3.9 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- D. Slab Testing: Cooperate with manufacturer of specified moisture vapor reduction admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

3.10 DEFECTIVE CONCRETE

3.11 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

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SECTION 03 3511 - CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Surface treatments for concrete floors and slabs.
- B. Clear coatings.
- C. Clear penetrating sealers.

1.2 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.
- C. Specimen Warranty: Manufacturer warranty.

1.3 MOCK-UP

- A. For coatings, construct mock-up area under conditions similar to those that will exist during application, with coatings applied.
- B. Mock-Up Size: 10 feet square.
- C. Locate where directed.
- D. Mock-up may remain as part of the work.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's sealed packaging, including application instructions.

1.5 FIELD CONDITIONS

- A. Maintain light level equivalent to a minimum 200 W light source at 8 feet above the floor surface over each 20 foot square area of floor being finished.
- B. Do not finish floors until interior heating system is operational.
- C. Maintain ambient temperature of 50 degrees F minimum.

1.6 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Correct defective work within a two-year period commencing on the Date of Substantial Completion.
- C. Finish Warranty: Provide five-year manufacturer warranty against excessive degradation of finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.1 COATINGS

- A. High Gloss Clear Coating: Transparent, nonyellowing, acrylic polymer-based coating.
 - 1. Composition: Solvent-based.
 - 2. Nonvolatile Content: 15 percent, minimum, when measured by volume.
 - 3. Products:
 - a. Euclid Chemical Company: ULTRAGUARD: www.euclidchemical.com/#sle.
 - b. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc : www.lmcc.com/#sle.
 - c. PROSOCO, Inc; LSGuard: www.prosoco.com/consolideck/#sle.
 - d. SpecChem, LLC; Aqua Shine: www.specchemllc.com/#sle.
 - e. W. R. Meadows, Inc; Deck-O-Grip W/B (slip-resistant): www.wrmeadows.com/#sle.
 - f. Substitutions: See Section 01 6000 - Product Requirements.
- B. Clear, Penetrating, Moisture Vapor-Resistant Coating: Vapor-resistant and pH-reducing coating recommended by manufacturer for new and existing concrete floors and slabs.
 - 1. Type: High solids epoxy; two-component.
 - 2. Products:
 - a. Rust-Oleum Corporation; TVB Water-Based Topside Vapor Barrier: www.rustoleum.com/#sle.

- b. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that floor surfaces are acceptable to receive the work of this section.
- B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

3.2 GENERAL

- A. Apply materials in accordance with manufacturer's instructions.

3.3 COATING APPLICATION

- A. Verify that surface is free of previous coatings, sealers, curing compounds, water repellents, laitance, efflorescence, fats, oils, grease, wax, soluble salts, residues from cleaning agents, and other impediments to adhesion.
- B. Protect adjacent non-coated areas from drips, overflow, and overspray; immediately remove excess material.
- C. Apply coatings in accordance with manufacturer's instructions, matching approved mock-ups for color, special effects, sealing and workmanship.

END OF SECTION

SECTION 04 2000 - UNIT MASONRY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete block.
- B. Mortar and grout.
- C. Reinforcement and anchorage.
- D. Accessories.

1.2 RELATED REQUIREMENTS

1.3 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- C. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- D. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
- E. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement.
- F. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- G. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale).
- H. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units.
- I. ASTM C91/C91M - Standard Specification for Masonry Cement.
- J. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units.
- K. ASTM C150/C150M - Standard Specification for Portland Cement.
- L. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
- M. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
- N. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
- O. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
- P. ASTM C476 - Standard Specification for Grout for Masonry.
- Q. ASTM C1714/C1714M - Standard Specification for Preblended Dry Mortar Mix for Unit Masonry.
- R. BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing.
- S. BIA Technical Notes No. 13 - Ceramic Glazed Brick Exterior Walls.
- T. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures.
- U. UL (FRD) - Fire Resistance Directory.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.
- C. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
- B. Fire Rated Assemblies: Comply with applicable code for UL (FRD) Assembly No. ____.
- C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

PART 2 PRODUCTS

2.1 CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards and as follows:

1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depth of 8 inches.
2. Special Shapes: Provide nonstandard blocks configured for corners.
 - a. Provide bullnose units for outside corners.
3. Load-Bearing Units: ASTM C90, normal weight.
4. Nonloadbearing Units: ASTM C129.

2.2 MORTAR AND GROUT MATERIALS

- A. Masonry Cement: ASTM C91/C91M, Type S.
- B. Portland Cement: ASTM C150/C150M, Type I; color as required to produce approved color sample.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Grout Aggregate: ASTM C404.
- E. Water: Clean and potable.
- F. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C1714/C1714M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
 1. Type: Type S.
 2. Color: Standard gray.

2.3 MORTAR AND GROUT MIXING

- A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.

END OF SECTION

SECTION 06 1000 - ROUGH CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Rough opening framing for doors, windows, and roof openings.
- B. Roof-mounted curbs.
- C. Roofing nailers.
- D. Roofing cant strips.
- E. Preservative treated wood materials.
- F. Fire retardant treated wood materials.
- G. Communications and electrical room mounting boards.
- H. Concealed wood blocking, nailers, and supports.

1.2 REFERENCE STANDARDS

- A. ASTM D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. AWPA U1 - Use Category System: User Specification for Treated Wood.
- D. PS 1 - Structural Plywood.
- E. PS 20 - American Softwood Lumber Standard.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

1.4 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Correct defective work within a two-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 American Softwood Lumber Standard", and requirements of specified grading agencies.
 - 1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
 - 2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.2 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.3 CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.4 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
 2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Fire Retardant Treatment:
1. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
 - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
 - b. Do not use treated wood in direct contact with the ground.
 2. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
 - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
 - b. Treat rough carpentry items as indicated .
 - c. Do not use treated wood in applications exposed to weather or where the wood may become wet.
- C. Preservative Treatment:
1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat lumber exposed to weather.
 2. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative.
 - a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.2 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

- D. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- E. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.3 INSTALLATION OF CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
 - 1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
 - 2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
 - 3. Install adjacent boards without gaps.

END OF SECTION

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SECTION 07 2100 - THERMAL INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Board insulation and integral vapor retarder at cavity wall construction, perimeter foundation wall, underside of floor slabs, over roof deck, over roof sheathing, exterior wall behind ____ wall finish, and interior wall with facer providing exposed finish.

1.2 REFERENCE STANDARDS

- A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.4 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.1 APPLICATIONS

- A. Insulation Under Concrete Slabs: Extruded polystyrene (XPS) board.
- B. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.
- C. Insulation Inside Masonry Cavity Walls: Expanded polystyrene (EPS) board.

2.2 FOAM BOARD INSULATION MATERIALS

- A. Expanded Polystyrene (EPS) Board Insulation: Comply with ASTM C578.
 - 1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 - 3. Type and Thermal Resistance, R-value: Type XI, 3.1 (0.55), minimum, per 1 inch thickness at 75 degrees F mean temperature.
 - 4. Products:
- B. Extruded Polystyrene (XPS) Board Insulation: Comply with ASTM C578 with either natural skin or cut cell surfaces.
 - 1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 - 3. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88), minimum, per 1 inch thickness at 75 degrees F mean temperature.
 - 4. Products:
 - a. DuPont de Nemours, Inc; Styrofoam Brand ____ : building.dupont.com/#sle.
 - b. Owens Corning Corporation; FOAMULAR Type ____ Extruded Polystyrene (XPS) Insulation: www.ocbuildingspec.com/#sle.
- C. Extruded Polystyrene (XPS) Continuous Insulation (CI) Board: Comply with ASTM C578, and manufactured using carbon black technology.
 - 1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 - 3. Type and Thermal Resistance, R-value: Type IV, 5.6 (0.98), minimum, per 1 inch thickness at 75 degrees F mean temperature.
 - 4. Board Size: 48 inch by 96 inch.
 - 5. Board Thickness: 1-3/4 inch.
 - 6. Board Edges: Shiplap, at long edges.
 - 7. Products:
 - a. DuPont de Nemours, Inc; Styrofoam Brand Ultra SL (Shiplap): building.dupont.com/#sle.

- b. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.1 BOARD INSTALLATION AT FOUNDATION PERIMETER

- A. Install boards horizontally on foundation perimeter.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.2 BOARD INSTALLATION AT EXTERIOR WALLS

- A. Install boards horizontally on walls.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.3 BOARD INSTALLATION AT CAVITY WALLS

- A. Install boards to fit snugly between wall ties.
- B. Install boards horizontally on walls.
- C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.4 BOARD INSTALLATION UNDER CONCRETE SLABS

- A. Place insulation under slabs on grade after base for slab has been compacted.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- C. Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab.

3.5 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2500 - WEATHER BARRIERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Vapor Retarders: Materials to make exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls, and ____ water vapor resistant and air tight.
- B. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls, and ____.

1.2 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency.
- B. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials.
- C. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials.
- D. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on material characteristics.
- C. Standard Details: Provide manufacturer's standard details of special joint conditions.

1.4 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

1.5 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after date of substantial completion.
- C. Provide ten year manufacturer warranty for weather barrier materials.

PART 2 PRODUCTS

2.1 WEATHER BARRIER ASSEMBLIES

- A. Air Barrier:
 - 1. On outside surface of inside wythe of exterior masonry cavity walls use air barrier coating.
- B. Exterior Vapor Retarder:
 - 1. On outside surface of inside wythe of masonry cavity wall use vapor retarder coating.

2.2 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

- A. Air Barrier, Fluid Applied: Vapor permeable, elastomeric waterproofing.
 - 1. Air Barrier Coating:
 - a. Material: Silyl-terminated polyurethane (STPU).
 - b. Dry Film Thickness (DFT): 8 mil, 0.008 inch to 12 mil, 0.012 inch, minimum.
 - c. Air Permeance: 0.00024 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
 - d. Water Vapor Permeance: 23.3 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure B (Water Method) at 73.4 degrees F.
 - e. Ultraviolet (UV) and Weathering Resistance: Approved in writing by manufacturer for up to four months of weather exposure after application.
 - f. Complies with NFPA 285 wall assembly requirements.
 - g. VOC Content: 100 g per L or less.
 - h. Manufacturers:
 - 1) Carlisle Coatings and Waterproofing, Inc; Fire Resist Barrithane
VP: www.carlisleccw.com/#sle.

- 2) Pecora Corporation; Pecora ProPerm VP - Vapor Permeable Air Barrier System with Pecora XL-Flash Liquid Flashing and Joint Filler, AVB Silicone Surface Transitions, and XL-Span Transition Membrane: www.pecora.com/#sle.

- 3) Substitutions: See Section 01 6000 - Product Requirements.

2.3 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)

- A. Vapor Retarder Coating: Liquid applied, resilient, UV-resistant coating and associated joint treatment.
- B. Material: Silyl-terminated polyurethane.
 1. Dry Film Thickness (DFT): 40 mils, 0.040 inch, minimum.
 2. Air Permeance: 0.0002 cubic feet per minute per square foot, maximum, when tested in accordance with ASTM E2178.
 3. Water Vapor Permeance: 1.0 perm, maximum, when tested in accordance with ASTM E96/E96M, procedure A (Desiccant Method) at 73.4 degrees F.
 4. Ultraviolet (UV) and weathering resistance: Approved in writing by manufacturer for up to twenty-four months of weather exposure after application.
 5. Complies with NFPA 285 wall assembly requirements.
 6. VOC Content: Less than 174 g per L when tested in accordance with 40 CFR 59, Subpart D (EPA Method 24).
 7. Manufacturers:
 - a. Substitutions: See Section 01 6000 - Product Requirements.

2.4 ACCESSORIES

- A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- C. Vapor Retarders: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- D. Coatings:
 1. Prepare substrate in manner recommended by coating manufacturer; treat joints in substrate and between dissimilar materials as recommended by manufacturer.
 2. Where exterior masonry veneer is to be installed, install masonry anchors before installing weather barrier over masonry; seal around anchors air tight.
 3. Use flashing to seal to adjacent construction and to bridge joints.
- E. Openings and Penetrations in Exterior Weather Barriers:
 1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
 2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
 3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
 4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
 5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
 6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.2 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for additional requirements.
- B. Do not cover installed weather barriers until required inspections have been completed.
- C. Obtain approval of installation procedures by the weather barrier manufacturer based on a mock-up installed in place, prior to proceeding with remainder of installation.

3.3 PROTECTION

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.
- B. Protect weather barrier material during and after curing period and from damage resulting from construction operations.

END OF SECTION

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SECTION 07 8400 - FIRESTOPPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Firestopping systems.
- B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.2 REFERENCE STANDARDS

- A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems.
- C. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies.
- D. ITS (DIR) - Directory of Listed Products.
- E. FM 4991 - Approval Standard of Firestop Contractors.
- F. FM (AG) - FM Approval Guide.
- G. UL 1479 - Standard for Fire Tests of Penetration Firestops.
- H. UL (FRD) - Fire Resistance Directory.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. Manufacturer's qualification statement.
- E. Installer's qualification statement.

1.4 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
 - 1. Approved by Factory Mutual Research Corporation under FM 4991, or meeting any two of the following requirements:
 - 2. Verification of minimum three years documented experience installing work of this type.
 - 3. Verification of at least five satisfactorily completed projects of comparable size and type.
 - 4. Licensed by local authorities having jurisdiction (AHJ).

1.5 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Firestopping Manufacturers:
 - 1. 3M Fire Protection Products: www.3m.com/firestop/#sle.
 - 2. Hilti, Inc: www.hilti.com/#sle.
 - 3. Specified Technologies Inc: www.stfirestop.com/#sle.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.2 MATERIALS

- A. Firestopping Materials: Any materials meeting requirements.

- B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

2.3 FIRESTOPPING ASSEMBLY REQUIREMENTS

- A. Head-of-Wall (HW) Joint System Firestopping at Joints Between Fire-Rated Wall Assemblies and Non-Rated Horizontal Assemblies: Use system that has been tested according to ASTM E2837 to have fire resistance F Rating equal to required fire rating of wall assembly.
- B. Through Penetration Firestopping: Use system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.

2.4 FIRESTOPPING FOR FLOOR-TO-FLOOR, FLOOR-TO-WALL, HEAD-OF-WALL, AND WALL-TO-WALL JOINTS

- A. Concrete and Concrete Masonry Walls and Floors:
 - 1. Head-of-Wall Joints at Concrete/Concrete Masonry Wall to Concrete Over Metal Deck Floor:
 - a. 2 Hour Construction: UL System HW-D-0181; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - b. 2 Hour Construction: UL System HW-D-1037; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - 2. Concrete/Concrete Masonry Wall-to-Wall Joint Systems That Have Movement Capabilities (Dynamic-D):
 - a. 2 Hour Construction: UL System WW-D-0017; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - b. 2 Hour Construction: UL System WW-D-0032; Hilti CP 606 Flexible Firestop Sealant.

2.5 FIRESTOPPING PENETRATIONS THROUGH CONCRETE AND CONCRETE MASONRY CONSTRUCTION

- A. Penetrations Through Floors or Walls By:
 - 1. Multiple Penetrations in Large Openings:
 - a. 2 Hour Construction: UL System C-AJ-8143; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - 2. Uninsulated Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System C-AJ-1425; Hilti CFS-S SIL GG Firestop Silicone Sealant Gun-Grade.
 - 3. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System C-BJ-2021; Hilti CP 643N Firestop Collar.
 - 4. Electrical Cables Not In Conduit:
 - a. 2 Hour Construction: UL System C-AJ-3283; Hilti CFS-SL SK Firestop Sleeve Kit.
 - 5. Insulated Pipes:
 - a. 2 Hour Construction: UL System C-AJ-5048; Hilti FS-ONE MAX Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CP 601S Elastomeric Firestop Sealant, CP 604 Self-Leveling Firestop Sealant or CFS-S SIL GG Firestop Silicone Sealant Gun-Grade.
- B. Penetrations Through Walls By:
 - 1. Uninsulated Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-J-1067; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - 2. Electrical Cables Not In Conduit:
 - a. 2 Hour Construction: UL System W-J-3090; Specified Technologies Inc. SSP Firestop Putty.
 - 3. Insulated Pipes:
 - a. 2 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - 4. HVAC Ducts, Insulated:
 - a. 2 Hour Construction: UL System W-J-7112; Hilti FS-ONE MAX Intumescent Firestop Sealant.

2.6 FIRESTOPPING PENETRATIONS THROUGH GYPSUM BOARD WALLS

- A. Penetrations By:
 - 1. Multiple Penetrations in Large Openings:
 - a. 2 Hour Construction: UL System W-L-1408; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - 2. Uninsulated Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-L-1506; Hilti CFS-D Firestop Cable Disc.

3. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-L-2078; Hilti CP 643N/644 Firestop Collar.
4. Electrical Cables Not In Conduit:
 - a. 2 Hour Construction: UL System W-L-3065; Hilti FS-ONE MAX Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CD 601S Elastomeric Firestop Sealant, or CP 618 Firestop Putty Stick.
5. Insulated Pipes:
 - a. 2 Hour Construction: UL System W-L-5029; Hilti FS-ONE Intumescent Firestop Sealant.

2.7 FIRESTOPPING SYSTEMS

- A. Firestopping: Any material meeting requirements.
 1. Fire Ratings: Use system that is listed by FM (AG), ITS (DIR), or UL (FRD) and tested in accordance with ASTM E814, ASTM E119, or UL 1479 with F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.

END OF SECTION

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SECTION 07 9200 - JOINT SEALANTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.

1.2 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer.
- B. ASTM C834 - Standard Specification for Latex Sealants.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants.
- E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
- F. ASTM C1311 - Standard Specification for Solvent Release Sealants.
- G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.
- H. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints.
- I. SCAQMD 1168 - Adhesive and Sealant Applications.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- E. Provide a schedule for all sealants to be installed as follows:
 - 1. Location
 - 2. Type of sealant
 - 3. Manufacturer
 - 4. Model number
 - 5. Color
- F. Installation Plan: Submit at least four weeks prior to start of installation.
- G. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.
- H. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.
- I. Installation Log: Submit filled-out log for each length or instance of sealant installed.
- J. Executed warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

- C. Installation Plan: Include schedule of sealed joints, including the following:
 - 1. Installation Log Form: Include the following data fields, with known information filled out.
 - a. Location on project.
 - b. Sealant used.
 - c. Date of installation.
 - d. Name of installer.
 - e. Actual joint width; provide space to indicate maximum and minimum width.
 - f. Actual joint depth to face of backing material at centerline of joint.
 - g. Air temperature.
- D. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
 - 1. Identification of testing agency.
 - 2. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
 - a. Test date.
 - b. Copy of test method documents.
 - c. Age of sealant upon date of testing.
 - d. Test results, modeled after the sample form in the test method document.
 - e. Indicate use of photographic record of test.
- E. Field Adhesion Test Procedures:
 - 1. Allow sealants to fully cure as recommended by manufacturer before testing.
 - 2. Have a copy of the test method document available during tests.
 - 3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
 - 4. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
 - 5. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
 - 6. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.
- F. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
 - 1. Sample: At least 18 inches long.
 - 2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the 1-inch mark is that distance from the substrate, the test has failed.
 - 3. If either adhesive or cohesive failure occurs before minimum elongation, take necessary measures to correct conditions and retest; record each modification to products or installation procedures.
- G. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or another applicable method as recommended by manufacturer.

1.5 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.
- C. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Nonsag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 - 1. Adfast USA Inc: www.adfastcorp.com/#sle.
 - 2. Dow: www.dow.com/#sle.
 - 3. Pecora Corporation: www.pecora.com/#sle.
 - 4. Sika Corporation: www.usa.sika.com/#sle.
 - 5. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com/#sle.
 - 6. Substitutions: See Section 01 6000 - Product Requirements.
- B. Self-Leveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.
 - 1. Dow: www.dow.com/#sle.
 - 2. Sika Corporation: www.usa.sika.com/#sle.
 - 3. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com/#sle.
 - 4. ADFAST; www.adfastcorp.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.

2.2 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to:
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
 - 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. Other joints indicated below.
 - 3. Do not seal the following types of joints:
 - a. Intentional weep holes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.
 - e. Joints between suspended panel ceilings/grid and walls.
- B. Exterior Joints: Use nonsag nonstaining silicone sealant, unless otherwise indicated.
 - 1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, noncuring.
 - 2. Lap Joints between Manufactured Metal Panels: Butyl rubber, noncuring.
 - 3. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane traffic-grade sealant.
 - 4. Cooling Tower and Fountain Basins: Nonsag polyurethane sealant for continuous immersion.
- C. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.
 - 1. Wall and Ceiling Joints in Nonwet Areas: Acrylic emulsion latex sealant.
 - 2. Wall and Ceiling Joints in Wet Areas: Nonsag polyurethane sealant for continuous liquid immersion.
 - 3. Floor Joints in Wet Areas: Nonsag polyurethane non-traffic-grade sealant suitable for continuous liquid immersion.

- D. Interior Wet Areas: Bathrooms, restrooms, kitchens, food service areas, food processing areas, and _____ fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, other similar items, and _____

2.3 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.4 NONSAG JOINT SEALANTS

- A. Nonstaining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus 100 percent and minus 50 percent, minimum.
 2. Nonstaining to Porous Stone: Nonstaining to light-colored natural stone when tested in accordance with ASTM C1248.
 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 4. Color: To be selected by Architect from manufacturer's standard range.
 5. Service Temperature Range: Minus 20 to 180 degrees F.
 6. Products:
 - a. Adfast USA Inc; Adseal DWS 4580 Series: www.adfastcorp.com/#sle.
 - b. Dow; DOWSIL 795 Silicone Building Sealant: www.dow.com/#sle.
 - c. Sika Corporation; Sikasil WS-295: www.usa.sika.com/#sle.
 - d. Tremco Commercial Sealants & Waterproofing; Tremsil 400: www.tremcosealants.com/#sle.
 - e. Substitutions: See Section 01 6000 - Product Requirements.
- B. Type Non-Staining Silicone Sealant - Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Color: To be selected by Architect from manufacturer's standard range.
 3. Cure Type: Single component, neutral moisture curing.
 4. Service Temperature Range: Minus 65 to 180 degrees F.
 5. Products:
 - a. Adfast USA Inc; ADSEAL Production 4550 Series: www.adfastcorp.com/#sle.
 - b. Dow; DOWSIL 999-A Building and Glazing Sealant: www.dow.com/#sle.
 - c. Sika Corporation; Sikasil WS-295: www.usa.sika.com/#sle.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- C. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: White.
 2. Products:
 - a. Adfast USA Inc; ADSEAL KB 4800 Series: www.adfastcorp.com/#sle.
 - b. Sika Corporation; Sikasil GP: www.usa.sika.com/#sle.
 - c. Substitutions: See Section 01 6000 - Product Requirements.
- D. Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multicomponent; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface.
1. Movement Capability: Plus and minus 35 percent, minimum.
 2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
 3. Color: To be selected by Architect from manufacturer's standard range.
 4. Service Temperature Range: Minus 40 to 180 degrees F.
 5. Products:
 - a. Sika Corporation; Sikaflex-1a: www.usa.sika.com/#sle.
 - b. Sika Corporation; Sikaflex-2c NS: www.usa.sika.com/#sle.
 - c. Substitutions: See Section 01 6000 - Product Requirements.

- E. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, nonstaining, nonbleeding, nonsagging; not intended for exterior use.
 - 1. Color: To be selected by Architect from manufacturer's standard range.
 - 2. Grade: ASTM C834; Grade 0 Degrees F (Minus 18 Degrees C).
 - 3. Products:
 - a. Tremco Commercial Sealants & Waterproofing; Tremflex 834: www.tremcosealants.com/#sle.
 - b. ADFAST; adseal 1090 Series; www.adfastcorp.com..
 - c. Substitutions: See Section 01 6000 - Product Requirements.
- F. Noncuring Butyl Sealant: Solvent-based, single component, nonsag, nonskinning, nonhardening, nonbleeding; non-vapor permeable; intended for fully concealed applications.

2.5 SELF-LEVELING JOINT SEALANTS

- A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
 - 3. Color: Gray.
 - 4. Service Temperature Range: Minus 40 to 180 degrees F.
 - 5. Products:
 - a. Sika Corporation; Sikaflex-1c SL: www.usa.sika.com/#sle.
 - b. Sika Corporation; Sikaflex-2c SL: www.usa.sika.com/#sle.
 - c. Substitutions: See Section 01 6000 - Product Requirements.

2.6 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
 - 1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
 - 2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
 - 3. Open Cell: 40 to 50 percent larger in diameter than joint width.
 - 4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
 - 5. Products:
 - a. Nomaco, Inc: www.nomaco.com/#sle.
 - b. Substitutions: See Section 01 6000 - Product Requirements.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.
- D. Preinstallation Adhesion Testing: Install a sample for each test location indicated in the test plan.
 - 1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
 - 2. Notify Architect of date and time that tests will be performed, at least seven days in advance.
 - 3. Record each test on Preinstallation Adhesion Test Log as indicated.

4. If any sample fails, review products and installation procedures, consult manufacturer, or take other measures that are necessary to ensure adhesion; retest in a different location; if unable to obtain satisfactory adhesion, report to Architect.
5. After completion of tests, remove remaining sample material and prepare joints for new sealant installation.

3.2 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.3 INSTALLATION

- A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Provide joint sealant installations complying with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker backing tape where backer rod cannot be used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.4 FIELD QUALITY CONTROL

- A. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.
- B. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

3.5 POST-OCCUPANCY

- A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width, i.e., at low temperature in thermal cycle. Report failures immediately and repair them.

END OF SECTION

SECTION 08 41 23 - FIRE RATED ALUMINUM FRAMED ENTRANCES AND STOREFRONTS- FIREFRAMES® ALUMINUM SERIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Fire rated glazing and framing systems for installation as [sidelights,] [borrowed lights,] [windows,] and [transoms] or [wall sections] in interior openings
- B. Related Sections:
 - 1. Section 05 12 00 "Structural Steel Framing:" Steel attachment members
 - 2. Section 05 50 00 "Metal Fabrications:" Steel attachment members inserts and anchors.
 - 3. Section 07 25 00 "Weather Barriers:" Perimeter air, water, and vapor seal between the work of this section and adjacent construction
 - 4. Section 07 62 00 "Sheet Metal Flashing and Trim" Flashing between this work and other work
 - 5. Section 07 84 00 "Firestopping:" Firestops between work of this section and other fire resistive assemblies.
 - 6. Section 07 92 00 – "Joint Sealants" for installation of joint sealants installed with steel fire-rated glazed curtain-wall systems and for sealants to the extent not specified in this Section.
 - 7. Section 08 11 00 – "Metal Doors and Frames" for fire-rated doors.
 - 8. Section 08 43 13 – "Aluminum Entrance and Storefronts" for entrance [and storefront] systems installed with steel fire-rated glazed curtain-wall systems
 - 9. Section 08 71 00 "Door Hardware:" Door hardware other than that provided by the work of this section.
 - 10. Section 08 41 23 – "Fire Rated Steel Framed Entrances – Fireframes Heat Barrier Series" for fire-rated doors.
 - 11. Section 08 41 23 – "Fire Rated Glass and Framing Systems – Fireframes Designer Series" for fire-rated doors.

1.2 REFERENCES

- A. American Architectural Manufacturers Association (AAMA)
 - 1. AAMA 2603-2002 Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 - 2. AAMA 2604 -2005 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
 - 3. AAMA 2605 -2005 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. American Society for Testing and Materials (ASTM):
 - 1. Fire safety related:
 - a. ASTM E119: Methods for Fire Tests of Building Construction and Materials.

2. Material related:
 - a. ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2007.
 - b. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2006b.
3. Exterior-related:
 - a. ASTM E 283-04: Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen
 - b. ASTM E 330-02: Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference Procedure A
 - c. ASTM E 331-04: Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - d. ASTM E 783-02: Test Method for Field Measurement of Air Leakage through Installed Exterior Windows and Doors
 - e. ASTM E 1105-00: Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference
- C. American Welding Society (AWS)
 1. AWS D1.3 - Structural Welding Code - Sheet Steel; 2007
- D. Builders Hardware Manufacturers Association, Inc.
 1. BHMA A156 - American National Standards for door hardware; 2006 (ANSI/BHMA A156).
- E. Canadian Standards
 1. CAN/ULC-S101 Standard Test of Fire Endurance Tests of Building Construction and Materials
 2. CAN/ULC-S104 Standard Method of Fire Tests of Door Assemblies
 3. CAN/ULC-S106 Standard Method of Fire Tests of Window and Glass Block Assemblies
- F. National Fire Protection Association (NFPA):
 1. NFPA 80: Fire Doors and Windows.
 2. NFPA 251: Fire Tests of Building Construction & Materials
 3. NFPA 252: Fire Tests of Door Assemblies
 4. NFPA 257: Fire Test of Window Assemblies
- G. Underwriters Laboratories, Inc. (UL):
 1. UL 9: Fire Tests of Window Assemblies.
 1. UL 10 B: Fire Tests of Door Assemblies
 2. UL 10 C: Positive Pressure Fire Tests of Window & Door Assemblies
 3. UL 263: Fire tests of Building Construction and Materials
 4. UL-752 Ratings of Bullet-Resistant Materials
- H. American National Standards Institute (ANSI):
 1. ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings
- I. Consumer Product Safety Commission (CPSC):

1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials
- J. American Society of Civil Engineers (ASCE)
 1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures; 2005

1.3 DEFINITIONS

- A. Manufacturer: A firm that produces primary glass, fabricated glass or framing as defined in referenced glazing publications.

1.4 SUBMITTALS

- A. Submit in accordance with Section <Insert Section #>.
- B. Product Data:
 1. Technical Information: Submit latest edition of manufacturer's product data providing product descriptions, technical data, Underwriters Laboratories, Inc. listings and installation instructions.
- C. Shop Drawings:
 1. Include plans, elevations and details of product showing component dimensions; framing opening requirements, dimensions, tolerances, and attachment to structure.
- D. Sustainable Requirements:
 1. Living Building Challenge Compliance: Compliant
 - a. I-13 Red List Declaration
- E. Structural Calculations (optional):
 1. Provide structural calculations sealed by a licensed professional engineer in the State in which the project is located; prepared in compliance with referenced documents and these specifications.
- F. Samples (optional). For following products:
 1. Glass sample-as provided by manufacturer.
 2. Sample of frame
 3. Verification of sample of selected finish
- G. Glazing Schedule: Use same designations indicated on drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- H. Warranties: Submit manufacturer's warranty.
- I. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements.
 1. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualifications according to
 - 1. International Accreditation Service for a Type A Third-Party Inspection Body (Field Services ICC-ES Third-Party Inspections Standard Operating Procedures, 00-BL-S0400 and S0401)
 - 2. International Accreditation Service for Testing Body-Building Materials and Systems
 - a. Fire Testing
 - 1) ASTM Standards E 119
 - 2) CPSC Standards 16 CFR 1201
 - 3) NFPA Standards 251, 252, 257
 - 4) UL Standards 9, 10B, 10C, 1784, UL Subject 63
 - 5) BS 476; Part 22: 1987
 - 6) EN 1634-1
 - 7) CAN/ULC Standards S101, S104, S106
- B. Fire-Rated Window Assemblies: Assemblies complying with NFPA 80 that are classified and labeled by UL, for fire ratings indicated, based on testing according to NFPA 257 and UL 9.
- C. Fire-Rated Wall Assemblies: Assemblies complying with ASTM E119 that are classified and labeled by UL, for fire ratings indicated, based on testing in accordance with UL 263, ASTM E119.
- D. Listings and Labels - Fire Rated Assemblies: Under current follow-up service by Underwriters Laboratories® maintaining a current listing or certification. Label assemblies' accordance with limits of manufacturer's listing.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle under provisions specified by manufacturer.

1.7 PROJECT CONDITIONS

- A. Obtain field measurements prior to fabrication of frame units. If field measurements will not be available in a timely manner coordinate planned measurements with the work of other sections.
 - 1. Note whether field or planned dimensions were used in the creation of the shop drawings.
- B. Coordinate the work of this section with others effected including but not limited to: other interior and/or exterior envelope components and door hardware beyond that provided by this section.

1.8 WARRANTY

- A. Provide the Pilkington Pyrostop® and Fireframes® standard five-year manufacturer warranty.

PART 2 – PRODUCTS

2.1 MANUFACTURERS - (ACCEPTABLE MANUFACTURERS/PRODUCTS]

FIRE-RATED ALUMINUM FRAME SYSTEM – FIREFRAMES® ALUMINUM SERIES

08 41 23 - 4

Updated 3.15.22

- A. Manufacturer Glazing Material: "Pilkington Pyrostop®" fire-rated glazing as manufactured by the Pilkington Group and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 phone (800.426.0279) fax (425.396.8300) e-mail sales@fireglass.com, web site <http://www.fireglass.com>
- B. Frame System: "Fireframes® Aluminum Series" fire-rated frame system as manufactured and supplied by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 phone (800.426.0279) fax (425.396.8300) e-mail sales@fireglass.com web site <http://www.fireglass.com>
- C. Substitutions: Substitutions for Glazing Material and Frame System not permitted.

2.2 PERFORMANCE REQUIREMENTS

- A. System Description:
 - 1. Steel fire-rated glazed wall and/or window system, dual aluminum cover cap format
 - a. Face widths available:
 - 1) 2"
 - 2) Custom extruded aluminum cover caps
 - 3) Custom stainless steel cover caps
 - b. Duration – Windows Capable of providing a fire rating for [45], [60], [120] minutes.
 - c. Duration – Walls: Capable of providing a fire rating for [60], [120] minutes.
- B. Structural Performance
 - 1. Design and size the system to withstand structural forces placed upon it without damage or permanent set when tested in accordance with ASTM E330 using load 1.5 times the design wind loads and of 10 seconds in duration.
 - 2. Positive wind load: [_____]lbf/sq ft.][as indicated on the drawings]
 - 3. Negative wind Load:[_____]lbf/sq ft.][as indicated on the drawings]
 - 4. Member deflection: Limit deflection of the edge of the glass normal to the plane of the glass to [flexure limit of glass][1/175 of the glass edge length or ¾ inch, whichever is less][of any framing member
 - 5. Accommodate movement between storefront and adjoining systems.
- C. Air Infiltration: ASTM E 283; Air infiltration rate shall not exceed 0.06 cfm/ft² at a static air pressure differential of 6.24 psf.
- D. Water Resistance, (static): ASTM E 331; No leakage at a static air pressure differential of 15 psf as defined in AAMA 501.

2.3 MATERIALS - GLASS

- A. Low-E Coated glass for use in insulated exterior units See Section 08 80 00
- B. Fire Rated Glazing: Composed of multiple sheets of Pilkington Optiwhite™ high visible light transmission glass laminated with an intumescent interlayer.

C. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201(Cat. I and II).

D. Properties Interior Glazing

Fire-Rating	45 minute	60 minute		120 minute
Manufacturer's designation	45-200	60-101	60-201	120-106
Glazing type	single	single	single	IGU
Nominal Thickness	3/4" (19mm)	7/8" (23mm)	1-1/16" (27mm)	2-1/4" (57mm)
Weight in lbs/sf	9.2	10.85	12.5	22.9
Daylight Transmission	86	87%	86%	75%
Sound Transmission Coefficient	40dB	41dB	44dB	46dB

E. Properties Exterior Glazing

Fire-Rating	45 minute		60 minute		120 minute
Manufacturer's designation	45-200	45-260 45-360	60-201	60-261 60-361*	120-262 120-362*
Glazing type	single	IGU	single	IGU	IGU
Nominal Thickness	3/4" (19mm)	1-5/16" (33mm)	1-1/16" (27mm)	1-5/8" (41mm)	2-3/8" (60mm) [with 14 mm spacer, or 2-1/8" (54 mm) with 8 mm spacer]
Weight in lbs/sf	9.2	12.5	12.5	15.8	22.1
Daylight Transmission	86	77 59-71	86%	77% 59-70%	74% 33-68%
Sound Transmission Coefficient	40dB	40dB	44dB	44dB	46dB

* Low-E product.

F. Exterior Grade: PVB inner layer installed toward exterior.

G. Logo: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, manufacture, testing laboratory (UL), fire rating period, safety glazing standards, and date of manufacture.

H. Glazing Accessories: Manufacturer's standard compression gaskets, standoff, spacers, setting blocks and other accessories necessary for a complete installation.

2.4 MATERIALS –ALUMINUM FRAMES

A. Aluminum Framing System [45 min. 60 min. 120 min.]

1. Steel Frame — The steel framing members are made of two halves, nom. 1.9 in. wide (48.3 mm) with a nom. minimum depth of 1.38 in. (35 mm) with lengths cut according to glazing size.

2. Aluminum Trim — Supplied with the steel framing members. Nom. 2 in. (50.8 mm) wide with a nom. depth of 1.54 in. (39 mm) with lengths cut according to glazing size.
 3. Stainless Steel Standoffs — Supplied with the steel framing members. Nom 5/16 in. (8 mm) diameter with a nom. minimum depth of 1 1/8 in. (28 mm) with depth adjusted to match Pilkington Pyrostop® Panel thickness.
 4. Stainless Steel Moment and Connecting Braces: — Supplied with the steel framing members. Nom 3/8 in. (10 mm) thick with a nom. minimum depth of 1 1/8 in. (28 mm) with depth adjusted to match Pilkington Pyrostop® Panel thickness.
 5. Framing Member Fasteners — Supplied with the steel framing members. Screws are M6 x16mm Button Head Socket Cap Screws for frame assembly and #6 x 1" Pan Head Sheet Metal Screws for door installation.
 6. Glazing Gasket —
 - a. Interior Gasketing-Supplied with the steel framing members. Nom. 3/4 in. (19 mm) x 3/16 (4.5 mm) black applied to the steel framing members to cushion and seal the glazing material when installed.
 - b. Exterior Gasketing- Supplied with the steel framing members. Nom. 2 in. (50 mm) x 3/16 (4.5 mm) black applied to the steel framing members to cushion and seal the glazing material when installed.
- B. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
1. Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221 (ASTM B 221M).
- C. Steel Reinforcement: With manufacturer's standard corrosion-resistant primer complying with SSPC-PS Guide No. 12.00 applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M Standard Specification for Carbon Structural Steel
 2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable
 3. Hot-Rolled Sheet and Strip: ASTM A1011/A1011M Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
- D. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, nonbleeding fasteners and accessories compatible with adjacent materials.
1. Where fasteners are subject to loosening or turn out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
 2. Reinforce members as required to receive fastener threads.

2.5 ACCESSORIES

- A. Fasteners: Use fasteners fabricated from Type 304 or Type 316 stainless steel.
- B. Glazing Gaskets:

1. Glazing gaskets for interior or exterior applications: ASTM C 864 (extruded EPDM rubber that provides for silicone adhesion) or ASTM C1115 Standard Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories (extruded silicone).
- C. Intumescent Tape: As supplied by frame manufacturer.
- D. Setting Blocks: ¼" Calcium silicate.
- E. Perimeter Anchors: Steel.
- F. Flashings: As recommended by manufacturer; same material and finish as cover caps.
- G. Silicone Sealant: One-Part Low Modulus, neutral cure High Movement-Capable Sealant: Type S; Grade NS; Class 25 with additional movement capability of 100 percent in extension and 50 percent in compression (total 150 percent); Use (Exposure) NT; Uses (Substrates) M, G, A, and O as applicable. (Use-O joint substrates include: Metal factory-coated with a high-performance coating; galvanized steel; ceramic tile.)
 1. Available Products:
 - a. Dow Corning 790, 795 - Dow Corning Corp.
 - b. Mumentive
 - c. Tremco
- H. Intumescent Caulk: Single component, latex-based, intumescent caulk designed to stop passage of fire, smoke, and fumes through fire-rated separations; permanently flexible after cure; will not support mold growth; flame spread/smoke developed 10/10.
 1. Available Products:
 - a. 3M CP-25 WP+

2.6 SLAG-WOOL-FIBER/ROCK-WOOL-FIBER INSULATION

- A. Available Manufacturers:
 1. Fibrex Insulations Inc.
 2. Owens Corning
 3. Thermafiber.
 4. Rockwool
- B. Unfaced, Slag-Wool-Fiber/Rock-Wool-Fiber Board Insulation: ASTM C 612, maximum flame-spread and smoke-developed indexes of 15 and 0, respectively; passing ASTM E 136 for combustion characteristics; and of the following nominal density and thermal resistivity:
 1. Nominal density of 4 lb/cu. ft. (64 kg/cu. m), Types IA and IB, thermal resistivity of 4 deg F x h x sq. ft./Btu x in. at 75 deg F (27.7 K x m/W at 24 deg C).
 2. Fiber Color: Regular color, unless otherwise indicated.

2.7 FABRICATION

- A. Obtain reviewed shop drawings prior to fabrication.
- B. Fabrication Dimensions: Fabricate fire-rated assembly to field dimensions.

- C. Factory prepared, fire-rated steel door assemblies by TGP to be pre-hung, prefinished with hardware preinstalled for field mounting.
- D. Field glaze door and frame assemblies.

2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish frames after assembly.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

2.9 POWDERCOAT FINISHES

- D. Finish after fabrication.
- E. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.
- F. Steel or Aluminum Finishes
 - 1. Powder-Coat Finish: Polyester Super Durable powder coating which meets AAMA 2604 for chalking and fading. Apply manufacturer's standard powder coating finish system applied to factory-assembled frames before shipping, complying with manufacturer's recommended instructions for surface preparation including pretreatment, application, and minimum dry film thickness.
 - 2. Color and Gloss: [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range].
 - 3. Acceptable Manufacturers:
 - a. Tiger Drylac
 - b. Additional manufacturers as approved by TGP
- G. Aluminum Finishes
 - 1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
 - 2. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.
 - 3. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.
 - 4. Class II, Color Anodic Finish: AA-M12C22A32/A34 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, integrally colored or electrolytically deposited color coating 0.010 mm or thicker) complying with AAMA 611.

5. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.
6. Color: **[Light bronze] [Medium bronze] [Dark bronze] [Black]**.
7. Color: **[Match Architect's sample] [As selected by Architect from full range of industry colors and color densities]**.
8. High-Performance Organic Finish (2-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA **[2604] [2605]** and with coating and resin manufacturers' written instructions.
9. High-Performance Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
10. Color and Gloss: **[As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range]**.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive curtain wall system and sill plate is level in accordance with manufacturer's acceptable tolerances.
- B. Notify Architect of any conditions which jeopardize the integrity of the proposed fire wall / door system.
- C. Do not proceed until such conditions are corrected.

3.2 INSTALLATION

- A. See Fireframes Aluminum Series Installation Manual

3.3 REPAIR AND TOUCH UP

- A. Anodized Finishes
 1. Protect the anodized finish from harsh chemicals such as concrete/mortar or muriatic acid/brick wash. If reasonable care is taken during handling and high and low pH chemicals can be avoided, repair and/or touch-up of an anodize finish will not be needed.

2. Some rub marks on an anodized surface can be removed with a mild abrasive pad such as a Scotch-Brite pad prior to touch up painting.
 3. Touch-up paint should be used even more sparingly over anodized. Only the visible raw aluminum in the scratch or gouge should be touched up with a matching paint.
- B. Powder Coated Finishes
1. Limited to minor repair of small scratches. Use only manufacturer's recommended products.
 2. Such repairs shall match the original finish for quality or material and view.
 3. Repairs and touch-up not visible from a distance of 5 feet Owner and Architect to approve.
- C. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged.

3.4 PROTECTION AND CLEANING

- A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove non-permanent labels, and clean surfaces.
1. Do not clean with astringent cleaners. Use a clean "grit free" cloth and a small amount of mild soap and water or mild detergent.
 2. Do not use any of the following:
 - a. Steam jets
 - b. Abrasives
 - c. Strong acidic or alkaline detergents, or surface-reactive agents
 - d. Detergents not recommended in writing by the manufacturer
 - e. Do not use any detergent above 77 degrees F
 - f. Organic solvents including but not limited to those containing ester, ketones, alcohols, aromatic compounds, glycol ether, or halogenated hydrocarbons.
 - g. Metal or hard parts of cleaning equipment must not touch the glass surface
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION

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SECTION 08 88 13 - FIRE-RATED GLASS – FIRELITE®

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fire-rated glazing materials installed as [transoms] [borrowed lites] [windows] in fire-rated frames.
- B. Related Sections include the following:
 - 1. Section 06 40 00 "Architectural Woodwork" for wood frames for doors, sidelights, transoms, borrowed lights.
 - 2. Section 08 11 00 "Metal Doors and Frames" for vision panels in interior doors and interior vision panel (borrowed lites) frames.
 - 3. Section 08 14 16 "Flush Wood Doors" for vision panels in interior doors.
 - 4. Section 08 14 33 "Stile and Rail Wood Doors" for vision panels in interior doors.
 - 5. Section 08 51 23 "Steel Windows".

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM E2010-01: Standard Test Method for Positive Pressure Fire Tests of Window Assemblies.
- B. Glass Association of North America (GANA):
 - 1. GANA – Glazing Manual.
 - 2. FGMA – Sealant Manual.
- C. National Fire Protection Association (NFPA):
 - 1. NFPA 80: Fire Doors and Windows.
 - 2. NFPA 257 – Fire Tests of Window Assemblies.
- D. Underwriters Laboratories, Inc. (UL):
 - 1. UL 9 – Fire Tests of Window Assemblies.
- E. Standard Council of Canada:
 - 1. CAN/ULC-S104 Standard Method of Fire Tests of Door Assemblies
 - 2. CAN/ULC-S106 Standard Method of Fire Tests of Window and Glass Block Assemblies
- F. <Insert building code name used by authority having jurisdiction>.

1.3 DEFINITIONS

- A. Manufacturer: A firm that produces primary glass, fabricated glass or framing as defined in referenced glazing publications.

1.4 SUBMITTALS

- A. Comply with requirements of Section 01 33 00<Insert Section #>.
- B. Product data: Submit manufacturer's technical data for each glazing material required, including installation and maintenance instructions.
- C. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.
- D. Product Test Listings: From UL indicating fire-rated glass complies with requirements, based on comprehensive testing of current product.
- E. Samples: Submit, for verification purposes, approx. 8-inch by 10-inch sample for each type of glass indicated.

1.5 QUALITY ASSURANCE

- A. Glazing Standards: GAMA Glazing Manual and FGMA Sealant Manual.
- B. Fire Protective Rated Glass: Each lite shall bear permanent, nonremovable label of UL certifying it for use in tested and rated fire protective assemblies.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials under provisions of Section 01 60 00<Insert Section #>.
- B. Deliver materials to specified destination in manufacturer or distributor's packaging, undamaged, complete with installation instructions.
- C. Store off ground, under cover, protected from weather and construction activities.

1.7 WARRANTY

- A. Provide manufacturer's limited warranty under provision of Section 01 78 00<Insert Section #>.

PART 2 - PRODUCTS

2.1 MANUFACTURERS- (ACCEPTABLE MANUFACTURER/PRODUCTS)

- A. Manufacturer: FireLite® as manufactured by Nippon Electric Glass Company, Ltd., and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 phone (800.426.0279) fax (425.396.8300) e-mail: sales@fireglass.com, web site <http://www.fireglass.com>

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-rated glass ceramic clear and wireless glazing material listed for use in non-impact safety-rated locations such as transoms and borrowed lites with fire rating requirements ranging from 20 to 90 minutes with required hose stream test.
- B. Passes positive pressure test standards UL 10C.

2.3 MATERIALS-GLASS

- A. Properties:
 - 1. Thickness: 3/16 inch [5 mm].
 - 2. Weight: 2.56 lbs/ft² or 12.5 kg/m²
 - 3. Approximate Visible Transmission: 88 percent.
 - 4. Approximate Visible Reflection: 9 percent.
 - 5. Hardness (Vicker's Scale): 700.
 - 6. Fire-rating: 20 minutes to 90 minutes.
 - 7. Impact Safety Resistance: None.
 - 8. Positive Pressure Test: UL 10C; passes.
 - 9. Surface Finish:
 - a. Standard Grade is polished for a surface quality that is comparable to alternative fire-rated ceramics marketed as having a premium finish.
 - b. Premium Grade is finish ground and polished on both surfaces to provide superior surface quality, improving overall clarity and providing a surface that is unmatched by alternative products.
 - c. Obscure-Patterned surface for privacy
 - 10. Positive Pressure Test: UL 10C; passes.
- B. Maximum sheet sizes based on surface finish:
 - 1. Premium: 48 inches by 96 inches.
 - 2. Standard: 48 inches by 96 inches.
 - 3. Obscure: 36 inches by 96 inches.
- C. Labeling: Permanently label each piece of FireLite® with the FireLite® logo, UL logo and fire rating in sizes up to 3,325 sq. in., and with the FireLite® label only for sizes that exceed the listing (as approved by the local authority having jurisdiction).
- D. Fire Rating: Fire rating classified and labeled by UL for fire rating scheduled at opening locations on drawings, when tested in accordance with [ASTM E2010-01] [ULC Standards CAN4 S-104 and CAN4 S-106] [NFPA 257] [UL 9 and UL 10B].
- E. Substitutions: No substitutions permitted.

2.4 GLAZING COMPOUND FOR FIRE-RATED GLAZING MATERIALS

- A. Glazing Tape: Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent. Glass panels that exceed 1,393 sq. inches for 90-minute ratings must be glazed with fire-rated glazing tape supplied by manufacturer.

- B. [Glazing Compound: DAP 33 putty.]
- C. [Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable. Available Products:
 - 1. Dow Corning 795 - Dow Corning Corp.
 - 2. Silglaze-II 2800 - General Electric Co.
 - 3. Spectrem 2 - Tremco Inc.
- D. Setting Blocks: Neoprene, EPDM, or silicone; tested for compatibility with glazing compound; of 70 to 90 Shore A hardness.
- E. Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

2.5 FABRICATION

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine glass framing, with glazier present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
 - 2. Minimum required face or edge clearances.
 - 3. Observable edge damage or face imperfections.
- B. Do not proceed with glazing until unsatisfactory conditions have been corrected.
- C. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

3.2 INSTALLATION (GLAZING)

- A. Comply with referenced FGMA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.
- B. Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.
- C. Set units of glass in each series with uniformity of pattern, draw, bow, and similar characteristics.

- D. Cut glazing tape to length and set against permanent stops, flush with sight lines to fit openings exactly, with stretch allowance during installation.
- E. Place setting blocks located at quarter points of glass with edge block no more than 6 inches from corners.
- F. Glaze vertically into labeled fire-rated metal frames or partition walls with same fire rating as glass and push against tape for full contact at perimeter of pane or unit.
- G. Place glazing tape on free perimeter of glazing in same manner described above.
- H. Install removable stop and secure without displacement of tape.
- I. [Use specified glazing compound, without adulteration; bed glazing material in glazing compound; entirely fill all recess and spaces. Provide visible glazing compound with smooth and straight edges.]
- J. Install so that appropriate [UL] [FireLite®] markings remain permanently visible.

3.3 PROTECTION AND CLEANING

- A. Protect glass from contact with contaminating substances resulting from construction operations. Remove any such substances by method approved by glass manufacturer.
- B. Wash glass on both faces not more than four days prior to date scheduled for inspections intended to establish date of substantial completion. Wash glass by method recommended by glass manufacturer.

3.4 GLAZING SCHEDULE

Rating	Assembly	Max. Exposed Area (Sq. In.)	Max. Width Of Exposed Glazing (In.)	OR	Max. Height Of Exposed Glazing (In.)	Stop Height
20 to 60 min.	Other than doors					
	HMS or wood*	3,325	95		95	5/8"
	Fireframes® D.S.	3,325	95		95	3/4"
90 min.	Other than doors					
	HMS	2,627	56 ½"		56 ½"	5/8"
	Fireframes D.S.	2,627	56 ½"		56 ½"	3/4"

* HMS indicates hollow metal steel framing. Fireframes® D.S. indicates Designer Series narrow profile framing available from TGP. For wood frames, check with manufacturer for maximum tested glass sizes.

END OF SECTION

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SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Standard and custom hollow metal doors and frames.
- 2. Steel sidelight, borrowed lite and transom frames.
- 3. Louvers installed in hollow metal doors.
- 4. Light frames and glazing installed in hollow metal doors.

- B. Related Sections:

- 1. Division 01 Section "General Conditions".
- 2. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
- 3. Division 08 Section "Glazing" for glass view panels in hollow metal doors.
- 4. Division 08 Section "Door Hardware".
- 5. Division 08 Section "Access Control Hardware".
- 6. Division 09 Sections "Exterior Painting" and "Interior Painting" for field painting hollow metal doors and frames.

- C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

- 1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
- 2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
- 3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
- 4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- 5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
- 6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
- 7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

8. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
9. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
10. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
11. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
12. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
13. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
14. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
15. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
16. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.
- B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.
- C. Shop Drawings: Include the following:
 1. Elevations of each door design.
 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 4. Locations of reinforcement and preparations for hardware.
 5. Details of anchorages, joints, field splices, and connections.
 6. Details of accessories.
 7. Details of moldings, removable stops, and glazing.
 8. Details of conduit and preparations for power, signal, and control systems.
- D. Samples for Verification:
 1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.

- B. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".
- C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL10C (neutral pressure at 40" above sill) or UL 10C.
 - 1. Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.
 - 2. Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
 - 3. Smoke Control Door Assemblies: Comply with NFPA 105.
 - a. Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.
- D. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.
- E. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.
 - 1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- B. Building Information Modeling (BIM) Support: Utilize designated BIM software tools and obtain training needed to successfully participate in the Project BIM processes. All technical disciplines are responsible for the product data integration and data reliability of their Work into the coordinated BIM applications.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
- B. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:
 - 1. CECO Door Products (C).
 - 2. Curries Company (CU).

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.
- C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.3 HOLLOW METAL DOORS

- A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.
- B. Interior Doors (Energy Efficient): Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A366 or 620. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
1. Design: Flush panel.
 2. Core Construction: Steel stiffened laminated core with fiberglass filler with no stiffener face welds, in compliance with HMMA 867 "Laminated Core".
 - a. Provide 22 gauge steel-stiffeners at 6 inches on-center internally welded at 5" on-center to integral core assembly, No stiffener face welding is permitted.
 - b. Acoustical sound transmission rating shall be no less than STC 38 complying with ASTM E 90 and must be visible on factory applied labels.
 3. Level/Model: Level 2 and Physical Performance Level A (Heavy Duty), Minimum 18 gauge (0.042 inch - 1.1-mm) thick steel, Model 2.
 4. Vertical Edges: Vertical edges—to be mechanically interlocked with hairline seam. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).
 5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
 6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9".
 7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- C. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
1. Design: Flush panel.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 2. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), minimum 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2.
 3. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.

4. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
5. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

D. Manufacturers Basis of Design:

1. Curries Company (CU) - Energy Efficient - 777 Trio-E Series.

2.4 HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Manufacturers Basis of Design:
 - a. Curries Company (CU) - M Series.
 - b. Curries Company (CU) – Kerfed Weatherstripped WC WM Series.
- C. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Manufacturers Basis of Design:
 - a. Curries Company (CU) - M Series.
 - b. Curries Company (CU) – Kerfed Weatherstripped WC WM Series.
- D. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
- E. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 2. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.
 3. Compression Type for Drywall Slip-on (Knock-Down) Frames: Adjustable compression anchors.
- B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

- C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.6 LOUVERS

- A. Metal Louvers: Unless otherwise indicated provide louvers to meet the following requirements.
 - 1. Blade Type: Vision proof inverted V or inverted Y.
 - 2. Metal and Finish: Galvanized steel, 0.040 inch thick, factory primed for paint finish with baked enamel or powder coated finish. Match pre-finished door paint color where applicable.
- B. Louvers for Fire Rated Doors: Metal louvers with fusible link and closing device, listed and labeled for use in doors with fire protection rating of 1-1/2 hours and less.
 - 1. Manufacturers: Subject to compliance with requirements, provide louvers to meet rating indicated.
 - 2. Metal and Finish: Galvanized steel, 0.040 inch thick, factory primed for paint finish with baked enamel or powder coated finish. Match pre-finished door paint color where applicable.

2.7 LIGHT OPENINGS AND GLAZING

- A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator's shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.
- B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.
- C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.
- D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.8 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.9 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.
- C. Hollow Metal Doors:
 - 1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
 - 2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.
 - 3. Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
 - 4. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge strap for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
- D. **Hollow Metal Frames:**
 - 1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
 - a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.
 - 3. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
 - 4. High Frequency Hinge Reinforcement: Provide high frequency hinge reinforcements at door openings 48-inches and wider with mortise butt type hinges at top hinge locations.
 - 5. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
 - 6. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
 - 7. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.

8. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 9. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.
 - 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 5) Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.
 10. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".
 11. Bituminous Coating: Where frames are fully grouted with an approved Portland Cement based grout or mortar, coat inside of frame throat with a water based bituminous or asphaltic emulsion coating to a minimum thickness of 3 mils DFT, tested in accordance with UL 10C and applied to the frame under a 3rd party independent follow-up service procedure.
- E. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
 2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
 4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.10 STEEL FINISHES

- A. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.
- C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.

1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
 3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
 4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
- D. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

3.5 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

END OF SECTION 081113

SECTION 08 3344 - OVERHEAD COILING FIRE CURTAINS - DOOR SYSTEMS INC.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Deployable fire-protective smoke and fire curtains.
- B. Operational controls.

1.2 RELATED REQUIREMENTS

- A. Section 21 1300 - Fire-Suppression Sprinkler Systems: Connections with supervisory, alarm, and actuating devices installed in sprinkler system.
- B. Section 26 0533.13 - Conduit for Electrical Systems: Conduit from electric circuit to operator and from operator to control station.
- C. Section 26 0583 - Wiring Connections: Power to disconnect.
- D. Section 28 4600 - Fire Detection and Alarm: Connections with fire alarm and smoke detectors.

1.3 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. NFPA 70 - National Electrical Code.
- C. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
- D. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives.
- E. UL (DIR) - Online Certifications Directory.
- F. UL 10B - Standard for Fire Tests of Door Assemblies.
- G. UL 263 - Standard for Fire Tests of Building Construction and Materials.
- H. UL 864 - Control Units and Accessories for Fire Alarm Systems.
- I. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Door Systems, Inc; _____: www.doorsysinc.com/#sle.
- B. C.H.I. Overhead Doors; [_____]: www.chiohd.com/#sle.
- C. Clopay Building Products; [_____]: www.clopaydoor.com/#sle.
- D. Fimbel Architectural Door Specialties; [_____]: www.fimbelads.com/#sle.
- E. Raynor Garage Doors; [_____]: www.raynor.com/#sle.
- F. Alpine Overhead Doors; [_____]: <https://www.alpinedoors.com/#sle>
- G. Overhead Door corporation; [_____]: <https://www.overheaddoor.com/#sle>
- H. Alamo Door Systems; [_____]: www.alamodoorsystems.com/#sle
- I. Substitutions: See Section 01 6000 - Product Requirements.

2.2 MANUFACTURED UNITS

- A. Type HSR - 1, Protective Curtain:
 - 1. Compliant with UL 10B with hose stream.
 - 2. Smoke and Draft Control: Self-closing or automatic-closing protective curtains. Compliant with NFPA 80 and NFPA 105.
 - a. Maximum Air Leakage: 3.0 cfm/sq ft of door opening at 0.10 inch of water gauge pressure, when tested in accordance with UL 1784 at both ambient and elevated temperatures.
 - 3. Compliant with UL 263.
 - 4. Testing Laboratory Label: Affix to assembly.

2.3 COMPONENTS

- A. Curtain Fabric: Woven, reinforced, coated; flame spread index less than 25 and smoke developed index less than 50 when tested in accordance with ASTM E84.
- B. Roller Assembly: Horizontal structural support with minimal deflection of protective curtain assembly and sized to incorporate motor drive unit.

- C. Hood Assembly: Totally enclosed curtain and roller assembly with UL (DIR) approved smoke seals and removable cover plates to allow access to curtain rollers.
 - 1. Enclosure: 18-gauge, 0.0478-inch thick galvanized steel with gray factory primer.
- D. Motor Drive Unit:
 - 1. Motor and gearbox assembly within roller tube, with motor control circuiting in metal enclosure mounted on motor end of hood assembly.
 - 2. Inboard motor including gearbox assembly, electromechanical travel limit switches linked to electromagnetic brake in accordance with NFPA 70.
 - 3. Power Supply: Provide connection to building's 120 VAC power supply for drive-control system.
 - 4. Motor Voltage: 24 VDC.
 - 5. Descent Speed: 6 inches/sec, minimum; 24 inches/sec, maximum.
- E. Brake: Under normal operating conditions, motor operates at low voltage to hold curtains in retracted position.
- F. Mounting Brackets: Plates and brackets for supporting hood assembly.
 - 1. Sheet Metal Thickness: 14-gauge, 0.0747-inch galvanized steel.
- G. Side Guide Rails: Galvanized steel, factory primed.
- H. Bottom Bar: T-bar or tubular member formed to attach with protective curtain, with necessary stiffness to limit deflection caused by building's air pressure currents and to maintain taut and level curtain when in fully extended position.

2.4 OPERATIONAL CONTROLS

- A. Operator, Controls, Actuators, and Safeties: Provide products listed by UL (DIR).
 - 1. Operable curtain deploys within 10 seconds upon actuation signal from fire alarm system, local smoke detector, or sprinkler alarm system or upon loss of electric power to unit with listed releasing device in accordance with UL 864.
 - 2. Upon activation of fire alarm, control panel removes supply voltage, and curtain descends under power of gravity in controlled manner. A dynamic braking system housed in motor control circuit controls the speed of descent of curtain.
 - 3. Electronically synchronize descent of overlapping curtains that have bottom bar.
- B. Fail-Safe Release Device:
 - 1. Curtain defaults to closed position by gravity during loss of primary or auxiliary power.
 - 2. Alarm condition interrupts release mechanism's power, and curtain closes automatically.
 - 3. Curtain resets to open position upon restoration of power and with cleared alarm condition.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that supporting members, blocking, inserts, clips, tolerances, clearances, and other project conditions are complete and correct and ready for proper installation of this work.

3.2 INSTALLATION

- A. Install system in accordance with manufacturer's written installation instructions.
- B. Securely and rigidly brace components suspended from structure.
- C. Install conduit and wiring from disconnect to unit components; coordinate electrical service installation. See Section 26 0533.13 and Section 26 0583 requirements.
- D. Coordinate fire-suppression sprinkler system connection; see Section 21 1300.
- E. Coordinate fire alarm system and smoke detector connection; see Section 28 4600.

3.3 CLEANING

- A. Remove labels and visible markings from protective curtain components.

END OF SECTION

SECTION 08 3613 - SECTIONAL DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Overhead sectional doors, electrically operated.
- B. Operating hardware and supports.
- C. Electrical controls.

1.2 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
- C. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- D. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- E. ASTM C1036 - Standard Specification for Flat Glass.
- F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- G. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- H. DASMA 102 - American National Standard Specifications for Sectional Doors.
- I. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts.
- J. NEMA MG 1 - Motors and Generators.
- K. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- L. NFPA 70 - National Electrical Code.
- M. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Sectional Doors:
 - 1. C.H.I. Overhead Doors; [____]: www.chiohd.com/#sle.
 - 2. Clopay Building Products; [____]: www.clopaydoor.com/#sle.
 - 3. Fimbel Architectural Door Specialties; [____]: www.fimbelads.com/#sle.
 - 4. Raynor Garage Doors; [____]: www.raynor.com/#sle.
 - 5. Alphine Overhead Doors; [____]: <https://www.alpinedoors.com/#sle>
 - 6. Overhead Door corporation; [____]: <https://www.overheaddoor.com/#sle>
 - 7. Alamo Door Systems; [____]: www.alamodoorsystems.com/#sle
 - 8. Substitutions: See Section 01 6000 - Product Requirements.

2.2 STEEL DOORS

- A. Steel Doors: Flush steel, insulated; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
 - 1. Door Nominal Thickness: 2 inches thick.
 - 2. Thermal Transmittance: U-factor of 0.31 Btu/hr sq ft degrees F, maximum, in accordance with DASMA 102.
 - 3. Air Leakage Rate: Less than 0.40 cfm/sf when tested in accordance with ASTM E283 at test pressure difference of 1.57 psf.
 - 4. Exterior Finish: Factory finished with acrylic baked enamel; color as selected by Architect.
 - 5. Glazed Lights: Full panel width, one row; set in place with resilient glazing channel.
 - 6. Electric Operation: Electric control station.

- B. Door Panels: Steel construction; outer steel sheet of 20 gauge, 0.0359 inch minimum thickness, flush profile; inner steel sheet of 20 gauge, 0.0359 inch minimum thickness, flat profile; core reinforcement ____ inch sheet steel roll formed to channel shape, rabbeted weather joints at meeting rails; polyurethane insulation.
- C. Window Frame: Manufacturers standard, finish to match.
- D. Glazing: Annealed float glass; single pane; clear; 1/8 inch overall thickness.

2.3 COMPONENTS

- A. Track: Rolled galvanized steel, 0.090 inch minimum thickness; 2 inch wide, continuous one piece per side; galvanized steel mounting brackets 1/4 inch thick.
- B. Hinge and Roller Assemblies: Heavy duty hinges and adjustable roller holders of galvanized steel; floating hardened steel bearing rollers, located at top and bottom of each panel, each side.
- C. Lift Mechanism: Torsion spring on cross head shaft, with braided galvanized steel lifting cables.
- D. Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.
- E. Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.
- F. Head Weatherstripping: EPDM rubber seal, one piece full length.
- G. Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.
- H. Lock: Inside center mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; interior and exterior handle.
- I. Lock Cylinders: See Section 08 7100.

2.4 MATERIALS

- A. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G60/Z180 coating, plain surface.
- B. Aluminum Sheet: ASTM B209/B209M, 5005 alloy, H14 temper, plain surface.
- C. Float Glass: Provide float glass glazing, unless noted otherwise.
 - 1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
 - 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
 - 3. Tinted Types: Color and performance characteristics as indicated.
- D. Insulation: Foamed-in-place polyurethane, bonded to facing.

2.5 ELECTRIC OPERATION

- A. Electric Operators:
 - 1. Mounting: Side mounted on cross head shaft.
 - 2. Motor Enclosure:
 - 3. Motor Rating: 1/3 hp; continuous duty.
 - 4. Motor Voltage: 120 volts, single phase, 60 Hz.
 - 5. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
 - 6. Controller Enclosure: NEMA 250, Type 1.
 - 7. Opening Speed: 12 inches per second.
 - 8. Brake: Adjustable friction clutch type, activated by motor controller.
 - 9. Manual override in case of power failure.
 - 10. Refer to Section 26 0583 for electrical connections.
- B. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated; enclose terminal lugs in terminal box sized to comply with NFPA 70.
- C. Control Station: Provide standard three button (Open-Close-Stop) momentary-contact control device for each operator complying with UL 325.
 - 1. 24 volt circuit.
 - 2. Surface mounted, at interior door jamb.
 - 3. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.

- a. Primary Device: Provide electric sensing edge, wireless sensing, NEMA 1 photo eye sensors, or NEMA 4X photo eye sensors as required with momentary-contact control device.
- D. Safety Edge: Located at bottom of sectional door panel, full width; electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object; hollow neoprene covered to provide weatherstrip seal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install door unit assembly in accordance with manufacturer's instructions.
- B. Anchor assembly to wall construction and building framing without distortion or stress.
- C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- D. Fit and align door assembly including hardware.
- E. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.2 TOLERANCES

- A. Maximum Variation from Plumb: 1/16 inch.
- B. Maximum Variation from Level: 1/16 inch.
- C. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 ft straight edge.
- D. Maintain dimensional tolerances and alignment with adjacent work.

3.3 ADJUSTING

- A. Adjust door assembly for smooth operation and full contact with weatherstripping.

3.4 CLEANING

- A. Clean doors and frames and glazing.
- B. Remove temporary labels and visible markings.

3.5 PROTECTION

- A. Protect installed products from damage until Date of Substantial Completion.
- B. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

END OF SECTION

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SECTION 087100 - DOOR HARDWARE**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Sliding doors.
 - 3. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames".
 - 2. Division 08 Section "Sanitary and Watertight Doors and Frames".
 - 3. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format.

Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
1. Function of building, purpose of each area and degree of security required.
 2. Plans for existing and future key system expansion.
 3. Requirements for key control storage and software.
 4. Installation of permanent keys, cylinder cores and software.
 5. Address and requirements for delivery of keys.
- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS**2.1 SCHEDULED DOOR HARDWARE**

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Pin and Barrel Continuous Hinges: ANSI/BHMA A156.26 Grade 1-600 pin and barrel continuous hinges with minimum 14 gauge Type 304 stainless steel hinge leaves, concealed stainless pin, and twin self-lubricated nylon bearings at each knuckle separation. Factory trim hinges to suit door height and prepare for electrical cut-outs.
 - 1. Manufacturers:
 - a. Markar Products; ASSA ABLOY Architectural Door Accessories (MR).
 - b. Pemko (PE).

2.3 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
 - 1. Threaded mortise cylinders with rings and cams to suit hardware application.
 - 2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 - 3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
 - 4. Tubular deadlocks and other auxiliary locks.
 - 5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 - 6. Keyway: Match Facility Standard.
- C. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. Existing System: Field verify and key cylinders to match Owner's existing system.
- D. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
- E. Key Registration List (Bitting List):
1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
 2. Provide transcript list in writing or electronic file as directed by the Owner.

2.4 KEY CONTROL

- A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
1. Manufacturers:
 - a. Lund Equipment (LU).
 - b. MMF Industries (MM).
 - c. Telkee (TK).

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Heavy duty mortise locks shall have a ten-year warranty.
 2. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ML2000 Series.
 - b. Sargent Manufacturing (SA) - 8200 Series.
- B. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed.

1. Vertical Impact: Exceed 100 vertical impacts (20 times ANSI/BHMA A156.2 requirements).
2. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
3. Locks are to be non-handed and fully field reversible.
4. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - CLX3300 Series.
 - b. Sargent Manufacturing (SA) - 10X Line.

2.6 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 4. Dustproof Strikes: BHMA A156.16.

2.7 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
 1. Exit devices shall have a five-year warranty.
 2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets.
1. Exit devices shall have no catch points.
 2. Exit devices shall have no visible plastic.
 3. Exit devices shall have concealed hex key dogging.
 4. Exit devices shall have dogging and chassis indicators as specified in the hardware sets. Chassis indicator to show locked/unlocked status of exterior trim, dogging indicator to have both passive and active options.
 5. Exit devices to have heavy duty end caps with flush and overlapping options made of stainless steel, brass, or bronze with architectural finishes allowing for easy wire routing.
 6. Exit Devices shall be constructed of all stainless steel.

7. Exit device latch to be stainless steel, pullman type, with deadlock feature and a 10-year warranty.
 8. Exit devices shall have narrow or wide style exterior trim as specified in the hardware sets.
 9. Concealed vertical rod exit devices shall have center case adjustability.
 10. Exit devices shall not require wire routing through the door for electromechanical functions.
 11. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - PED4000 / PED5000 Series.
 - b. Sargent Manufacturing (SA) - PE80 Series.
 - c. Von Duprin (VD) - 35A/98 XP Series.
 - d. No Substitution.
- C. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
 - b. Sargent Manufacturing (SA) - 80 Series.

2.8 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
 4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
 1. Large body cast iron surface mounted door closers shall have a 30-year warranty.
 2. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DC8000 Series.
 - b. Norton Rixson (NO) - 9500 Series.
 - c. Sargent Manufacturing (SA) - 281 Series.

2.9 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 1. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood (RO).
 - c. Trimco (TC).

2.10 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 1. National Guard Products (NG).
 2. Pemko (PE).
 3. Reese Enterprises, Inc. (RE).

2.11 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.12 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.5 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.6 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.7 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handling and sizing all products.

3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer's Abbreviations:

1. MR - Markar
2. SA - SARGENT
3. RO - Rockwood
4. PE - Pemko
5. OT - Other

Hardware Sets

Set: 1.00

Doors: [107B](#)

1 Continuous Hinge	HG305 AS	630	MR
1 Rim Exit Device, Storeroom	12 19 43 8804 ETMD	US32D	SA
1 Keyed Cylinder	Match/expand existing-type as req'd.		
1 Surface Closer	281 CPS	EN	SA
1 Door Stop	406 / 409 / 470	US26D	RO
1 Threshold	273x292AFGPK		PE
1 Kerf Seal	by door/frame manufacturer		OT
1 Door Bottom	411ANBL 36" Full Notch		PE

Notes:

Vestibule Door to assist with low air infiltration to Refrigeration Room.

Set: 2.00

Doors: [107A](#)

1 Continuous Hinge	HG305 AS	630	MR
1 Rim Exit Device, Storeroom	12 19 43 8804 ETMD	US32D	SA
1 Keyed Cylinder	Match/expand existing-type as req'd.		

REFRIGERATION SYSTEM REPLACEMENT

Project number: 2022.032

CREVE COEUR, MO

1 Surface Closer	281 CPS	EN	SA
1 Door Stop	406 / 409 / 470	US26D	RO
1 Threshold	273x292AFGPK		PE
1 Kerf Seal	by door/frame manufacturer		OT
1 Door Bottom	411ANBL 36" Full Notch		PE

Notes:

Door to be sealed for low air infiltration.

Set: 3.00

Doors: 107C

1 Continuous Hinge	HG305 AS	630	MR
1 Rim Exit Device, Storeroom	12 19 43 8804 ETMD	US32D	SA
1 Keyed Cylinder	Match/expand existing-type as req'd.		
1 Surface Closer	281 CPS	EN	SA
1 Door Stop	406 / 409 / 470	US26D	RO
1 Threshold	253x3AFG		PE
1 Drip Cap	346BSP		PE
1 Kerf Seal	by door/frame manufacturer		OT
1 Sweep w/ Drip Cap	345ANB		PE

END OF SECTION 087100

SECTION 09 2116 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cementitious backing board.
- B. Gypsum wallboard.
- C. Joint treatment and accessories.

1.2 REFERENCE STANDARDS

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- B. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- C. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- D. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- E. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
- F. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
- G. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels.
- H. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- I. GA-216 - Application and Finishing of Gypsum Panel Products.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

PART 2 PRODUCTS

2.1 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. Georgia-Pacific Gypsum: www.gpgypsum.com/#sle.
 - 2. National Gypsum Company: www.nationalgypsum.com/#sle.
 - 3. USG Corporation: www.usg.com/#sle.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - 2. Glass mat faced gypsum panels, as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
 - 3. Thickness:
 - 4. Paper-Faced Products:
 - a. USG Corporation; USG Sheetrock Brand Firecode X Panels: www.usg.com/#sle.
 - b. Substitutions: See Section 01 6000 - Product Requirements.
 - 5. Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces. Mold Resistant Paper Faced Products:
 - a. USG Corporation; USG Sheetrock Brand EcoSmart Panels Mold Tough Firecode X: www.usg.com/#sle.
 - b. Firecode X:: www.usg.com/#sle.
 - c. Substitutions: See Section 01 6000 - Product Requirements.
 - 6. Glass Mat Faced Products:
 - a. USG Corporation; USG Sheetrock Brand Glass-Mat Panels Mold Tough.
- C. Abuse Resistant Wallboard:

1. Application: High-traffic areas indicated.
2. Surface Abrasion: Level 3, minimum, when tested in accordance with ASTM C1629/C1629M.
3. Indentation: Level 1, minimum, when tested in accordance with ASTM C1629/C1629M.
4. Soft Body Impact: Level 1, minimum, when tested in accordance with ASTM C1629/C1629M.
5. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
6. Type: Fire-resistance-rated Type X, UL or WH listed.
7. Thickness: 5/8 inch.
8. Edges: Tapered.
9. Paper-Faced Products:
 - a. USG Corporation; USG Sheetrock Brand Mold Tough AR Firecode X Panels: www.usg.com/#sle.
 - b. Firecode X Panels: www.usg.com/#sle..
 - c. Substitutions: See Section 01 6000 - Product Requirements.
 - 1) Backing board for wet areas: One of the following products:
 - 2) Application: Surfaces behind tile in wet areas including tub and shower surrounds and shower ceilings.
 - 3) Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M. Regular Type: Thickness 5/8 inch.
- D. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 1. Application: Ceilings, unless otherwise indicated.
 2. Thickness: 1/2 inch.
 3. Edges: Tapered.
- E. Shaftwall and Coreboard: Type X; 1 inch thick by 24 inches wide, beveled long edges, ends square cut.
 1. Paper-Faced Type: Gypsum shaftliner board or gypsum coreboard as defined ASTM C1396/C1396M; water-resistant faces.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

2.2 GYPSUM WALLBOARD ACCESSORIES

- A. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise. Cornerbead, edge trim, and control joints complying with requirements indicated below:
- B. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions. Provide joint treatment materials complying with the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- C. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.2 SHAFT WALL INSTALLATION

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
 1. Fasten runners to structure with short leg to finished side, using appropriate power-driven fasteners at not more than 24 inches on center.
 2. Install studs at spacing required to meet performance requirements.
- B. Shaft Wall Liner: Cut panels to accurate dimensions and install sequentially between special friction studs.

3.3 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

- B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing. Install gypsum wallboard panels as follows:
 - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

3.4 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
- B. Corner Beads: Install at external corners, using longest practical lengths.

3.5 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.
- B. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

3.6 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

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SECTION 09 9000 - PAINTING AND COATING - COMMERCIAL FACILITY GUIDE SPECIFICATION - SHERWIN-WILLIAMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Surface preparation.
- B. Interior painting and coating systems.
- C. Scope:
 - 1. Finish surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - a. Interior:
 - 1) Concrete, Walls and Ceilings: Poured concrete, precast concrete, unglazed brick, cement board, tilt-up, cast-in-place concrete, and plaster.
 - 2) Masonry CMU: Concrete, split face, scored, smooth, high density, low density, and fluted.
 - 3) Metal, Galvanized: Ceilings and ductwork.
 - 4) Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and ferrous metal.
 - 5) Drywall: Walls, ceilings, gypsum board, and similar items.

1.2 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency.
- B. SCAQMD 1113 - Architectural Coatings.
- C. SSPC-SP 1 - Solvent Cleaning.
- D. SSPC-SP 6 - Commercial Blast Cleaning.
- E. SSPC-SP 13 - Surface Preparation of Concrete.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Product characteristics.
 - 2. Surface preparation instructions and recommendations.
 - 3. Primer requirements and finish specification.
 - 4. Storage and handling requirements and recommendations.
 - 5. Application methods.
 - 6. Clean-up information.
- C. Samples: Submit four paper draw down samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
- D. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
 - 3. Label each container with color in addition to manufacturer's label.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

- B. Product Warranty: Product shall possess lifetime warranty.

1.5 MOCK-UPS

- A. See Section 01 4000 - Quality Requirements for general requirements for mock-ups.
- B. Provide one accent wall as directed by Architect to demonstrate color and finish.
- C. Locate where directed by Architect.
- D. Mock-up may remain as part of the work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, product name, product code, color designation, VOC content, batch date, environmental handling, surface preparation, application, and use instructions.
- C. Paint Materials: Store at a minimum of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.7 FIELD CONDITIONS

- A. Do not apply materials when environmental conditions are outside the ranges required by manufacturer.
- B. Follow manufacturer's recommended procedures for producing the best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design Products: Subject to compliance with requirements, provide Sherwin-Williams Company (The) products indicated; FIRETEX® M90/03, <https://industrial.sherwin-williams.com/na/us/en/protective-marine/resources-downloads/firetex-m90-03-hydrocarbon-passive-fire-protection.html>
- B. Comparable Products: Products of approved manufacturers will be considered in accordance with 01 6000 - Product Requirements, and the following:
 - 1. Products are approved by manufacturer in writing for application specified.
 - 2. Products that meet or exceed performance and physical characteristics of basis of design products.
 - 3. Other Acceptable Manufacturers:
Substitutions: See Section 01 6000 - Product Requirements

2.2 PAINTINGS AND COATINGS

- A. General:
 - 1. Provide factory-mixed coatings unless otherwise indicated.
 - 2. Do not reduce, thin, or dilute coatings or add materials to coatings unless specifically indicated in manufacturer's instructions.
- B. Volatile Organic Compound (VOC) Content:
 - 1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - b. SCAQMD 1113 Rule.
- C. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

2.3 PAINT SYSTEMS - INTERIOR

- A. Concrete, Walls and Ceilings: Poured concrete, precast concrete, unglazed brick, cement board, tilt-up, cast-in-place concrete, and plaster.
 - 1. Epoxy Systems, Water Based:
 - a. Eg-Shel/Low Luster Finish:
 - 1) 1st Coat: Sherwin-Williams Loxon Concrete and Masonry Primer Sealer, LX02W50: www.sherwin-williams.com/#sle.
 - 2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45 Series: www.sherwin-williams.com/#sle.
- B. Masonry CMU: Concrete, split face, scored, smooth, high density, low density, and fluted.
 - 1. Epoxy Systems, Water Based:
 - a. Eg-Shel/Low Luster Finish:
 - 1) 1st Coat: Sherwin-Williams Loxon Block Surfer, LX01W200: www.sherwin-williams.com/#sle.
 - 2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45 Series: www.sherwin-williams.com/#sle.
 - (a) 4 mils wet, 1.5 mils dry per coat.
- C. Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and ferrous metal.
 - 1. Epoxy Systems, Water Based:
 - a. Eg-Shel/Low Luster Finish:
 - 1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.
 - (a) 5 mils wet, 2 mils dry per coat.
 - 2) 2nd and 3rd Coat: Sherwin-Williams Firetex FX5120 Waterbased Intumescent Coating - <https://industrial.sherwin-williams.com/na/us/en/protective-marine/catalog/product/products-by-industry.11543396/firetex-fx5120.9223369.html>
 - (a) 4 mils wet, 1.5 mils dry per coat.
- D. Drywall: Walls, ceilings, gypsum board, and similar items.
 - 1. Latex Systems:
 - a. Eg-Shel Finish:
 - 1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
 - (a) 4 mils wet, 1.5 mils dry per coat.
 - 2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 Zero VOC Eg-Shel, B20-2600 Series: www.sherwin-williams.com/#sle.
 - (a) 4 mils wet, 1.7 mils dry per coat.
 - b. Flat Finish:
 - 1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
 - (a) 4 mils wet, 1.5 mils dry per coat.
 - 2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 Zero VOC Latex Flat, B30-2600 Series: www.sherwin-williams.com/#sle.
 - (a) 4 mils wet, 1.6 mils dry per coat.
 - 2. Epoxy Systems, Water Based:
 - a. Eg-Shel/Low Luster Finish:

- 1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.
- 2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

3.2 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Concrete:
 1. Remove release agents, curing compounds, efflorescence, and chalk.
 2. Fill bug holes, air pockets, and other voids with cement patching compound.
 3. Prepare concrete according to SSPC-SP 13.
- D. Masonry: Remove efflorescence and chalk.
- E. Gypsum Board: Fill minor defects with filler compound; sand smooth and remove dust prior to painting.
- F. Plaster: Fill hairline cracks, small holes, and imperfections with patching plaster. Make smooth and flush with adjacent surfaces. Treat textured, soft, porous, or powdery surfaces in accordance with manufacturer's instructions.
- G. Galvanized Surfaces:
 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- H. Ferrous Metal:
 1. Solvent clean according to SSPC-SP 1.
 2. Remove rust, loose mill scale, and other foreign substances using methods recommended by paint manufacturer and blast cleaning according to SSPC-SP 6. Protect from corrosion until coated.

3.3 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions.
- C. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.

3.4 PRIMING

- A. Apply primer to all surfaces unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.
- B. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to top coat manufacturers.

3.5 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

- B. Clean surfaces immediately of overspray, splatter, and excess material.
- C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.6 PROTECTION

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

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SECTION 13 18 11
ICE RINK GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance - prequalification criteria.
- B. General description of ice system requirements including ice rink floor, refrigeration system, and waste heat recovery systems.
- C. Reinspection.
- D. Submittal and project closeout requirements.
- E. Electrical requirements.
- F. General concrete requirements.
- G. Trench drains.
- H. Breathing apparatus.
- I. Eye wash station.
- J. Vehicle curb stops.
- K. Floor drain containment systems.
- L. Start-up and shutdown procedures.
- M. Building first ice sheet.
- N. Demolition work.
- O. Temporary chiller system requirements.
- P. Emergency Preparedness Planning Assistance (ammonia systems).

1.02 QUALITY ASSURANCE

- A. Contractors wishing to bid/quote on this project must submit, with their bid, the following prequalification criteria.
 - 1. As evidence and assurance of the contractor's ability to construct the project and support the Owner's system with service the contractor installing and constructing the primary and secondary refrigeration systems must have successfully installed and constructed ammonia refrigeration systems and ice rink floors for **five (5) ice rink construction projects that are similar to this project and completed within the past five (5) years.** Submit information on each project. Submittal shall be on company letterhead, signed by an authorized representative of the company and include project description, portion of project completed by the company, location, construction cost, completion date, owner's name, owner's representative, phone number and completion date of work.
 - 2. As evidence and assurance of the contractor's concrete subcontractor's ability to construct the project the contractor placing and finishing the concrete must have successfully completed the placement and finishing of concrete on **eight (8) concrete ice rink floor construction projects within the past five (5) years.** Submit information on each project. Submittal shall be on company letterhead, signed by an authorized representative of the company and include project description, portion of project

completed by the company, location, construction cost, completion date, owner's name, owner's representative, phone number and completion date of work.

3. As evidence and assurance of the contractor's controls subcontractor's ability to construct the project the control subcontractor must have successfully completed the programming and installation of two (2) ice rink construction projects that are similar to this project that were completed within the past five (5) years. Submit information on each project. Submittal shall be on company letterhead, signed by an authorized representative of the company and include project description, portion of project completed by the company, location, construction cost, completion date, owner's name, owner's representative, phone number and completion date of work.
 4. As evidence and assurance of the contractor's expansion joint subcontractor's ability to construct the project the ice rink floor expansion joint subcontractor must have successfully completed twenty (20) construction projects that use the same type of joint. Submit information on each project. Submittal shall be on company letterhead, signed by an authorized representative of the company and include project description, portion of project completed by the company, location, construction cost, completion date, owner's name, owner's representative, phone number and completion date of work.
 5. Submit the name of at least one (1) person employed by the company that will supervise the fusion welding process along with their certifications, training and qualifications for performing the fusion welding process for high density polyethylene pipe (HDPE).
- B. Contractors wishing to bid on this project shall perform an on-site investigation prior to submitting a bid for the project. Contractor shall field verify all equipment and materials that will be affected by the work of this project and report any concerns to the Engineer at least ten (10) business days prior to the bid opening date.

1.03 GENERAL PROJECT DESCRIPTION

- A. The following is a general description of the project and may not include all materials and labor required or covered elsewhere in the contract documents.
1. Furnish and install a complete ice system including refrigeration system and waste heat recovery systems for sub-floor heating and snow melting. The ice rink floor is not being replaced under the scope of this project.
 2. Furnish and install an indirect refrigeration system including equipment, piping, insulation, valves, refrigerant, glycol/brine, gas monitoring system, controls, motor control center, electrical, accessories and all other necessary materials and labor required for a complete operating system.
 3. Furnish and install waste heat recovery systems for sub-floor heating and snow melting including sand, piping, coil for pit, heat exchanger, pumps, valves, glycol, controls, electrical, accessories and all other necessary materials and labor required for complete operating systems.
 4. **Furnish and install a temporary refrigeration system to maintain the ice sheet in the rink for the length of time specified by the project schedule. Work shall include, but is not limited to:**
 - a. Furnish temporary chiller outside the building near the ice equipment room.
 - b. Connect temporary chiller system to electrical service for building as required to operate system.
 - c. Test system.
 - d. Furnish and install temporary piping from temporary chiller system. Connect to existing 8" supply and return piping for the ice rink floor in the existing ice equipment room. Pipe routing to be approved by Engineer.

- e. Fill system with secondary fluid. It may be possible to use existing fluid in ice system if compatible with chiller system. Verify with supplier. Do not use new fluid specified for final project.
 - f. Operating and maintain system throughout duration of project including but not limited to; operating system, troubleshooting and repairing system, providing replacement system if necessary, repairing, rebuilding, painting and all other work associated with the loss of the ice sheet if the temporary refrigeration system fails.
 - g. The existing ice sheet shall remain in place and useable from shutdown of temporary chiller system to start-up and operation of the new refrigeration system. Ice time during this period has been scheduled.
 - h. Disconnect temporary chiller system and dispose of secondary fluid and flush rink piping systems as specified.
5. Schedule and pay for all testing and start up services required by the contract documents pertaining to the ice system.

1.04 REINSPECTION

- A. In addition to the Engineer's standard site visits throughout the project, the Engineer will be on-site at the end of the project to generate a list of uncompleted, or unsatisfactorily completed items, (i.e., punch list) after the project is reported complete by the Contractor and prior to the project's required completion date. If the items are not satisfactorily completed and should additional site visits be required to follow up on uncompleted items, the Engineer shall be compensated at the typically hourly rate for each person involved in the re-inspection. The Contractor will be back charged the amount of the additional inspections.

1.05 RELATED SECTIONS

- A. Division 0, Division 1, General and Supplementary Conditions.
- B. Section 131812 - Ice Rink Refrigeration System.
- C. Section 131814 - Ice Rink Piping, Valves and Accessories.
- D. Section 131815 - Ice Rink Waste Heat Recovery Systems.
- E. Section 131817 – Ice Rink Central Control System.

1.06 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 305 - Hot Weather Concreting.
- C. ACI 306 - Cold Weather Concreting.
- D. ACI 309 - Recommended Practices for Consolidation of Concrete.
- E. ASHRAE/ANSI - 15 Safety Code for Mechanical Refrigeration.
- F. ASME B31.5 - Refrigeration Pressure Piping Code.
- G. IEEE Standard 112 - Standard Test Procedure for Polyphase Induction Motors and Generators (Method B).
- H. NECA - Standard of Installation.
- I. NEMA ICS2 - Industrial Control Devices, Controllers and Assemblies.
- J. NEMA -MG - Motor and Generators.

- K. NEMA TC2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).
- L. NEMA-WC5 - Thermoplastic Insulated Wire and Cable.
- M. NEMA -WC7 - Cross Linked Thermosetting Poly Insulated Wire and Cable.
- N. NEMA 250 - Enclosures for Electrical Equipment.
- O. NFPA 70 - National Electrical Code.
- P. UL-83 - Thermoplastic - Insulated Wires and Cables.
- Q. UL 360 - Liquid-Tight Flexible Steel Conduit.
- R. UL 508 - Industrial Control Equipment.
- S. UL 651 - Schedule 40 and 80 PVC Conduit.
- T. UL 797 - Electrical Metallic Tubing.
- U. UL 810 – Capacitors.
- V. UL 845 - Control Panels.
- W. International Fire Code.
- X. International Building Code.
- Y. International Mechanical Code.

1.07 CODES AND STANDARDS

- A. All parts of the project shall be performed in accordance with the most recent version of the following codes and standards and all amendments:
 - 1. State Building Codes.
 - 2. State Electrical Codes.
 - 3. State Mechanical Codes.
 - 4. National Fire Protection Association Codes.
 - 5. ANSI/ASHRAE 15 -Safety Code for Mechanical Refrigeration.
 - 6. ASHRAE 34-Number Designations and Safety Classification of Refrigerants .
 - 7. OSHA.
 - 8. American Standard Code for Pressure Piping ASA B31.1.
 - 9. American Standard Code for Refrigeration Piping ASA B31.
 - 10. American Standard Code for Pressure Vessels.
 - 11. ANSI/IIAR Standard.
 - 12. Minnesota Department of Labor & Industry - High Pressure Piping and Code for Power Piping Systems Chapters 326 and 5230.

1.08 SUBMITTALS

- A. See General Conditions, Division 0, Section 013300 Submittal Procedures and 017000 Execution and Closeout Requirements.
- B. Operation and Maintenance Manuals (O&M Manuals)

1. See Section 017000 – Execution and Closeout Requirements

1.09 WARRANTY/GUARANTY

- A. In addition to the standard manufacturer's warranty on all equipment and materials, the contractor shall provide a standard one-year materials and labor warranty on all work performed for this project.

1.10 PRODUCT DELIVERY, STORAGE AND HANDLING REQUIREMENTS

- A. Transport, handle, store and protect products in accordance with manufacturer's recommendations. Secure products at all times.
- B. Store products with seals and labels intact and legible.
- C. Store products in a secure environment at all times.
- D. Provide adequate labor to handle products and prevent damage.
- E. All damaged materials and equipment will be rejected.

PART 2 - PRODUCTS

2.01 ELECTRICAL

- A. See requirements in Section 131812 - Ice Rink Refrigeration Systems.

2.02 GENERAL CONCRETE REQUIREMENTS

- A. This section refers to all concrete work outside the ice rink floor unless otherwise noted. For concrete ice rink floor see Section 131813 - Ice Rink Floor.
- B. Concrete Mix:
 1. Submit mix design fourteen (14) business days prior to placement.
 2. Concrete shall be produced by a Ready-Mix Plant approved by the Engineer. Concrete shall meet the requirement of ASTM C94 - Standard Specifications for Ready Mix Concrete.
 3. Mix Design Requirements

Minimum 28-day compressive strength	4000 psi
Coarse aggregate size	3/4 inch to #44 (ASTM C33 No. 67)
Maximum water to cement ratio	0.45
Maximum pozzolan content	25% of cement content
Minimum cement plus pozzolan content	564 lbs/cy
Slump	3 inches +/- 1 inch
Entrained air content	6% +/- 1.5%

- C. Material Requirements
 1. Cement: Shall meet ASTM C150, Type 1
 2. Aggregates: Shall meet ASTM C33
 3. Water: Shall be clean, potable water.
 4. Admixtures:

- a. Air Entrainment: Shall meet ASTM C260
 - b. Water Reducing Agent: Shall meet ASTM C494, Type A
 - c. Fly Ash: Shall meet ASTM C618 class C or F.
- D. Reinforcement and Formwork
 - 1. Formwork shall meet ACI 347 - Recommended Practice for Concrete Formwork.
 - 2. Reinforcement shall be tagged and conform to ASTM A615 Grade 60. Installation shall meet ACI 315.
 - 3. Tire wire: Shall be 16-gauge black annealed wire or heavier.
- E. Related General Materials
 - 1. Polyethylene Sheeting: Shall conform to ASTM C171.
 - 2. Finishing Compound: Thoroseal by Thoro System Products or equal.
 - 3. Expansion Joint: Bituminous fiber type meeting ASTM D1751.
 - 4. Joint Sealant: Two part - self leveling, polyurethane sealant. MasterSeal SL2 by BASF or equal.
 - 5. Anchor Adhesive: For anchoring dowels. Hilti HIT Doweling Adhesive C-100 by Hilti Fastening Systems, Powers Pure 110+, or equal.

2.03 TRENCH DRAINS

- A. Approved Manufacturers: Polydrain, ACO or equal.
- B. Channel material shall be polymer concrete and have interlocking joints, horizontal ribs, and anchor ribs, to ensure solid anchoring in perimeter concrete.
- C. Provide all accessories required for a complete installation including drainpipe, fittings, end caps, etc.
- D. Grate and Frame. Heavy duty slotted ductile iron capable of being locked down.
- E. Provide trap and connection to existing drains.
- F. Use Polyseal Sealant one-part non-sag polyurethane sealant as recommended by the manufacturer between drains sections.

2.04 BREATHING APPARATUS

- A. Owner to provide form fitted equipment.

2.05 EYE WASH STATION

- A. Furnish and install two (2) complete combination eye wash and shower systems.
- B. Fixture: Floor mounted eyewash with plastic bowl equal to Bradley S19-210 and mixing valve to be equal to Leonard TM800 with combination checkstops and strainer on inlets and outlet thermometer, rough bronze finish. Bowl, twin heads, complete with trap, tailpiece and mounting bracket, instant action stay open valve with push flag and foot pedal and duct cover. Refer to ANSI/ISEA Z358.1-2009 for eyewash guidelines.

2.06 VEHICLE CURB STOPS

- A. Furnish and install at each dump location for the snow melt pit. Total of one (1).

- B. Material: Recycled, solid plastic, 72" x 6" x 4" high, safety yellow. Each unit shall be anchored solid to the concrete floor with anchors through the pre-made unit. Verify with Owner's resurfacer location prior to installation.

2.07 FLOOR DRAIN CONTAINMENT SYSTEMS

- A. Floor Drain Covers
 - 1. Approved manufacturers: CPLabSafety (California Small Business #58199) or equal.
 - 2. Provide one Drain Seal product for each of the floor drains in the ammonia refrigeration room.
 - 3. Size: shall be 6" larger than the outside of the drain grate or as required by the manufacturer.
 - 4. Material: The Drain Seal system shall be water-tight, Ultra-Tech flexible, 2-hour rated, non-absorbing urethane material, shall resist oil and ammonia, and made with reinforced and tear resistant mesh. System shall seal using either side of material the material.
 - 5. Color: orange

2.08 FLUSHING FLUID (FLUSHING EXISTING RINK)

- A. Furnish and install an aqueous descaler for removal of water scale deposit, calcium & rust; 888 Descale by Delta Products Group or equal.
- B. Material: Biodegradable, Non-toxic, non-corrosive, non-flammable, non-injurious tar oil base solvent, including wetting and penetrating agents used for rapid removal water scale, lime, and rust deposits.
- C. Solution shall not corrode, erode, attack, pit, oxidize or have other deleterious effects on metals or materials on ice system, including but not limited to copper, high density polyethylene, iron, steel, rubber.

PART 3 - EXECUTION

3.01 CONSTRUCTION UTILITIES AND FACILITIES

- A. Unless specified elsewhere, all temporary utilities and facilities required to complete the project shall be the responsibility of the contractor and costs for these utilities and facilities shall be incidental to the project costs.

3.02 INSPECTION

- A. The Contractor shall notify the Engineer a minimum of seven (7) business days prior to the following phases of the work:
 - 1. Completion of subgrade preparation.
 - 2. Start of sub-floor heating system piping.
 - 3. Completion of transmission main installation
 - 4. Final flushing of all piping systems.
 - 5. Start of concrete placement.
 - 6. Start of refrigeration piping insulation installation.
 - 7. Start and completion of all pressure tests.

8. Start up and Training

- B. See Section 1.04 of this section for requirements regarding re-inspection of uncompleted or unsatisfactorily completed items.

3.03 DEMOLITION

- A. The Contractor is responsible for all demolition and disposal of the entire existing ice system (and all related piping, valves, supports, electrical, control systems) including but not limited to the following:
1. Refrigeration system.
 2. Waste heat recovery systems.
 3. Other related systems or areas as noted on the Drawings.
- B. The following items shall be salvaged, protected and stored:
1. Skate tile.
- C. Remove, salvage and reinstall existing skate tile for required work unless otherwise specified. If skate tile is damaged in anyway, replace with new at no additional cost to the Owner.
- D. Drain fluids from all systems prior to starting demolition.
1. Primary refrigerant.
 - a. The reclamation and recovery of all refrigerants must meet the requirements outlined in Section 608 of the Clean Air Act of 1990. Contractors who recover systems containing refrigerant are required to carry a Pollution Liability Insurance Policy. The following project documentation is required. Copies of the documentation shall be submitted to the Owner.
 - 1) Approved reclamation contractors include Rapid Recovery (952.297.2011), Reclamation Technologies (763.785.0686), or equal.
 - 2) Recovery technicians EPA certification
 - 3) Recovery equipment certification
 - 4) Date of service
 - 5) Location of service (site name & address)
 - 6) Make, model and serial number of systems
 - 7) Type and quantity of refrigerant
 - 8) Comments or concerns about condition of existing system or parts of systems.
 - 9) Signed certificate of abatement certifying the following:
 - 10) An EPA certified technician was used to perform the service and complete EPA documentation as required by the EPA - Clean Air Act.
 - 11) EPA Certified and ARI Certified equipment was used to recover the refrigerant.
 - 12) The systems were recovered to EPA required levels.
 - 13) Recovered refrigerants were transported to an EPA certified reclamation facility.
 - b. Dispose of all refrigerants off-site in accordance with all local, state and federal codes.
 2. Secondary refrigerant solutions.
 - a. Remove all fluids in ice rink floor, refrigeration system, waste heat recovery systems, headers, transmission mains and all related piping systems and equipment. Dispose of in accordance with all local and state codes.

- b. Salvage and store existing fluids for reuse. Test fluid and provide additional fluid and inhibitors as required to ensure the fluid is within the specified requirements and the manufacturers requirements.
 - c. Immediately after the existing fluids are removed from the piping systems, the system shall be flushed thoroughly in accordance with the pre-approved flushing method submitted to the engineer. The system shall be flushed multiple times until no existing fluid is detected. Test during the first flush and the last flush for solids content and other contaminants in the solution.
 - d. Remove all possible water in the system in all piping systems and ice rink floor zones using air or some other method.
 - e. **ALTERNATE BID 2** - Dispose of all fluids in accordance with all local and state codes.
 - f. Reinstall existing and adjusted ethylene glycol solution in all systems. Furnish and install additional glycol as needed to provide a full operating charge in all systems.
3. For projects where the chiller is not being replaced and brine is the secondary refrigerant, after draining fluids, the chiller vessel must be pressure tested and all moisture removed immediately after removing the fluids. The vessel then shall be charged with nitrogen and held until the renovation of the ice system is complete and the system is ready to be filled with the new brine fluid.
- E. Disconnect all electrical systems prior to starting demolition. Coordinate utility service outages with the Owner, Engineer and utility company since the main facility may still be in use. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits use personnel experienced in such operations. In particular, all security and safety systems must be maintained in operation at all times as required by the Owner and local officials. This includes security and safety lighting.
 - F. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed. Repair adjacent construction and finishes damaged during demolition and extension work.
 - G. Cut all buried piping, that is indicated to be abandoned, flush with finished floor unless otherwise noted. Fill all buried piping indicated to abandon in place with flowable grout. Finish floor to match existing adjacent floors.
 - H. Remove and dispose of existing two concrete ice rink floors, piping, supports, transmission mains, insulation, vapor barrier, expansions joints and all associated materials. Remove and dispose of all materials off-site.
 - I. Contractor shall saw cut all concrete full depth to the size specified using water to minimize dust. Remove and dispose of concrete off site. Care shall be taken by the Contractor not to damage perimeter or adjacent concrete where indicated to remain.
 - J. Excavate sub-soils as require for installation of new systems. Remove and dispose of all existing sub-soil heating system piping, headers, mains and all related materials. Stockpile soils outside at the designated area. Re-use soils where approved placing within 0.05' of specified or required elevation. All extra material shall be removed and disposed of off-site.
 - K. All mechanical equipment, piping, valves, electrical systems and other items related to the refrigeration or ice system resulting from required demolition shall be removed and disposed of off-site by the unless specifically designated to be salvaged.
 - L. All disposals shall occur off-site and shall be performed in accordance with applicable authorities having jurisdiction.

- M. PROTECTION: The Contractor shall be responsible for covering all electrical systems, control systems, sensitive equipment, scoreboards, bleacher system, doorways, HVAC intakes, and other areas adjacent to areas where demolition will take place with polyethylene sheeting prior to the start of demolition.
- N. VENTILATION: The Contractor shall be responsible for providing proper ventilation in the arena during construction of the project and to prevent unwanted vapors or odors from reaching other parts of the facility.

3.04 CLEANING, PAINTING AND RESTORATION

- A. Contractor shall be responsible for cleaning the immediate construction area including the rink floor, perimeter concrete where work or demolition is conducted and the mechanical rooms where work is being performed.
- B. Patch and paint all holes caused or left by construction and demolition work. Match adjacent textures and colors.
- C. Clean all equipment and piping to original condition after project has been completed.
- D. Touch up all equipment paint, using paint provided by the manufacturer, after the installation is complete.
- E. All piping, valves, and other items related to the ice system resulting from required demolition shall be removed and disposed of off-site by the contractor unless specifically designated to be salvaged.
- F. Clean out snow melt pit.

3.05 CONCRETE WORK

- A. Reinforcement shall be installed with a minimum of 2" of cover. Adequately support reinforcement with concrete blocks or wire/plastic chairs. Splices shall be installed with minimum lapping distances shown on the plans and bars wired tightly together.
- B. Concrete Placement: shall conform to ACI 309 - Consolidation, ACI 306 - Cold Weather Placement, ACI 307 - Hot Weather Placement.
- C. All new concrete adjacent to the ice rink floor shall be placed at the same tolerance as specified for the ice rink floor and shall use the same benchmark, unless otherwise noted.
- D. Finishing: Apply float finish and uniform textured surface to all interior slabs. Apply broom finish to exterior slabs. Edge or chamfered the edge of all concrete that is adjacent an expansion or construction joint.
- E. Joints: Install control and construction joints as follows unless otherwise stated elsewhere:
 - 1. Install control joints every 10 feet o.c. in each direction.
 - 2. Install construction joints with expansion material and caulk at any new cold joints.
- F. Curing: Cover with burlap-polyethylene and damp cure for a minimum of 7 days.
- G. Testing: Contractor shall hire a testing agency to perform the following tests and shall pay for all testing and laboratory costs. Tests shall include air content (ASTM C 231), slump (ASTM C143) and compressive strength (ASTM C31, C39) for all concrete placed. Three (3) copies of the results shall be submitted to the Engineer.

3.06 VEHICLE CURB STOP

- A. Install units at uniform locations in each dump location. Verify location with type of resurfacers and with Engineer prior to installation.

3.07 EYEWASH/SHOWER STATION

- A. Install per code requirements and within 55 feet of all potential hazards.

3.08 FLUSHING FLUID (FLUSHING EXISTING RINK)

- A. Use as recommended by the manufacturer.
- B. Dispose of flush water off site according to all local and state regulations.

3.09 START-UP AND FOLLOW UP SERVICES

- A. The refrigeration system shall not be started until all local and state governing authorities have inspected and provided written approval for all systems related to, and including the refrigeration, piping, controls, ventilation, ice equipment room and building and all other related systems; and all alarms and controls have been thoroughly tested for all conditions and modes of operations.
- B. Provide documentation of all piping pressures tests and vacuum tests on systems. All tests shall be witnessed by Owner or Owner's representatives.
- C. After all piping systems have been tested according to the specifications and current codes and have been thoroughly cleaned, fill all piping systems with a complete charge of the specified primary and secondary refrigerants. Remove all free air from the systems. The contractor shall be responsible for removing air from the system throughout the warranty period of the project. The contractor shall take every precaution to fill the piping system in such a manner that results in maximum air removal and avoids trapping air in the system (for example, the ice rink floor). If air becomes trapped in the piping system, the contractor shall remove the fluid and refill the system as many times as required until the air is removed. Provide field report for each site visit where air is removed, or systems checked clearly detailing processes and observations.
- D. Provide all additional primary and secondary refrigerants necessary to maintain fully charged systems throughout the warranty period of the project. Test all refrigerants at frequency specified in Section 131812 – Ice Rink Refrigeration System and provide final test reports of each refrigerant (including moisture content, inhibitor concentration, solids, refrigerant content, etc.).
- E. Provide a factory trained technician for a minimum of 30 hours to completely check the operation of the refrigeration system and equipment and all associated systems and equipment during start up. Provide documentation and certification from trained technician with completed, detailed, check list.
- F. Concrete ice rink floors shall cure a minimum of 28 days prior to lowering the temperature of the ice rink floor. After the 28-day cure, lower the temperature of the ice rink floor at a maximum rate of 1-degree F per hour until a slab temperature of 34 degrees F and then 1-degree F every 2 hours until a slab temperature of 16-18 degrees F or as desired by the Owner. Apply water only after the desired operating temperature is reached. Provide documentation that procedure was witnessed by Owner or Owner representative.
- G. Provide the Owner's operating staff with fourteen (14) hours of hands-on instructions on the safe operation of the entire ice system. This shall be provided in a minimum of two (2) separate days. Include detailed instructions on how to build the first ice sheet. Operation and Maintenance Manuals must be completed and approved at by this time so they can be reviewed during the training sessions. Provide a minimum of fourteen (14) days' notice for all training sessions. Training sessions shall be coordinated with Owner's schedule.
- H. Demonstrate that all control and alarm systems are working as required by code and specified in the contract documents. All necessary adjustments, additions, and electrical modifications

shall be made to provide these systems. Provide documentation that procedure was witnessed by Owner or Owner representative.

- I. The Contractor shall provide the following follow-up services, at minimum. The cost of these services shall be incidental.
 - 1. Forty-Eight (48) hours after the system has been operating, shutdown the and clean strainers and screens on the compressor and rink pump that has been operating throughout this period. Clean strainers and screens on all other valves and equipment. Start operation of second compressor and rink pump.
 - 2. Forty-Eight (48) hours after the second compressor and rink pump start up, shutdown the system and clean the screens on the compressor and rink pump that has been operating throughout this period. Repeat this step for additional equipment. Provide field report and documentation of all work performed and observations.
 - 3. Thirty (30) days after start-up change filter dryer cores. Provide field report and documentation of all work performed and observations.
 - 4. Provide one complete oil change of compressors at runtime recommended by manufacturer. Provide documentation of work.
 - 5. Site visits during the warranty period as required to make adjustments to control settings, equipment functions, and any other parts of the system as required to optimize the operation of the ice system.
- J. Variable Frequency Drives: Provide start up services by a certified manufacturer's representative to provide an additional 1-year warranty. Provide field report and documentation of all work performed and observations.
- K. Build the first ice sheet on the ice rink floor after the existing refrigeration system is decommissioned and the temporary chiller system is connected to the ice rink floor system. The ice sheet shall be built in thin layers of water and in accordance with industry standard practices. This includes:
 - 1. Build the black ice layer of ice (ice layer prior to painting).
 - 2. Furnish and install white paint on entire ice rink floor as specified herein. Paint shall be applied at rates recommended by the paint manufacturer and supplier (3 coats minimum for the white paint) and to achieve full uniform coverage of the ice surface, etc. Vinyl logos and ice markings shall be furnished by the Owner and installed by the ice rink contractor during the ice making and painting process.
 - 3. Build the ice over the ice markings to the ice thickness desired by the Owner.
 - 4. Train the Owners staff in building the first ice sheet.
 - 5. Contractor shall maintain the ice sheet during the transition between the temporary chiller system and the new ice refrigeration system. If the ice sheet is not maintained during this transition, the Contractor shall re-build the ice sheet at no additional cost to the Owner.
- L. Provide all start-up, operational and maintenance services for temporary chiller system.
- M. Assist the Owner in preparing an Emergency Preparedness Plan, Process Hazard Assessment, or related documents by providing the Owner's planning consultant with the required information on the ice system as requested and take part in a planning session with the Owner via teleconference.

3.10 SHUTDOWN SERVICES

- A. Provide the Owner's operating staff with eight (8) hours of hands-on instructions on the shutdown procedures of the system after the first ice season has finished. Provide a minimum

of fourteen (14) days' notice for all training sessions. Training sessions shall be coordinated with Owner's schedule.

- B. Provide shutdown services of temporary system.

3.11 COORDINATION OF WORK

- A. The contractor shall be responsible for coordinating all work in Division 13 – Ice Rink. The contractor shall also work closely with the other subcontractors on the project and help coordinate all associated structural, electrical and mechanical systems.

3.12 PERMITS

- A. The contractor shall apply for and obtain all permits required to construct the project at no additional cost to the Owner unless specified otherwise.

END OF SECTION

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SECTION 13 18 12
ICE RINK REFRIGERATION SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General system description, design criteria and control criteria.
- B. Motor Control Center.
- C. Motor Starters.
- D. Motors.
- E. Other Electrical Components (enclosures, emergency switch, dialer, meter, etc.).
- F. Compressors.
- G. Chiller and Surge Drum.
- H. Rink Pumps.
- I. Condenser System (incl. water pump, sump & chemical treatment system).
- J. Gas Monitoring System.
- K. Primary Refrigerant.
- L. Secondary Refrigerant.
- M. Storage Receiver System.
- N. Thermosyphon Receiver.
- O. Coupon Rack.
- P. Glycol Fill Station.

1.02 RELATED SECTIONS

- A. Division 0, Division 1, General and Supplementary Conditions.
- B. Section 131811 - Ice Rink General Requirements.
- C. Section 131813 - Ice Rink Floor System.
- D. Section 131814 - Ice Rink Piping, Valves and Accessories.
- E. Section 131815 - Ice Rink Waste Heat Recovery Systems.
- F. Section 131817 – Ice Rink Central Control System.

1.03 GENERAL REQUIREMENTS

- A. General Refrigeration System Description:
 - 1. Furnish and install a complete ice rink refrigeration system including but not limited to chiller, compressors, pumps, condenser system, piping, valves, controls, motor control center, and all related electrical components and connections necessary for a completely automatic refrigeration system with alarms, operating at the conditions described in, and meeting the requirements of, the contract documents.
- B. Refrigeration System Design Criteria:

1. Design Parameters: See Ice Equipment Schedule on drawings.
2. All primary refrigeration piping shall be sized by the Contractor unless otherwise specified or indicated on the drawings. The piping shall be sized for the full capacity of the system except where manufacturer recommends a different size to optimize operation of the system.
3. Furnish and install all isolation valves and unions required for servicing equipment and system components whether or not they are shown on the drawings.
4. The cost of all piping, electrical, equipment, controls, or other changes required for the proper installation of all equipment shall be included in the Contractors bid. If equipment substitutions require revisions in the design of the systems or facility, the Contractor shall reimburse the Owner for the cost of the redesign services.
5. The Contractor shall provide all electrical work, design, materials and equipment necessary for a complete, operational ice system. All work, materials and equipment shall meet the required electrical codes for the Project's location. A licensed electrician shall perform all electrical work. The main electrical feed for each piece of equipment shall be routed beneath the floor slab, not overhead. Provide all low voltage wiring required for alarms, controls and other related system for a complete operating system.
6. **Seismic Design: All framing and supports shall meet state and local seismic requirements. If requested, the manufacturer and contractor shall supply seismic design calculations for all equipment, piping and hanger support and framing systems and related Work showing the systems and materials meet all local and state seismic design requirements.**

1.04 SUBMITTALS

- A. Shop Drawings. All submittals shall conform to the requirements of the General Conditions and these specifications.

1.05 WARRANTY/GUARANTY

- A. As required in Section 131811 - Ice Rink General Requirements and as follows:
 1. Manufacturer's standard warranties that exceed the specified warranty.
 2. Evaporative Condenser: In addition to the standard 1-year warranty, provide 5-year warranty on corrosion protection system, welded 304 stainless steel, and all major mechanical components, including fans, fan shafts, bearings, sleeves, supports and fan motor.
 3. Motors and Variable Frequency Drives: In addition to the standard 1-year warranty, provide start-up services from a certified manufacturer's representative to provide an additional 1-year warranty.
 4. Test and maintain chemical balance of all refrigerants in all systems including inhibitors in all solutions during warranty period.
 5. Coupon Test Rack. Provide 2-year warranty.
 6. Diffusion tank. 3-year warranty for defects in materials and workmanship and 1-year for fittings and accessories.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING REQUIREMENTS

- A. As required in Section 131811 - Ice Rink General Requirements.

PART 2 - PRODUCTS

2.01 MOTOR CONTROL CENTER

- A. Approved Manufacturers: Eaton/Cutler Hammer Westinghouse, Allen Bradley, General Electric, Siemens, Square D, Rockwell Automation or equal.
- B. Panels designed and manufactured by custom panel shops will not be approved.
- C. Provide a Motor Control Center (MCC) to house and including all starters, breakers, controls, running lights, contacts, relays, switches, fuses, safety switches, alarms, overload relays, resets, VFDs and all other electrical devices required for a fully operational ice system. The MCC shall include but not limited to, the following:
 - 1. Starters for compressors, and pumps.
 - 2. Variable frequency drives for condenser fan, oil cooling pump and rink floor pumps.
 - a. **ALTERNATE BID 1:** Move all Variable Frequency Drives (VFDs) to a location outside of the Motor Control Center (MCC).
 - 3. Running lights and HOA switches for all pumps, compressors, and condenser fan.
 - 4. 120/240V, 1PH panel board for refrigeration equipment requiring 120V power for control circuits, etc.
 - 5. 440-480V / 120-240V, 1PH transformer.
 - 6. Pressure controllers for condenser fan and pump cycling as manufactured by Johnson Controls or equal.
 - 7. Safety cutout controller for low brine temperature.
 - 8. Adjustable alarm contact for high return brine temperature.
 - 9. Hour run time meters for each compressor.
 - 10. Ice System Controls. See description in this section.
- D. Shall be installed on a 4" high concrete pad and away from the refrigeration equipment to avoid vibration concerns.
- E. The MCC shall be a dead-front, free standing unit, Type 1 enclosure in accordance with UL 508, UL845 and shall be NEMA rated. Shall include individual buckets for each piece of equipment, each bucket containing a combination starter (motor starter, breaker device, and power disconnect), disconnects with means of padlocking in lock out position, copper ground bus, fault current rating of 42,000 amps, non-insulated equipment ground bus, and rated for 480 volts, 3 phase, 3 wire, 60 hertz electrical service. Provide plastic laminated identification nameplates on the front of the MCC panel. Finish shall be gray primer over a phosphatized surface.
- F. The Motor Control Center and Ice System Control System shall fit in the spaces shown on the drawings. The contractor is responsible for all changes and modifications to these systems as required.

2.02 ICE SYSTEM CONTROLS

- A. General Design Criteria:
 - 1. In general, the refrigeration system shall automatically maintain a set ice rink floor temperature by sensing the return secondary refrigerant temperature. This set point shall be easily adjustable.

2. In general, the individual components of the refrigeration system shall be controlled as follows.
- a. Compressors: By secondary refrigerant temperature returning from rink floor(s). Typical starting set points may be as follows. These may vary slightly depending on the application.

Compressor	ON (F)	OFF (F)
No. 1	18	16
No. 2	19	16
No. 3	23	18

- b. Chiller: By the specified float switches or probes, isolating valves, solenoid valves, hand and automatic expansion valves, and stop valves to control the flow of high-pressure liquid refrigerant to chiller.
- c. Condenser: By compressor discharge head pressure. Condensing pressure shall be controlled by a combination of the fan and water pump to maintain the specified condensing temperature. Typical starting set points are as follows:

Operation	R-22 Setting (psi)	Ammonia Setting (psi)
Fan ON MIN (with VFD)	180	150
Fan ON MAX (with VFD)	160	165
Water Pump ON	195	165
Water Pump OFF	175	150

- d. For cold climates, the following control sequences shall be added to the control system:
- 1) Fan shall turn on first, then water.
 - 2) As a backup system, install ambient air sensor to assure water pump turns off at specified temperature.
 - 3) See changes to setting in table below.
 - 4) Reducing the water consumption reduces chemical use.

Operation	Ammonia Setting (psi)
Fan ON MIN (with VFD)	145
Fan ON MAX (with VFD)	165
Water Pump ON	175
Water Pump OFF	130-135

- e. Rink Pumps: By manual operation and speed control by variable frequency drives using signal from floor sensors and control system.
- f. Waste Heat Recovery System: As specified in Section 131815.
3. Control system shall include but not limited to the following:
- a. Adjustable control input based on secondary refrigerant temperature returning from rink floor.
- b. Adjustable control outputs for each compressor including but not limited to the following:
- 1) Adjustable lead/lag control for each compressor and sequence of operation.
 - 2) Adjustable time control for staging compressors.
 - 3) Adjustable capacity control (up and down) per pair of cylinders on each compressor.
- c. Adjustable controls for alarm conditions including but not limited to:
- 1) Shutdown system for low flow to chiller.

- 2) Shutdown system for low secondary refrigerant temperature.
 - 3) Shutdown system for refrigerant detection.
 - 4) Shutdown system for emergency shutdown switch activation.
 - 5) Monitor and alarm for compressor oil pressure.
 - 6) All other alarms and controls recommended by the compressor manufacturer.
 - d. Pressure controls for high and low refrigerant discharge pressure with settings described herein.
 - e. Monitor capability for all ice rink floor sensors and sub-floor heating sensors.
- B. Ice Rink Control System and Components:
1. Furnish and install Ice Rink Control System as specified in Section 131817 – Ice Rink Central Control System.
 2. Furnish and install all necessary controls, electrical, wiring, lights, housings, relays and other electrical devices and systems required for a complete automatically controlled ice system. Provide all low voltage wiring and connections required for alarms, controls and all other related devices for complete operating systems.
 3. The refrigeration system shall have sufficient manual controls to allow the system to operate without the computer control system if the computer control system fails.

2.03 MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES

- A. Approved Manufacturers: Cutler Hammer Westinghouse, Allen Bradley, General Electric, Siemens, Square D.
- B. Each motor shall have its own dedicated starter device.
- C. Across-the-Line Starters: For motors smaller than 75-HP.
 1. NEMA ICS 2, Class A, magnetic, full voltage, non-reversing.
 2. Overload and phase failure protection.
 3. Integral control transformer for required control power voltage.
 4. Hand-Off-Auto selector switch and red indicator light on cover.
- D. Solid State Starters (Soft Starts): Required for motors 75-HP and greater. Shall be UL listed and include isolation contacts, current limiting fuses, capacitors for noise protection, microprocessors and all other circuitry required to function properly, overload protection, LED indicators, auxiliary contacts, heat sink, integral cooling fan, phase loss and stall protection, soft stop, adjustable starting and stopping times, and adjustable initial voltage level to adjust torque for motor starts. Shall have standard handle with four positions; ON, OFF, TRIPPED, and RESET. Part winding or wye-delta starters will not be accepted.
- E. All motors for use with Variable Frequency Drives shall be listed suitable for use with VFD equipment to prevent premature bearing failure as specified in the VFD section.
- F. Variable Frequency Drive (VFD):
 1. Approved Manufacturers: ABB, Allen Bradley, Bell & Gossett, Cutler Hammer or equal.
 2. Materials and Construction: NEMA 1 Enclosure, pad lockable input disconnect switch, electronic overload protection, input fuses, HOA switch, selectable operating modes, protection circuits, UL/CSA Approved.
 3. Display: Output frequency and voltage, motor current, kwh meter, fault indication with text, % torque, % power (kW), and speed (RPM).

4. Voltage Tolerance: +/- 10%.
5. Options: Manual bypass (2 contactors).
6. All motors for use with Variable Frequency Drives shall be listed suitable for use with VFD equipment to prevent premature bearing failure. This includes, but is not limited to, providing NDE and DE bearings and shaft grounding rings or system, etc. Shall be installed prior to start-up.

2.04 MOTORS

- A. Motors shall be 460 volts, 3 phase, 60 Hz, squirrel cage induction motors with a service factor of 1.15. Shall have adequate torque to accelerate the load at operating conditions without exceeding the nameplate rating, not including the service factor. Motors shall be designed, constructed and tested in accordance with ANSI/NEMA Publication No.MG-1 and meet NEMA specifications. Shall be premium efficiency design as determined by IEEE Standard 112, Method B. Minimum motor efficiencies shall meet the following.

Table for Premium Efficiency Motors (ODP type)

Motor HP	1200 RPM	1800 RPM	3600 RPM
1	82.5	85.5	77.0
1.5	86.5	86.5	84.0
2	87.5	86.5	85.5
3	88.5	89.5	85.5
5	89.5	89.5	86.5
7.5	90.2	91.0	88.5
10	91.7	91.7	89.5
15	91.7	93.0	90.2
20	92.4	93.0	91.0
25	93.0	93.6	91.7
30	93.6	94.1	91.7
40	94.1	94.1	92.4
50	94.1	94.5	93.0
60	94.5	95.0	93.6
75	94.5	95.0	93.6
100	95.0	95.4	93.6
125	95.0	95.4	94.1
150	95.4	95.8	95.0
200	95.4	95.8	95.0

- B. Motor enclosures shall be open drip proof (ODP). Bearings shall be shielded and regreasable steel ball bearings. Stator windings shall be copper. Insulation shall be Class F non-hygroscopic materials.
- C. Motor shall be factory aligned and if necessary, shall be realigned by the Contractor after installation and prior to start-up.
- D. Motors shall be inverter duty where VFDs are being used.

2.05 OTHER ELECTRICAL COMPONENTS

- A. All electrical components if not specified elsewhere shall be UL listed where possible, meet all code requirements and approved for specific application.
- B. Enclosures: Enclosures shall be NEMA 1 rated for indoor applications and NEMA 3R for outdoor applications.
- C. Disconnects: Approved Manufacturers for disconnects: Cutler Hammer, General Electric, Square D, Westinghouse or equal. Enclosure shall be NEMA rated for environment where it will be located.
- D. Fuses: Provide one spare fuse for each type and size used on the project.
- E. Emergency Devices
 - 1. Furnish and install an emergency remote control push/pull button (off-only control) and all associated electrical for a complete system to stop the operation of all electrically energized equipment related to the refrigeration system as required by the current state and local mechanical codes.
 - 2. For interior devices and locations, furnish and install a clear Plexiglass protective, lockable, wall mounted case for devices.
 - 3. For exterior devices and locations, furnish and install NEMA Type 3R, continuous hinge, lockable enclosure (Weigmann RHC121206 or equal). Emergency ventilation remote switch provided by others will also be installed by others in this enclosure. Verify enclosure space needs with ventilation contractor.
 - 4. See Gas Monitoring section for additional requirements.
 - 5. Provide all low voltage wiring and connections required for alarms, controls and all other related devices for complete operating systems.
- F. Customer Monitoring Panel: Furnish and install a microprocessor-based monitor panel to provide the following readings: voltage, amperage, power, power factor, and energy consumption. The panel shall conform to the following:
 - 1. Approved Manufacturers: Rockwell Automation (Allen Bradley) PowerMonitor 5000 or equal.
 - 2. Current transformers, 5A secondary.
 - 3. Four (4) protection functions shall be provided which shall include the following: overvoltage and undervoltage. Protective functions shall be field settable for alarm and/or trip outputs.
 - 4. One alarm relay shall be programmable for KWH pulse output.
 - 5. A serial port for data transmission to remote location shall be provided.
 - 6. Provide monitoring software for multiple computers as required by Engineer/Owner. Connect unit to Ice Rink Center Control System for data collection and manipulation.
- G. Automatic Alarm Dialer.
 - 1. Furnish and install a complete automatic alarm dialer system, compatible with the Owner's telephone system, that will monitor the following alarm conditions and points. This system is required by IIAR 6.14.7.4 "A monitored location shall be notified upon loss of power to or failure of the emergency mechanical ventilation system".
 - 2. Before ordering the dialer system, the contractor shall verify with the Owner the type of phone system that is being used (standard dial type telephone system, Voice over Internet Protocol (VoIP) system, etc.). The contractor shall select the correct dialer system for their application. If VoIP is available, that system shall be selected.

3. Monitor the following alarm conditions and points:
 - a. Power loss to refrigerant leak detection dedicated circuit branch (per IIAR).
 - b. Power loss to emergency mechanical ventilation system's dedicated circuit branch (per IIAR).
 - c. Start/Fail for the emergency ventilation system's fan (per IIAR).
 - d. High brine temperatures from compressor microprocessor.
 - e. Alarm conditions from compressor microprocessor to be named later by Owner.
 - f. Power failure to refrigeration system.
 4. Manufacturer: Sensaphone 800 system, Sensaphone Sentinel Monitoring System with Cellular Modem or equal.
 5. Unit to provide up to 12 different status conditions.
 6. Dial a minimum of eight (8) different phone numbers.
 7. Uninterrupted Power Supply (UPS) for 20 minutes.
 8. Additional requirements for standard telephone system:
 - a. Operate with standard dial telephone line.
 - b. Respond to status interrogation from any touch-tone telephone.
 9. Additional requirements for VoIP system:
 - a. Include 12-month subscription to cellular dialer system for time of startup. Coordinate with City on selection of service provider.
 - b. Shall instantly sends alerts via phone, text or email over cellular connection.
 - c. Shall deliver event reports, and audit logs.
 - d. Shall store all data in the cloud, with unlimited information storage and allows multiple devices to be managed from one account. No software shall be required.
 - e. Shall be accessible by any web-enabled device.
- H. Power Factor Correction Capacitors:
1. Approved Manufacturers: Square D, Cutler Hammer or equal.
 2. Furnish and install power factor correction capacitors to increase the power factor to a minimum of 0.90 or minimum recommended by the local power company, whichever is higher. A capacitor shall be provided on each motor, for the following equipment:
 - a. Each compressor motor (including motors with soft starts)
 - b. All other motors of 3 horsepower or greater.
 - c. Capacitors are not required on motors with variable frequency drives.
 3. Materials and Construction:
 - a. Type: self-healing, internally protected capacitor elements, dry design.
 - b. Dielectric: metalized polypropylene film, no liquid dielectrics
 - c. Internal connection: 3 phase, delta.
 - d. Tolerance on capacitors: -5%/+10%
 - e. Discharge mechanism: polycarbonate resistor, 1 per phase.
 - f. Losses: <0.5W/kVAR, including discharge resistors.

- g. Rated voltage/frequency: 480V/60 Hz
 - h. Dielectrics withstand: 4kV/60 Hz for 1 minute
 - i. Interrupting rating: unfused-10kA I.C. symmetrical; fused-200kA.
 - j. Continuous overvoltage: $1.1 \times V_n$ (8 hours over 24 hours)
 - k. Continuous overcurrent: $1.30 I_n$
 - l. Maximum harmonic current: $1.05 \times I_n$
 - m. Maximum harmonic voltage: $1.05 \times V$
 - n. Temperature range: 14 F to +104 F
 - o. Approvals: CSA and CSA-US certified
 - p. Painted finish: NEMA Type 1 and Type 3R
 - q. Enclosure: 14-gauge steel.
 - r. Other: wall mount brackets
- I. Phase Loss Protection:
- 1. Approved Manufactures: Zelio by Telemecanique (Schneider Electric), Macromatic, or equal.
 - 2. Furnish and install phase loss protection at each motor. Devices shall monitor 3-Phase supplies and sequence of phases L1, L2, and L3 and total loss of one or more phases.
 - 3. Function:
 - a. Phase sequence
 - b. Phase failure
 - c. Asymmetry
 - d. NOTE TO USER: Could also include the following at added costs:
 - e. Undervoltage
 - f. Overvoltage
 - 4. Materials and Construction:
 - a. Product certifications: UL, CSA
 - b. Conforming standards: NF EN 60255-6 and IEC 60255-6
 - c. Vibration resistance: 0.035 mm from 10-150 Hz.
 - d. Degree of protection: Casing IP 30, Terminals IP 20.
 - e. Overvoltage category: III
 - f. Insulation resistance: >500 mega ohms, 500 Vdc.
 - g. Rated insulation voltage: 400 V
 - h. Insulation test voltage: Dielectric = 2kV, 50 Hz, 1 min. on VAC
 - i. Wire: Solid cable range one 14-20 AWG.
 - j. Housing material: Self-extinguishing plastic.
 - k. Rated supply voltage: 208-480 Vac.
 - l. Operating range: 183-528 Vac.
 - m. Voltage limits (of power supply circuit): -12%, +10%

- n. Frequency: 50/60 Hz +/- 10%
- o. Maximum power consumption: 1.8 VA on VAC
- p. Output type: 1 or 2 C/O contacts.
- q. Contact type: Cadmium-free
- r. maximum switching voltage: 250 Vac/Vdc
- s. Rated breaking capacity: 1250 VA
- t. Minimum breaking current: 10/5 Vdc mA.
- u. Maximum operating rate: 360 operations/hour under full load
- v. Maximum response time (fault event): 100 ms
- w. Delay on pick-up: 500 ms
- x. Relay status and fault signaling shall be indicated by LEDs.

2.06 COMPRESSORS (SCREW)

- A. Approved manufacturers: Bitzer or Vilter Manufacturing Corporation
- B. Design Parameters: See Ice Equipment Schedule on drawings. System has been designed around Bitzer screw compressors. If Vilter screw compressors are used, Contractor shall submit revised design documents including, but not limited to, room layout, equipment selection, oil cooling, etc.
- C. Material Construction: Each compressor assembly to include Twin Screw compressor & C-faced motor drive package mounted on steel rails. Bitzer Ammonia Compressor Package (ACP) or multiple compressors mounted to a single steel frame system will not be approved.
- D. Compressor: with asymmetric rotor profile, rolling contact bearings, suction service valve, discharge flange with solder/weld, oil injection nozzle with shut-off valve, integrated check valve, integrated pressure relief valve, integrated oil management system (automatic oil stop valve, oil filter, monitoring of oil flow, direction of rotation and oil filter clogging), oil sight glass, PTC100 discharge gas temperature sensor, sealed discharge bearing chamber, automatic start unloading and capacity control, protective nitrogen charge.
- E. Accessories: Discharge Service Valve, high discharge / low suction pressure switches.
- F. Capacity Reduction: via Slide Valve with range of 25% to 100%. Capacity reduction can be infinite between 25% and 100% or occur in four (4) Steps of 100%, 75%, 50% and 25%. Slide valve is oil driven and controlled by the controller which actuates a combination four (4) solenoid valves on slide valve assembly.
- G. Primary Oil Separator: Shall be compatible with compressor manufacturer and shall meet ASME code requirements for 300 psig design working pressure. Separator shall include heater elements and optical oil level control. Separator shall be a single unit sized for the full flow rate of all compressors and have a full line size check valve and stop valve on the outlet piping. Separator shall be complete with a safety relief valve; an oil return system connected back to crankcase of compressors including float valve assembly and piping, and all other required materials for complete installation. Shall be ASME coded.
- H. Secondary Oil Separator: Shall meet ASME code requirements for 300 psig design working pressure. Separator shall be sized for the full flow rate of the compressor and have a full line size check valve and stop valve on the outlet piping. Separator shall be complete with a coalescing element capable of removing 99.9% of all particles larger than 1 micron; a full line size check valve and stop valve on the outlet piping, a safety relief valve, a service cover, pipe stud connections, an oil return system connected back to crankcase of compressors including

float valve assembly and piping, and all other required materials for complete installation. Shall be ASME coded.

- I. Oil filter pressure differential sensor. Provide oil filter differential sensor, whether or not shown on drawings, and incorporate into the ice system control system, to monitor the oil filter differential pressure and aid in timely filter element replacement.
- J. Thermosyphon oil cooling system heat exchanger: Shall be plate and shell, manufactured by Vahterus. Shall be mounted to compressor steel frame system. See equipment list for design parameters.
- K. Thermosyphon oil cooling system receiver. Bitzer or equal. See specifications herein.
- L. Controls: As specified in this section under Ice System Controls.
- M. Provide complete charge of oil for the compressors as recommended by the manufacturer. Provide an additional 10 gallons of oil for use in the future.
- N. Manual gauges. Provide manual gauges on system so the system can be operated without the computer control system.
- O. Transducers: Replace the adjustable transducer that come with the Bitzer screws and others and replace with a valve and fixed transducer on each gauge port.

2.07 THERMOSYPHON RECEIVER

- A. Approved Manufacturers: Chil-con, Henry Technologies, Wheeler Tank, H.A. Phillips, Midwest Tank Company, Cimco, or equal.
- B. Capacity: See Ice Equipment Schedule on drawings.
- C. Construction: Designed for minimum design parameters outlined in table below. Vessel shall be constructed and stamped per ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 98E/99A. Shall be pass through design.

Refrigerant	Minimum Design Pressure	Temperature Range
R-717	250 PSIG	-20 F to 250 F

- D. Accessories: Provide a dual relief valve assembly as specified and per code requirements. Provide all valves, piping and other related materials and accessories as necessary for a fully operational system. Name plate shall clearly display code compliance and capacity of vessel.
- E. Vessels shall be mounted on a factory constructed steel legs or frame system.
- F. Finish: Prepare exterior surface in accordance with SSPC-SP3 clean. Paint with one coat of primer and one coat of alkyd egg-shell enamel for exterior use.
- G. Rust inhibitor shall be used when hydro-testing system. Thoroughly dry vessel interior after hydro-testing and prior to filling system with refrigerant.

2.08 CHILLER AND SURGE DRUM

- A. Approved Manufacturers: Chil-con/Henry Technologies, Standard Refrigeration Company, Cimco, Docal, Isotherm, or equal.
- B. Design Parameters: See Ice Equipment Schedule on drawings.
- C. Shell and Head Construction: Steel pipe construction conforming to ASME Specifications AS-53 Grade B, seamless or resistance welded; or rolled steel plate conforming to ASME SA-516 Grade 70 with electric fusion welds conforming to ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

Minimum design ratings on flooded vessels shall be as follows:

Refrig.	Shell Side Pressure	Tube Side Pressure	Temperature Range
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R-22	350 PSIG	250 PSIG	-20 F to 200 F
R-507	350 PSIG	250 PSIG	-20 F to 200 F
R-717	250 PSIG	250 PSIG	-20 F to 200 F

D. Tube Construction:

Item	Flooded System	DX System
Design Pressure & Temp	See table above	See table above
Tube Material	Plain Steel	Copper
Outside Diameter	0.750 inches	0.625 inches
Minimum Wall Thickness	0.065 inches	0.025 inches
Fouling Resistance	0.0005 hr x sf x F/BTU	0.0005 hr x sf x F/BTU

E. Surge Drum: Design conditions and material construction equal to the chiller. Surge drum shall be sized to provide adequate separation of the refrigerant vapors from the refrigerant liquid and shall provide adequate surge space. Risers shall be sized to allow adequate separation of the refrigerant vapors from the refrigerant liquid and shall be close coupled to the chiller vessel. Number of risers shall be as recommended by the manufacturer.

F. Accessories:

1. Dual relief valve assembly as specified and per code requirements.
2. Name plate shall clearly display code compliance and capacity of vessel.
3. Site glasses on chiller vessel for monitoring refrigerant level.
4. System shall include all floats, valves, gauges, piping and other related materials and accessories as necessary for a fully operational system.
5. Adjustable level controller, column and float system: Provide an external column with a float switch for liquid make-up and a float switch for high level compressor shutdown. See specifications in Section 131814 – Ice Rink Piping Valves and Accessories.
6. Automatic level control: Provide automatic expansion valve system as specified in Section 131814 – Ice Rink Piping Valves and Accessories.

G. Oil Pot System:

1. Provide an oil storage system including, but not limited to, oil receiver vessel, relief valves, stop valves, piping, designed for 300 psig working pressure and site glass. Oil pot shall have a design working pressure of 400 PSIG @ -20F to 400 F constructed in accordance with A.S.M.E. Section VIII Division 1, current edition and addenda, UW-12(e) & CSA B-51 codes.
2. Provide Owner with operation and maintenance procedure of oil return system and heater in the Operation and Maintenance manual.

H. Vessels shall be mounted on a factory constructed steel frame system. The steel frame and vessels shall be shop painted with one coat of primer and one coat of alkyd egg-shell enamel.

I. All vessels must meet state requirements for national board registration.

J. Finish: Prepare exterior surface of all vessels in accordance with SSPC-SP3 Power Tool Cleaning or SSPC-SP10/NACE 2 Near-White Blast Cleaning. Paint with one coat of primer and one coat of alkyd egg-shell enamel for exterior use.

K. Drip Pan: Provide a stainless steel drip pan under oil pot with integral drain.

2.09 RINK PUMPS

A. Approved Manufacturers: Aurora Series 340/360, Xylem Inc. Bell and Gossett Series e1510, Armstrong or equal.

- B. Design Parameters: See Ice Equipment Schedule on drawings. Motor size is based on the pump manufacturer listed in the schedule on the drawings. If the motor size increases due to the use of pump another manufacturer, the contractor is responsible for all changes associated with the motor size change at no additional cost to the Owner.

C. Pump Construction and Materials

1. Centrifugal, end suction design, base mounted, single stage. Shall be serviceable without disconnecting to piping system. Pumps shall be capable of continuous operation without fault. Pump shall be rated at 175 psi.
2. Volute: Heavy-duty cast-iron conforming to ASTM A48, Class 30, integrally cast pedestal support. Provide drain and vent plugs. When calcium chloride (CaCl₂) is specified as the secondary refrigerant or brine all surfaces in contact with the liquid shall have an epoxy coating.
3. Impellers: Enclosed type, cast bronze conforming to ASTM B584 (for glycol use only), vacuum cast, keyed to shaft with non-corrosive fasteners, statically and dynamically balanced. When calcium chloride (CaCl₂) is specified as the secondary refrigerant or brine the impeller material shall be cast iron conforming to ASTM A48, Class 30 or stainless-steel conforming to AISI 316.
4. Shafts: Carbon steel conforming to AISI C1045 machined and polished. Replaceable bronze sleeve conforming to ASTM B62. Maximum deflection of 0.002 inches at the seal face under a maximum load condition. Provide ANSI/OSHA-compliant coupling guard with slotted viewing window. When calcium chloride (CaCl₂) is specified as the secondary refrigerant or brine the sleeve shall be stainless steel conforming to AISI 316 when using calcium chloride.
5. Bearings: Heavy duty, grease lubricated, regreasable, ball bearings with B10 minimum bearing life of 50,000 hours per AFBMA test procedures. Shall be replaceable without disconnecting pump from pipe system.
6. Seal Assembly:

Material	CaCl ₂ / Glycol Systems	Water Systems
Elastomer	EPR (Ethylene Propylene Rubber)	Buna
Rotating Face	Silicon Carbide	Carbon
Stationary Face	Silicon Carbide	Silicon Carbide
Hardware	Stainless Steel	Stainless Steel
Spring	18-8-Stainless Steel	18-8-Stainless Steel
Other	Internal flushing capabilities	Internal flushing capabilities
Other	Easily Inspected	Easily Inspected
Other	Replaceable	Replaceable

7. Wearing Ring:

Material	Glycol Systems	CaCl ₂ Systems
Material	Bronze	Cast Iron
ASTM Specification	B62	A48
Type	Replaceable	Replaceable

8. Motor: Shall conform to the requirements of this Section.
9. Energy Rating. After January 27, 2020, all pump and motor assemblies shall be in compliance with the pump energy efficiency regulations by the U.S. Department of Energy. Provide all documents with the shop drawing submittal and as required for the Owner to apply for a rebate through the electrical utility.
10. Accessories: See Section on Ice Rink Piping, Valves, and Accessories and other requirements herein.

2.10 CONDENSER

- A. Approved Manufacturers: Baltimore Aircoil Company, Evapco, Imeco, or equal.
- B. Provide one (1) condenser system with design parameters listed on the Ice Equipment Schedule on drawings. See warranty in Section 1.5 of this specification.
- C. Material Construction (BAC PCC model): Induced draft design with air entry on four sides, heavy gauge G235 hot-dipped galvanized construction fan assembly built into pan with all moving parts factory mounted and aligned. Pan and fan constructed of heavy gauge G235 hot-dipped galvanized steel.
 - 1. Fan: Induced Draft Axial Fan forwardly curved, statically and dynamically balanced. Fan shall be mounted on steel shaft supported by heavy duty, self-aligning, relubricating bearing. Housing shall be cast iron and have curved inlet rings for efficient air flow and rectangular discharge cowls extending into pan for increased fan efficiency and to prevent water from entering the fans. V-belt fan drive sized not less than 150% of motor nameplate horsepower.
 - 2. Fan and motor shall be located in the dry entering stream.
 - 3. Variable Frequency Drive (VFD): Furnish and install VFD as specified in this section, for the fan motor. Motor shall be inverter duty type for operation with VFD. Provide all control wiring to refrigeration system control system in the refrigeration room.
- D. Coil: Material shall be 16-gauge steel pipe suitable for specified refrigerant and hot dipped galvanized after welded fabrication. Shall be rated at 280 PSIG working pressure and tested at 350 PSIG air pressure under water. The coil shall be designed for low-pressure drop with sloping tubes for free drainage of fluid.
- E. Water System and Eliminators: Shall include headers, Sch 40 PVC spray branches with distribution nozzles. All components and fasteners shall be made of non-corroding material and designed for easy removal and cleaning. Removable PVC drift eliminators shall have a minimum of three changes in air direction with hooked leaving edge. Drift loss shall be less than 0.001 percent of total water circulated.
- F. Corrosion Protection System: Cold water basin shall be coated with Tri Armor Corrosion Protection System (a corrosion system that fully encapsulates the galvanized steel by a thermosetting hybrid polymer and polyurethane barrier) or equal. All other parts shall be G 235 galvanized steel.
- G. Water Pump: Shall meet all of the following requirements:
 - 1. Design Parameters: See Ice Equipment Schedule on drawings.
 - 2. Pump shall be submersible, centrifugal type with an explosion proof, non-clog, design capable of handling a 3" spherical solid, 2 vanes, shall be non-overloading throughout the entire range of operation, and shall have a minimum service factor of 1.20.
 - 3. Construction: The pump volute, motor and seal housing shall cast iron, ASTM A-48, class 30. The pump shall be fitted with a 4" standard ASA 125 lb. flange, faced and drilled. All external parts shall be machined, and Buna N Rubber O-ring sealed on a beveled edge. Gaskets are not acceptable. All fasteners shall be 300 ss.
 - 4. Power Cord: Shall be STW-A, water resistant 600V, 60C, UL and CSA approved. Pump shall be triple protected with compression fittings and two epoxy potted areas at the power cord entry. Power cord shall be connected to motor leads with extra heavy connectors with brass inserts.
 - 5. Motor: Shall conform to the requirements of this section with exception and addition of the following: stator, rotor and bearings shall be mounted in a sealed submersible type housing. The stator windings shall have Class F insulation and a dielectric oil filled motor,

- NEMA B design. Further protected by winding thermal sensors. Air filled designs are not acceptable. Pump shall be equipped with heat sensors.
6. Bearings and Shaft: Upper and lower thrust bearings, single row ball bearings; permanently lubricated by dielectric oil; upper bearing shall have a B-10 life; shaft shall be 303 stainless steel.
 7. Seals: Shall have two mechanical seals with an oil chamber in between; John Crane Type 21, BF1C1 with rotating carbon faces, stationary faces shall be ceramic. The lower shaft seal shall be replaceable without disassembly and special tools; pump out vanes shall be used; seal leak detection probe and warning system; electric probe or seal failure sensor installed in the seal chamber.
 8. Impeller: Two-vane; enclosed non-clogging design and have pump out vanes on front and backside of impeller. Coating of the impeller shall be required. Shall be dynamically balanced, with tapered shaft and key. A300 stainless steel washer and impeller bolt shall be used.
 9. Casing: End suction volute type with an automatic pipe coupling arrangement. Design shall be such that the pumps will be automatically connected to the discharge piping when lowered into position with the guide rails. Provide a, replaceable, volute case wearing ring, alloy 230 brass ASTM B-4 with stainless steel fasteners, to minimize impeller wear.
 10. Service: The complete rotating assembly shall be capable of being removed from the volute without disturbing the suction piping, discharge piping and volute.
 11. Coating: Pump shall be painted after assembly with a zinc chromate base enamel.
 12. Guardrail system. Furnish and install a complete metal guardrail system bolted directly to the concrete sump tank. Provide a lifting chain for the pump.
 13. Strainer: Furnish and install hot dipped galvanized strainer with large, perforated openings and an integral anti-vortexing hood to prevent air entrainment.
 14. Provide all electrical wiring, starters, etc. as required for the pump. Provide control wiring to refrigeration control package in refrigeration room.
- H. Pan Selection: Includes drain/clean-out connection; a steel lift out strainer with perforated openings and integral anti-vortexing hood; brass make-up valve and large plastic float; overflow connections; and water recirculation pump assembly. Water recirculation pump shall be close-coupled, bronze fitted, centrifugal pump with mechanical seal and include integral metering valve and bleed line to control bleed rate. Pump motor shall be totally enclosed, fan cooled (TEFC) type. Include solenoid valves on water fill and drain lines as shown on the drawings. Pump shall be factory mounted and completely piped from the suction strainer to the water distribution system. The drain line solenoid shall open, and the pump shall lock out when ambient temperatures reach 40 F. The water fill line solenoid valve and pump shall be interconnected, and all unit control shall be interfaced with the ice rink control system. Furnish and install basin heaters on system. Furnish and install all electrical and controls for a fully functioning system. All steel shall have hot-dipped galvanized coating.
- I. Chemical Treatment System
1. Furnish and install a complete chemical water treatment system for the condenser system to control scale, corrosion and biological growth. Provide all piping, valves, controls, wiring, meters, strainers, equipment and chemicals required for a complete operating system. Interlock with water pump as necessary for automatic operation.
 2. Approved water treatment company: Chem-Aqua.
 3. All chemical feed piping to the internal sump of the unit that is located outside the building shall be stainless steel.

4. Provide chemicals for one year for the prevention of scale, corrosion and biological growth. All chemicals must be compatible with the equipment materials used in the system and must meet or exceed all environmental requirements. Annual chemical cost information and name of suppliers must be submitted with the proposed chemical treatment system shop drawings.
5. Provide quarterly water testing for the duration of the warranty period.
6. Accessories: Furnish a pH cube kit as manufactured by HACH Cat. No. 12519 Phenol red.
7. Chemical treatment supplier to provide a passivation plan for the fluid cooler.

2.11 REFRIGERANT GAS MONITORING SYSTEM

- A. Approved Manufacturer: Bacharach (Pat McClernon, Control House Ltd. 952-746-3485), Calibration Technologies, Inc., Cool Air Mechanical, or equal
- B. Provide one (1) complete refrigerant gas monitoring system for the specified refrigerant. System shall continuously monitor for refrigerant leaks and meet ASHRAE 15 Standard current edition.
- C. System shall include:
 1. One (1) Main Controller Panel mounted inside ice equipment room.
 2. One (1) Remote Display Panel mounted outside main door to ice equipment room.
 3. Sensors, strobes and audible devices as defined herein.
 4. One (1) Uninterruptable Power Supply (UPS) to provide power for 20 minutes.
- D. Features:
 1. Multi-zone detection with expandable capabilities.
 2. Main Controllers and remote displays shall have a front panel display with backlit graphic LCD, system and alarm status indicators, and keypad.
 3. Displays shall show zone specific refrigerant concentration for all sensors.
 4. Four (4) SPDT relays contacts (minimum).
 5. 4-20 mA analog output.
 6. Sampling: Automatic and continuous or manual.
 7. Automatic reboot and system alarm reset after power failure.
 8. Trend / Data Logging: Graphic display of trend data, alarm log and fault log.
 9. NEMA 4X, UL-listed, CSA, IEC, IP66 enclosure.
 10. Provide a silence and reset switch at the gas monitoring panel inside the refrigeration room as required by code.
- E. Sensors and transmitters
 1. Approved type of sensors:
 - a. Infrared transmitters and sensors with a sensing range of 25ppm to 10,000ppm.
 - b. Electrochemical transmitters and sensors
 - c. Solid state
 2. Accuracy of +/- 5% of value.
 3. Zero Drift: Less than 0.1% of full-scale.

4. Response time: less than 20 seconds
5. Linearity: +/- 1% of full-scale
6. Ranges:
 - a. Provide ranges most suitable for the ranges specified in the table below except that one sensor in the ice equipment room must have a high range of 1,000 ppm.
7. Certification: ETL listed to UL standard.
8. Sensors shall be installed in the locations shown on the plans (if indicated) and in accordance with the table below. The exact locations shall be verified during construction.

Location	Sensor Type	Quantity	Range
Ice Equipment Room	Infrared/Electrochemical/SS	1	0-250 ppm
Ice Equipment Room	Catalytic Bead	1	0-20,000 ppm (2%)
Vent Line	Catalytic Bead	1	0-10,000 ppm (1%)

F. Alarm Settings

1. Alarm concentration levels shall be adjustable. Initial settings and sequences shall be in accordance with the table below.

Ammonia Concentration	Description or Action
25 ppm	1. Notify Ice Rink Control System a. Notification sent to facility personnel 2. Controller to initiate the following alarm sequences per IIAR: a. Strobes and audible alarm in ice equipment room, vestibule and exterior door only activated
50 ppm	1. Notify Ice Rink Control System a. Notification sent to facility personnel 2. Controller to initiate the following alarm sequences: a. All strobes and audible alarms activated. This may be the same as 25 ppm.
150 ppm	1. Notify Ice Rink Control System a. Notification sent to facility personnel. 2. Controller to initiate the following alarm sequences per IIAR: a. All strobes and audible alarms activated. b. Emergency purge ventilation system is activated. c. Send signal to fire alarm system.
250 ppm	1. Notify Ice Rink Control System a. Notification sent to facility personnel. 2. Controller to initiate the following alarm sequences per IIAR: a. All strobes and audible alarms activated. b. De-energize pumps, compressors, and normally closed automatic refrigerant valves that are not part of an emergency control system.

G. Alarm Devices

1. Alarm devices shall be combination strobe lights and audible alarms.

2. Strobe light single color shall be selected by Owner. Strobe light color shall be different than fire alarm strobe light color.
3. Furnish and install as required by current state and local mechanical codes.
4. Device locations shall be as shown on the plans and in accordance with the table below. The exact locations shall be verified during construction.

Location	Alarm Device	Quantity
Inside Refrigeration Room	Strobe & Audible	2
Outside Refrigeration Room Doors	Strobe & Audible	2

- H. Provide all necessary auxiliary equipment relays as required to operate strobes / audible devices, start emergency ventilation, shut down refrigeration system, fire alarm system notification, etc.
- I. Leak detector shall turn on exhaust fan even when control panel is powered off or not functioning.
- J. Connection from the emergency ventilation to the auxiliary relay will be by building electrical or mechanical contractor.
- K. Connection from the fire alarm system to the auxiliary relay will be by fire alarm contractor.
- L. Provide connection to ice rink control system for monitoring concentrations and alarms.

2.12 PRIMARY REFRIGERANT

- A. Furnish and install a complete operating charge of anhydrous ammonia (R-717) refrigerant to fill entire refrigeration system. The refrigerant charge shall meet the following chemical properties:
 1. Ammonia: 99.999% minimum
 2. Moisture (as H₂O): 10 ppm maximum
 3. Oil: 1 ppm maximum

2.13 SECONDARY REFRIGERANT

- A. Ethylene Glycol Solution
 1. Furnish and install a complete operating charge of 35% by volume of inhibited ethylene glycol and deionized water. The fluid shall be an industrial heat transfer fluid specifically designed for HVAC systems.
 2. Approved Manufacturers: Dow Chemical Company Dowtherm SR-1, Texaco Texcool E100, Dynalene, or equal.
 3. The solution shall have a factory mixed corrosion inhibitor or neutralizing agent and anti-foaming agent to minimize air entrainment.
 4. The solution mixture shall meet the following parameters:

Parameter	35% EG	40% EG	45% EG
Specific Gravity @ 15F	1.064	1.077	1.077
Viscosity @15F	7.500	9.3017	
Freezing Point	-1.5 F	-9.8 F	-17.5 F
pH	8.0 to 9.2	8.0 to 9.2	8.0 to 9.2
Density @ 15F	66.37 lbs./cf	68 lbs./cf	
Specific Heat @15F	0.828 BTU/lb. F	0.700 BTU/lb. F	0.797 BTU/lb. F
Thermal Conductivity @15F	0.23 BTU/hr-SF	0.21 BTU/hr-SF	0.21 BTU/hr-ft – SF

5. The deionized water shall conform to the following properties in maximum allowable concentrations:

Calcium Carbonate Hardness	100 ppm
Chlorides	25 ppm
Sulfates	25 ppm

- B. Submit a product data sheet and MSDS sheet for the solution including the inhibitor and/or neutralizing agent.
- C. Provide a weather resistant tag on the fill valve for the system that includes description of fluid, freezing and burst point, total gallons of system, Material Safety Data Sheet reference and date of original charge.
- D. Provide certified test results for all solutions in systems. At minimum samples for the secondary refrigerant solution shall be drawn at the following times:
1. 3 months after start-up.
 2. 11 months after start-up.

2.14 SIGNAGE

- A. Furnish and install legible permanent signs on the outside of all ice rink equipment mechanical room doors as detailed on the drawings and as follows:
1. All signs informative signs, emergency signs, charts and labels shall be in accordance with NFPA 704, ANSI/IIAR, ANSI Z535.2 and the International Mechanical Code.
 2. For ammonia refrigerant, the NFPA 704 or Fire Diamond numbering shall be 3-3-0-blank (blue-red-yellow-white) or per current code requirements.
 3. Provide all other signs required by code even if not shown on the drawings.
- B. Furnish and install signage, as detailed on the drawings, next to each strobe light and audible alarm.
- C. Furnish and install signage, as detailed on the drawings, next to each refrigeration system emergency stop button and ventilation enable switch.
- D. Furnish and install schematic drawing or panel giving directions for operation of the system per ASHRAE-15 paragraph 11.7.
- E. If Owner requires the format (font, size, colors, etc.) of the signage to match other signage in the facility, provide the format required by the Owner unless it does not meet code requirements.

2.15 STORAGE RECEIVER

- A. Approved Manufacturers: Vilter Manufacturing Corporation, Chil-con, Bitzer, Henry Technologies, Wheeler Tank, H.A. Phillips, Midwest Tank Company, Cimco, or equal.
- B. Capacity: See Ice Equipment Schedule on drawings.
- C. Construction: Designed for minimum design parameters outlined in table below. Vessel shall be constructed and stamped per ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 98E/99A.
- D.

Refrig.	Minimum Design Pressure	Temperature Range
R-22	350 PSIG	-20 F to 250 F
R-507	350 PSIG	-20 F to 250 F
R-717	250 PSIG	-20 F to 250 F

- E. Accessories: Provide a dual relief valve assembly as specified and per code requirements. Provide a 2" diameter external steel site glass column with: welded caps; a minimum of three (3) 1-1/4"-12 SPUD with 1-1/4" sight glasses; and two 3/4" NPS connections to the vessel with shut-off valves. Provide all valves, piping and other related materials and accessories as necessary for a fully operational system. Name plate shall clearly display code compliance and capacity of vessel.
- F. Vessels shall be mounted on a factory constructed steel legs or frame system.
- G. Finish: Prepare exterior surface in accordance with SSPC-SP3 Power Tool Cleaning or SSPC-SP10/NACE 2 Near-White Blast Cleaning. Paint with one coat of primer and one coat of alkyl egg-shell enamel for exterior use.
- H. Rust inhibitor shall be used when hydro-testing system. Thoroughly dry vessel interior after hydro-testing and prior to filling system with refrigerant.

2.16 DIFFUSION TANK

- A. Approved Manufacturers: Exxon Mobil (Paxon 7000 Series by Indelco 800.486.6456 ext. 335, www.indelco.com), Snyder Industries Inc., ACO Systems, Poly Processing Company, or equal.
- B. Design Conditions:
 - 1. See Ice Equipment List on drawings for capacity.
 - 2. Provide 3-year warranty for defects in materials and workmanship and 1 year for fittings and accessories.
- C. Construction:
 - 1. Upright, single wall, flat bottom, closed top.
 - 2. Molded one-piece seamless construction according to ASTM D 1998. Virgin polyethylene resin and shall be Type I (cross-linkable polyethylene) or Type II (linear polyethylene) and shall be FDA or NSF 61 listed.
 - 3. Provide a complete float assembling including, but not limited to stainless steel float switch with adjustable height, wiring, electrical, and all related materials for a complete operating system.
 - 4. Shall be designed for chemical applications and specifically ammonia refrigerant storage.
 - 5. Submit factory test report for verification of wall thickness, impact tests, hydrostatic tests, verification of materials and visual inspection.
 - 6. Tanks shall be manufactured with a minimum of two lift lugs integrally molded into tank.
 - 7. Tanks shall be marked to identify the product, date (month and year) of manufacture, capacity and serial number.
- D. Fittings and Accessories
 - 1. Provide all necessary fittings and accessories required for the layout and function of the tank.
 - 2. Double bolted 150-pound flange fittings required for fittings 2 inches and larger below liquid level.
 - 3. Drain fitting and PVC ball valve at lowest possible point. Provide siphon tube to improve drainage capability.
 - 4. Vents and vent line for atmosphere pressure and pressure during filling of tank for proper ventilation complying with OSHA and other requirements.

5. Ammonia sparger tube.
 6. Provide flange connections and adapters as required for connecting equipment, piping, relief inlets and outlets, etc.
 7. 18-inch threaded manway with 15-inch access. No vent.
 8. Integrally molded gallonage marks on side of tank.
 9. 1" flange connection on top of tank for make-up water connection.
- E. Seismic restraint system for flat bottom tanks
1. Provide a complete seismic restraint system for each tank that has been designed by a registered licensed structural engineer in the state of the project.
 2. Tanks shall be designed with a minimum of 4 tie-down lugs integrally molded into the tank to allow retention for seismic loading.
 3. Restraint system shall include, but is not limited to:
 - a. Steel angles and plates conforming to ASTM A-36
 - b. Galvanized steel cables or stainless-steel Type 304 or 316.
 - c. Bolts shall be Hilti HAS-E Rod Standard or equal.
 - d. Concrete pad shall be 4,000 psi or greater
 - e. Reinforcement shall conform to ASTM A615-60
 4. Provide design calculations stamped by a registered licensed engineer with the tank submittal.
- F. Accessories
1. Anchor Straps: Straps shall be FRP anchor straps as supplied by tank manufacturer. Number and location of straps shall be determined by the manufacturer.
 2. Manways:
 - a. All tanks for leachate use shall require at least one manway.
 - b. All manways are to be flanged and 30-inch-i.d., complete with UL-listed cover, gasket and hardware.
 - c. Location shall be shown on tank drawings.
 - d. Manway extension tubes shall be FRP.
 3. Fill Tubes:
 - a. Fill tubes shall be FRP and factory-installed, or contractor-supplied and contractor-installed aluminum. Provide fill tube as shown on drawings.
 - b. FRP fill tubes shall be 4-inch diameter, with a 6-inch x 4-inch double-tapped reducer bushing and include a 6-inch NPT fitting. FRP fill tubes can be installed in manway cover or tank wall. Aluminum fill tubes shall fit directly into a 4-inch NPT fitting. Fill tubes shall terminate a minimum of 4 inches above the bottom of tank.
 - c. Gauge Plates: Gauge plates shall be installed under each service fitting and manway opening.
 - d. Ladders: Ladders shall be the standard ladder as supplied by tank manufacturer. Ladder material shall be fiberglass.
- G. Fittings:

1. All fittings shall be located on top centerline. Bottom drain and tangential nozzles shall not be allowed.
2. All standard NPT threaded fittings shall be constructed of carbon steel.
3. All standard NPT threaded fittings shall be half-couplings, and of 2-inch, 4-inch or 6-inch diameter. Reducers are to be used for smaller sizes were shown and provided by contractor.
4. All NPT fittings shall withstand a minimum of 150 foot-pounds of torque and 1,000 foot-pounds of bending, both with a 2:1 safety factor.

PART 3 - PART 3 - EXECUTION

3.01 EQUIPMENT INSTALLATION

- A. All equipment shall be installed per manufacturer's requirements.
- B. All equipment bases shall be bolted down and filled with concrete unless otherwise specified or noted. Adjust level of concrete as required to provide access to anchor bolts for compressors, motors, etc.
- C. All equipment shall be installed and designed such that vibration is minimal and meets acceptable limits. If the amount of vibration is in question, the Contractor shall be responsible for hiring a certified, experienced vibration company to perform the necessary test. A certified test report shall be submitted to the Engineer. If results are not satisfactory, the Contractor shall be responsible for correcting the problem and retesting for vibration as previously specified.
- D. Connect cold water make-up line to evaporative condenser. Provide drain line, valves, etc. as shown on the drawings.
- E. All meters, gauges, and readouts shall be mounted at eye level.
- F. All equipment, vessels, and tanks shall be fully supported with a structural steel framing system anchored to the wall and floor and not to the roof structure unless otherwise approved.
- G. **Seismic Design: All equipment, framing, materials and piping systems shall be designed and installed to meet shall meet state and local seismic requirements. If requested, the manufacturer and contractor shall supply seismic design calculations for all systems and related Work showing the systems and materials meet all local and state seismic design requirements.**
- H. Tanks. If tanks (for example, sump, water, diffusion, expansion, etc.) do not fit through existing or proposed door opening, make all necessary accommodations, including removal and replacement of door(s) and wall(s) for required access.

3.02 VARIABLE FREQUENCY DRIVES (VFD)

- A. Provide start-up services by a certified representative of the manufacturer.

3.03 MOTORS

- A. Provide motor circuits as required by NFPA 70 including a motor grounding conductor.
- B. Testing:
 1. Voltage and current measurements shall be performed on all motor driven equipment to confirm that the voltage and current is within the operating range of the motor and the nameplate rating.

2. Perform an insulation resistance test or megger test on each 460-volt motor by applying 500 Vdc phase to ground on each phase for 10 minutes with readings taken at the end of one (1) minute and ten (10) minutes. Minimum acceptable reading is 5 megohms.

3.04 CONDENSER SUPPORTS

- A. Mount condenser in location and on supports as shown on the drawings. All supports including, but not limited to, beams, columns, roof curbs, etc. and all related fasteners, bracing, etc. shall be furnished and installed by the ice rink contractor unless specifically noted otherwise. Supports shall be provided as necessary for the installations whether or not shown on drawings. If the bottom of the condenser is more than 2'-6" above the roof, ground, or slab, furnish and install a rigid galvanized steel screen across the entire bottom of the unit for protection. The cost of this work shall be incidental to the project costs.
- B. **Seismic Design: All equipment, framing, materials and piping systems shall be designed and installed to meet state and local seismic requirements. If requested, the manufacturer and contractor shall supply seismic design calculations for all systems and related Work showing the systems and materials meet all local and state seismic design requirements.**

3.05 ELECTRICAL

- A. Provide all electrical work necessary for a complete, operational ice system. All work shall meet the required electrical codes for the Project's location. A licensed electrician shall perform all electrical work. The main electrical feed for each piece of equipment shall be routed beneath the floor slab, not overhead.
- B. Locate the Emergency Remote Control button(s), protective case(s), audible alarm(s) and strobe light(s) outside the ice mechanical room at a distance from the entrance door(s) to the ice mechanical room as required by code. Locate other strobe lights and audible alarm assemblies were shown on the drawings and as required by code.

3.06 REFRIGERANT GAS MONITORING SYSTEM

- A. Monitoring and display units shall be mounted at eye level.
- B. Recalibrate unit at both the unit and each sensor after final completion of project. Provide verification that the unit has been calibrated. Provide calibration and test kits from the manufacturer as required to calibrate the unit per manufacturers recommendations and as specified.

3.07 CONDENSER SCREEN SYSTEM INSTALLATION

- A. Install units according to manufacturer's recommendations and instructions. Keep perimeter lines straight, plumb and level. Provide brackets, anchors, and accessories necessary for a complete installation.
- B. Fasten structural supports to mechanical unit without damaging unit. Fasten bottom rail using bolts to permit ease of access to mechanical unit.
- C. Insert thermoplastic panels into structural supports, except where fixed attachment points are indicated. Butt thermoplastic panels to adjacent panels for uniform fit. Fasten fixed panels in accordance with the shop drawings.
- D. Metal separation: Where aluminum materials would contact dissimilar materials, insert rubber grommets at attachment points.
- E. Do not cut abrade finishes which cannot be restored. Return items with such finishes to shop for required alterations.

- F. Maximum misalignment from true position is 1/4."
- G. Remove all protective masking immediately after installation.
- H. Repair and replace all damaged materials
- I. Clean system prior to acceptance.

3.08 PAINTING AND FINISHES

- A. All structural supports and framing shall be painted with one coat of primer and one coat of alkyd egg-shell enamel.
- B. Touch up paint on all equipment, vessels, supports and exposed pipes after project is complete.
- C. Provide additional touch up paint for equipment and vessels for Owners use.
- D. Touch up damaged galvanized coatings and corrosion protection systems on condenser and remote sump.

3.09 CLEANING

- A. Clean and vacuum all debris from inside the Motor Control Center and all other electrical enclosures. Do not use compressed air to clean out panel.
- B. Thoroughly clean equipment of all temporary protective coatings and foreign material prior to assembly of erection.
- C. After project completion thoroughly clean all equipment and piping systems.

3.10 START UP AND SHUTDOWN SERVICES

- A. See Section 131811 - Ice Rink General Requirements.

END OF SECTION

SECTION 13 18 14
ICE RINK PIPING, VALVES AND ACCESSORIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Pipe and Fittings.
- B. Valves and Accessories.
- C. Pipe Hangers.
- D. Pipe and Equipment Markers.
- E. Expansion Tank.
- F. Pressure Gauges.
- G. Thermometers.
- H. Insulation.
- I. Sealing and Firestopping.

1.02 RELATED SECTIONS

- A. Division 0, Division 1, General and Supplementary Conditions.
- B. Section 131811 - Ice Rink General Requirements.
- C. Section 131812 - Ice Rink Refrigeration System.
- D. Section 131813 - Ice Rink Floor.
- E. Section 131815 - Ice Rink Waste Heat Recovery Systems.
- F. Section 131817 – Ice Rink Central Control System.

1.03 SUBMITTALS

- A. Shop Drawings. All submittals shall conform to the requirements of the General Conditions and Section 131811 - Ice Rink General Requirements.

1.04 WARRANTY/GUARANTY

- A. As required in Section 131811 - Ice Rink General Requirements.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING REQUIREMENTS

- A. As required in Section 131811 - Ice Rink General Requirements.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

- A. Polyethylene.
 - 1. Rink pipe and transmission mains. As specified in Section 131813 – Ice Rink Floor.

B. Steel.

1. Primary and secondary refrigerant piping.
2. Material shall be carbon steel and meet the following:
 - a. Smaller than 1 ½ inches diameter shall conform to ASTM A106, Grade B, Schedule 80. Schedule 40 steel may be used for R-22 liquid refrigerant lines for piping sizes 6 inches and smaller and R-717 refrigerant liquid lines 2 inches through 6 inches and all suction and discharge line 6 inches and smaller.
 - b. 1 ¾ inch to 12 inches diameter shall conform to ASTM A53, Grade B Schedule 40.
 - c. Larger than 12 inches diameter shall conform to ASTM A53, Grade B Schedule 40.
 - d. Type F steel shall not be used for refrigerant lines except when discharging to atmosphere.
3. Joints shall be welded end type. No threaded joints.
4. Fittings shall be carbon steel with welded end type and shall meet ANSI B16.9. Fittings shall be manufactured and not shop or field fabricated.
5. Flanges shall be of the same material as the pipe and shall be rated for a minimum of 150 psi. Shall meet ANSI B16.5

C. Copper

1. Water line piping.
2. Shall meet ASTM B88, ASTM Type L and be seamless tubing with copper sweat fittings. Copper pipe shall not be used for refrigeration piping.

D. PVC

1. Condenser return lines were noted and sanitary sewer drain lines.
2. Shall be Schedule 40, virgin polyvinyl chloride, with maximum operating and required minimum bursting pressures at 73 degrees F for PVC piping and fittings per ASTM D1785 "Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe. Fittings and flanges shall be the same grade and class of pipe. Solvent welded joints using heavy bodied or heavy-duty cement.

2.02 VALVES AND ACCESSORIES

A. Primary Refrigerant Valves and Accessories

1. Approved Manufacturers: Hansen Technologies, Henry, Refrigeration Specialties, Cyrus Shank Company, Parker, Danfoss, or equal.
2. Minimum working pressure rating: 400 psig.
3. Body: Heavy duty ductile iron, cast steel.
4. Internal parts: Stainless steel.
5. Gaskets and Seats: Neoprene O-rings or flat composite gaskets, Teflon seats.
6. Packing nut and hand wheel: Zinc chromate plated steel.
7. Pressure relief valves to meet requirements of Section IV of the ASME Boiler and Pressure Vessel Code. Maximum release pressure should match vessel pressure rating. Provide discharge indicator such as Pop Eye by Hanson Technologies or equal. Secondary side (glycol/brine) should be set at 150 psi unless otherwise stated.

8. Refrigerant Strainers: Shall include stainless steel screen and body. Shall be easily serviceable in-line.
9. Filter Dryer: Steel shell with corrosion resistant finish, aluminum cover plate with 1/8" FPT connection for valve, and copper fittings.
10. All hand expansion valves, solenoid valves, and regulators shall be supplied with seal caps on the adjusting stem.
11. Check valves: Shall be Hanson HCK4 LR Gravity Drain check valves for low pressure drop applications of 0.25 psid, Danfoss, or equal.
12. Solenoid Valves: Shall be Hansen Model HS4A, Danfoss or equal. Piston and spring mechanism shall be pressure operated. Valves using plunger-needle type assemblies shall not be used."
13. Pressure Regulating Valve(s): Shall be Hansen Standard Regulator HA4A, Danfoss, or equal. The pressure regulating valve for the compressor discharge line(s) shall include a high range (up to 185 psi) spring assembly.

NOTE TO USER 2014: Typically use Hanson HA4A Standard Regulator, Range B (150-185 psi) spring for 95 F (180 psi) condensing for waste heat recovery. Head pressure controls can lower discharge pressure if energy savings is desired and less heat reclaim. We do not want the HA4AL which is a pressure differential valve which will not provide the control we need for the heat reclaim systems.

14. 3-way Oil Temperature Valve: shall be Hansen HOTV/HOTW or equal.
15. Liquid Level Float Switch (High Level):
 - a. Approved Manufacturers: Phillips Refrigeration, Parker, Danfoss, or equal
 - b. Operating temperature: -50F to +150 F.
 - c. Float chamber: zinc plated
 - d. 10-amp Single pole, double throw switch, hermetically sealed, magnetically actuated.
 - e. Standard DIN connector with 15' cable.
 - f. Housing interchangeable with RS LL float switch.
16. Adjustable Level Controllers and External Level Column Systems: Shall be Hansen Vari-Level or equal. System shall include, but not limited to; adjustable control unit with Teflon encased stainless steel sensing principle and control cable, level column with site glasses (minimum of 4 positioned at 6" on center), probe, valve position indicator, isolation valves. Probes shall be full length of the columns.
17. Automatic Expansion Valve: Shall be Hansen Motorized Control Valve and Controller Model MCV, equal by Danfoss, or equal. Provide optional power close feature, remote mounted valve position indicator, Teflon seat, non-electric rotor enclosed in stainless steel case."
18. Temperature Controllers:
 - a. Surface Mounted: On/off, line voltage signal, 110V, SPDT, JC A19DAC-1 or equal.

B. Secondary Refrigerant Valves and Accessories

1. Approved Manufacturers: Apollo, Aurora, Bell & Gossett, Crane, Flowseal, Milwaukee, Mueller, Nibco, Stockham or equal.

2. Minimum working pressure rating: 125 psig
3. Provide valve neck extensions where needed.
4. Butterfly Valves: Cast iron body with stainless steel shaft; Teflon (PTFE), nylatron, or acetal bearings; EPDM resilient seat.
5. Check Valves: Non-slam design; cast iron body, bonnet, disc plate, and disc cage meeting ASTM A-126 Class B.
6. Combination Valves: Operates as a non-slam check valve, shutoff valve and throttling valve. Cast iron body, brass seat, and bronze disc with EPDM seat insert, stainless steel stem and spring, Teflon-graphite packing.
7. Ball Valves: Bronze body, 316 stainless-steel ball, Teflon seats.
8. Air Release Valves: Cast iron or bronze body. Provide ball valve and drain line to floor. Include 1/2" FPT and 3/4" MPT connections.
9. 3-Way Mixing Valves: Cast iron body, flanged. Controls to operate valve based on fluid temperature.
10. Poly to Steel Transition Fittings:
 - a. Approved manufacturers: Krausz USA (Hymax Cplg), Polycam
11. Suction Diffuser/Strainer:
 - a. Body and Cover: Cast iron, ASTM A48, flanged.
 - b. Vanes & Orifice Cyl: Steel for glycol systems
Stainless steel for calcium chloride systems.
 - c. Strainer: 5/32" perforated, 304 stainless steel.
 - d. Start-up Screen: 20 mesh, 304 stainless steel.
 - e. O-ring: Buna-N
 - f. Purge/Drain Plug: Wrought steel
 - g. Cap Screws: Wrought steel, SAE Grade 5
 - h. Pipe Supports: Steel, adjustable
12. Flexible Connectors: 150 lb plate or carbon steel - flat face type, flexible stainless-steel hose and braid material, and stainless-steel braid collar.
13. Flow Switch or Differential Pressure Switch:
 - a. Approved manufacturers: Johnson Controls, United Electric Controls, Hansen, or equal.
 - b. Must be compatible with the system fluid.
 - c. Gold-plated contacts for improved electrical performance.
 - d. Stainless steel paddle or opposing metal bellows (seal bellows) to detect pressure differences between two sources
 - e. Adjustable set points.
 - f. Epoxy coated enclosure.
14. Resistance Temperature Detectors (RTD) Assemblies:
 - a. Approved manufactures: Omega, JW Instruments (763.784.5708) or equal.

- b. RTD: Single Element, platinum, 3 wire, Tolerance Class A, 316 stainless steel sheath. Length to be at approximately 10% longer than radius of pipe.
 - c. Temperature Ranges:
 - 1) Return brine/glycol: 0-50F
 - 2) Others: As required.
 - d. Spring loaded.
 - e. NPT stainless steel hex nipple.
 - f. Aluminum screw cover head – NEMA 4X rated.
 - g. Signal: 4 to 20 mA programmable temperature transmitter, upscale burnout, temperature range to match RTD.
 - h. Thermowell: Shall be standard duty threaded (NPT), 304 stainless steel, NPT size as required to accommodate RTD.
 - i. Shall coordinate type of RTD and transmitter with controls, VFD or other device that is being connected to RTD Assembly.
- C. Water Line
- 1. Backflow Preventers: Watts No. 909 or equal. Provide one (1) reduced pressure zone backflow preventer with strainer on waterline to remote condenser sump. Provide gate valves on both sides of unit.
- D. Valve Tags
- 1. Provide non-ferrous metal or plastic laminated tags on each valve with non-ferrous or corrosion proof fasteners. Numbering system shall be referenced in the Operation and Maintenance Manual.

2.03 PIPE HANGERS

- A. Approved Manufacturers: Anvil International, Crane, Red Head, or equal.
- B. Provide a complete pipe support system including hangers, supports, brackets, guides and anchors even if not specifically shown on the drawings. All supports shall conform to the latest requirements of ASME Code for Pressure Piping B31.1 and MSS Standard Practice SP-58, SP-69, SP-89 and SP-90.
- C. Pipe hangers shall be capable of supporting the pipe in all conditions of operation without transferring excessive stress to the pipe.
- D. Supports shall fit adequately over insulation. Provide 12 gage pipe saddles and inserts of high-density block insulation.
- E. Exterior pipe supports shall be galvanized steel.
- F. Seismic Design: All hangers and pipe supports shall meet state and local seismic requirements. If requested, the manufacturer and contractor shall supply seismic design calculations for all equipment, piping and hanger systems and related Work showing the systems and materials meet all local and state seismic design requirements.

2.04 PIPE AND EQUIPMENT MARKERS

- A. All pipe and equipment markers shall conform to IIAR Bulletin No. 114 (most recent edition): Guidelines for Identification of Ammonia Refrigeration Piping and System Components.

2.05 EXPANSION TANK (FOR RINK FLOOR PIPING)

- A. Approved Manufacturers: Aurora, Xylem Inc. Bell and Gossett, John Wood Company, H.A. Phillips, Armstrong, or equal.
- B. Capacity: Horizontal compression tank. See capacity in Ice Equipment Schedule on drawings.
- C. Materials: Pressure rating of 125 psig in accordance with Section VIII, Division 1, of the ASME Boiler Pressure Vessel Code, and registered with the National Board of Boiler Pressure Vessel Inspectors.
- D. Accessories: Liquid level gauge assembly by Apollo Valve or equal and shall include gauge glass, drain valve, glass protector and shut off valves. Air control fitting equal to Xylem Inc. Bell and Gossett tank fitting and ATFL including brass vent tube plug and stainless-steel ball check.
- E. Tank shall be painted with one coat of primer and one coat of enamel.

2.06 PRESSURE GAUGES

- A. Approved Manufacturers: McDaniel, Ashcroft or equal.
- B. Materials and Accessories: Shall have stainless steel case, minimum 4" diameter, bourdon tube type, liquid filled, 1% scale accuracy over entire range of gauge, 1/2" minimum diameter stainless steel sockets. Provide ball valve and snubber for each gauge. Provide 1/2" minimum diameter steel pipe extension to extend ball valve outside of pipe insulation. Steel pipe and ball valve specified elsewhere in the specifications.
- C. Sizes: Scaled from 0 to 50 psi for snowmelt, sub-floor, and water systems. Scaled from 0 to 100 psi for all other systems

2.07 THERMOMETERS

- A. Approved Manufacturers: Weksler, Terice or equal.
- B. Materials. Round, bimetal thermometer style using bimetallic sensing element, sensing element consisting of two dissimilar metals, stainless steel stem, highly polished type 300 stainless 4" diameter steel case, adjustable angle, silicone dampened coil, dial pointer, stainless steel stems, non-breakable double strength glass window, accuracy to +/- 1.0% full scale ASME B40.3 Grade A, external reset.
- B. Materials: Adjustable base, plastic case, non-breakable window, accuracy of one scale division. Temperature wells to have copper bulbs.
- C. Size: 9" long, scale ranging from -40 F to 110 F.

2.08 INSULATION

- A. Pipe and equipment insulation system.
- B. See Insulation Schedule on drawings for required thickness, type and location.
- C. Insulation and Jacket Type:
 - 1. Materials: Shall be composite insulation system including insulation, jacket (as specified for specific application), and all sealants and shall have a flame spread rating of 25 or less and a smoke development rating of 50 or less. Shall be puncture resistant based on ASTM D-781, moisture and mildew resistant and vermin proof. Insulation shall be suitable to receive jackets, adhesives and coatings as indicated.
 - 2. Type 3 Insulation (exposed, interior of building) - Flexible Elastomeric Thermal Pipe Insulation by Armaflex or equal.

- a. Jacketing: None.
3. Type 5 Insulation (exposed, interior and exterior of building) – Dow XPS Styrofoam, Certainteed, Owens-Corning, Pittsburgh Corning, Extrol, Fibrex, H.B. Fuller, or equal.

- a. Insulation shall meet the following properties:

Properties	Value
Density, ASTM D1622, minimum	1.6 lbs/cf
Compressive Strength ASTM D1621, minimum	20 lb/sq. in
K-factor, ASTM C518	0.259 btu-in/hr-cf-F
Water Absorption, % by volume ASTM C272/D2842, max.	0.5/1.0 %
Water Vapor Permeability, ASTM E96, max.	1.5 perm-inch

- b. Jacketing (exposed, interior of building):

- 1) PVC material with thickness of 20 mils, gloss finish on one side, semi-gloss on other side, FS LP-535D. Ultraviolet inhibited indoor/outdoor grade to be used where exposed to high humidity, ultraviolet radiation or installed outdoors. Jackets shall be rated for 0 F to 150 F with maximum flame spread rating of 25 meeting ASTM E-84 and maximum smoke development rating of 50 meeting ASTM E-84.
- 2) Type: Composition A, Type II, Grade GU, jacketing shall meet above requirements. Type 3 jacketing shall meet ASTM D-1784, Grade 1, and high impact in addition to the above requirements.

- c. Jacketing (exposed, exterior of building and vertical pipe chase applications):

- 1) Aluminum material alloy 3003, 1100, or 3105 meeting ASTM B-209 with H-14 temper, 20 mil, smooth finish, white painted aluminum. UV protected. Jacketing shall have no paper to retain moisture.
- 2) Provide Polysurlyn moisture barrier with a minimum thickness of 2.5 mil. Dupont, Dow Saran or equal.
- 3) Banding shall be 0.020" thick by 1/2" wide, 300 series, stainless steel.
- 4) Aluminum jacketing for fittings, tees, elbows, valves, caps, etc. shall be sectional, factory contoured, to fit closely around insulation.

4. Type 5A (direct bury interior and exterior applications) – FoamGlas by Owens Corning or equal.

- a. Insulation shall meet the following properties:

Properties	Value
Density, ASTM C303, minimum	7.18 lbs/cf
Compressive Strength C165/C240/C552, minimum	90 lb/sq. in
K-factor, ASTM C518, C177 at 0F	0.250 btu-in/hr-cf-F
Water Absorption, % by volume ASTM C240, max.	< 0.2% by Vol
Water Vapor Permeability, ASTM E 96 West Cup, max.	0.0 perm-inch

- b. Jacketing:

- 1) Approved manufacturers: Pittwrap SS by Pittsburgh Corning or equal. Insulrap 50-SJ-NG is not considered an equal.
- 2) Modified bituminous membrane
- 3) Self-healing material
- 4) Overlap shall be a minimum of 50%.
- 5) Apply in temperatures above 50F.

6) Properties:

Properties	Value
Thickness (mils), minimum	70
Permeability, ASTM E96 (perm-inches), max.	.002
Tensile Strength, ASTM D882 (at 78F), min.	>1150 lbs/in
Puncture Resistant, ASTM E154, min.	199 lbs

5. Type 5B (direct bury interior and exterior applications) Composite Piping System

- a. **This product is can only be used with composite piping systems with HDPE jacket** such as Tricon Piping Systems, Inc., Energy Task Force Pre-Insulated Pipe or equal. Piping material shall meet the pipe specifications for this project. Shall use HDPE jacket as specified below.
- b. Closed cell polyurethane foam insulation. Foamed in place.
- c. Insulation shall meet the following properties:

Properties	Value
Density, ASTM D1622, minimum	2.0 lbs/cf
Closed Cell, minimum	90-95%
K-factor, ASTM C177	0.147 btu-in/hr-sf-F

d. Jacketing

- 1) Direct Bury, Interior and Exterior of Building for Composite Piping Systems:
- 2) Approved manufacturers: Tricon Piping Systems, Inc. or equal.
- 3) HDPE materials.
- 4) Must be applied with manufacturers recommended shrink sleeve material connecting pipe section for waterproof application. No substitutions.
- 5) Properties:

Properties	Value
Resin, ASTM D3350	Type III, Grade P34
Tensile Strength, ASTM D638(at 78F), min.	3300 psi
Ultimate Elongation, ASTM D638 min.	850%
Tangent Flexural Modules, ASTM D790, min.	175,000 psi

D. Insulation Inserts and Pipe Shields

1. Approved Manufacturers: B-Line, Pipe Shields, Value Engineered Products or equal.
2. Construct inserts with calcium silicate, minimum 140 psi compressive strength. Piping 12" and larger, supplement with high density 600 psi structural calcium silicate insert. Provide galvanized steel shield. Insert and shield to be a minimum 180 degrees coverage on bottom supported piping and full 360 degrees coverage on clamped piping. On roller mounted piping and piping designed to slide on support, provide additional load distribution steel plate. On low temperature systems, extruded polystyrene may be substituted for calcium silicate provided insert and shield length and gauge are increased to compensate for lower insulation compressive strength.
3. Where contractor proposes shop/site fabricated inserts and shields, submit schedule of materials, thickness, gauges and lengths for each pipe size to demonstrate equivalency to pre-engineered/pre-manufactured product described above.
4. Precompressed 20 lb density molded fiberglass blocks, Hamfab or equal, of the same thickness as adjacent insulation may be substituted for calcium silicate inserts with a 1" x 6" block for piping through 2 ½" and three 1" x 6" blocks for piping through 4". Submit

shield schedule to demonstrate equivalency to pre-engineered/pre-manufactured product described above.

5. Wood blocks will not be accepted.

E. Accessories:

1. Provide all adhesive, sealants, protective finishes, and other products as recommended by the manufacturer to provide a completely sealed system.
2. Provide vapor barrier that is non-flammable, fire resistant and polymeric resin, for all systems operating below 65 F.
3. Insulation bands shall be ¾ inches wide, constructed of aluminum or stainless steel. Minimum thickness to be 0.015 inches for aluminum and 0.010 inches for stainless steel.
4. Tack fasteners shall be stainless steel ring grooved shank tacks.
5. Staples shall be clinch style.
6. Insulating cement shall meet ANSI/ASTM C195, hydraulic setting mineral wool. Finishing cement shall meet ASTM C449.
7. Bedding compounds to be non-flammable, fire resistant, polymeric resin.

2.09 SEALANT AND FIRESTOPPING

- A. Sealant and fire stopping of sleeves and openings between ductwork, piping, etc. and the sleeve, structural or partition opening shall be the responsibility of the contractor.
- B. Fire and/or Smoke Rated Penetrations:
1. Approved Manufacturers: 3M, Hilti, Rectorseal, STI/SpecSeal, Tremco, or equal.
 2. All fire stopping systems shall be provided by the same manufacturer.
 3. Fire stop systems shall be UL listed or tested by and independent testing laboratory approved by the State.
 4. Use a product that has a rating not less than the rating of the wall or floor being penetrated.
 5. Contractor shall use firestop putty, caulk sealant, intumescent wrap strips, intumescent firestop collars, firestop blocks, firestop mortar or a combination of these products to provide a UL listed system for each application require for this project. Provide mineral wool backing where specified in manufacturer's application detail.
- C. Non-rated Penetrations:
1. Pipe Penetrations Through Below Grade Walls. In exterior wall openings below grade, use a modular mechanical-type seal consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the uninsulated pipe and the cored opening or a water-stop type wall sleeve.
 2. Pipe Penetrations. At pipe penetrations of non-rated interior partitions, floors and exterior walls above grade, use urethane caulk in annular space between pipe insulation and sleeve.

PART 3 - EXECUTION

3.01 EXCAVATION, INSTALLATION OF PIPE, AND BACKFILLING

- A. The Contractor shall be responsible for verifying the location of all existing piping, electrical, and other utilities prior to excavation.
- B. No changes to pipe alignment or elevation shall be made without approval from the Engineer.
- C. All pipes shall be cleaned out prior to installation. Inspect pipe for defects and damage.
- D. Decrease line size to pumps as required with long radius reducing elbows or concentric reducers/increasers in vertical piping. All valves and piping specialties must be full line size.
- E. Excavate pipe trenches in accordance with OSHA regulations. All pipe trenches shall be backfilled as soon as possible. Backfill and compact materials in 12" lifts. Care shall be taken while backfilling to protect the pipe from damage. Backfill material for trenches within the building footprint or other structural areas shall be compacted to at least 100% standard moisture density relationship of soils to prevent settlement of the floor slabs.
- F. Support all piping in such a manner as to prevent all vibration and vertical or horizontal movement. All pipe support systems shall be installed to meet local and state code requirements.
- G. Provide all coring drilling required to install piping system through masonry or concrete walls, screen walls, roof structures and other structures as required to install piping systems. Keep holes to minimal size.
- H. Provide all pipe sleeves required for core drilled penetrations.
- I. Relief lines and devices shall be terminated outside of the building in accordance with all current State and Local codes including minimum distance from ground level, openings and exits unless a containment tank is specified.
- J. All refrigerant piping shall be installed, tested and placed in operation per these specifications and the state and local mechanical codes.
- K. All pipe joints erected on site shall be exposed for visual inspection prior to being covered.

3.02 TESTING OF PIPING SYSTEMS

- A. All testing shall be witnessed by the Engineer. Provide advanced notification to the Engineer as specified in Section 131811 - Ice Rink General Requirements.
- B. All piping shall be tested prior to backfilling. Isolate all equipment and any other devices that may be damaged by the pressure test. Testing procedures shall meet all code requirements.
- C. Testing Requirements:
 - 1. Polyethylene Pipe: Shall be tested as specified in Section 131813 -Ice Rink Floor.
 - 2. Steel Brine Pipe: Shall be hydrostatically tested at 75 psig for 24 hours with no pressure drop.
 - 3. Steel Refrigerant Pipe (Refrigeration system):
 - a. Pressure Test: All refrigeration piping systems shall be pressure tested at the pressures stated in the table below with nitrogen gas for 24 hours with no pressure drop. The pressure shall then be lowered to 200 psig and maintained until system is ready to be charged. The test shall not begin until the Contractor is confident all water and contaminants are removed from the system. The Engineer shall witness the test.

Refrigerant	Pressure (psig)
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Ammonia – High side	250 psi
Ammonia – Low side	250 psi
R-22	300 psi

- b. Vacuum Dehydration: After the piping has been tested, a vacuum pump of adequate size shall be connected to the rink field and associated piping and allowed or run continuously until a vacuum reading of at least 1000 microns (29.882 in. vacuum) or lower is obtained. This test must be maintained with the pump valved off for at least ten (10) minutes. Provide an absolute pressure gauge for monitoring and use per the manufacturer's recommendations. The Engineer shall witness the test.
4. Gauges used for pressure tests must be designed for pressures greater than the test pressure. For example, a 100-psi gauge cannot be used for a 100-psi test. The scale on the gauge must be the next increment up from 100 psi.

3.03 CHARGING OF SYSTEMS

- A. Primary Refrigerant Systems: After all pressure tests and vacuum dehydration testing has passed, the system shall then be fully charged with the specified refrigerant.
- B. Secondary Refrigerant Systems: After all pressure tests have passed the secondary refrigerant systems shall be fully charged with the specified solutions. Remove all air from the systems.
- C. Waste Heat Recovery Systems: After all pressure tests have passed the waste heat recovery systems shall be fully charged with the specified solutions. Remove all air from the systems.

3.04 VALVES AND ACCESSORIES

- A. Install valves at the locations shown on the drawings, described in the specifications as required for system operation and maintenance or as required by the manufacturer.
- B. Install all valves so that they can be easily replaced in the future including installing unions and allowing adequate clearance.
- C. Install all valves with adequate clearance around the valve for maintenance.
- D. Install air release valves at all high points in the system whether or not shown on the drawings.
- E. All pressure relief valves shall be located where ambient temperature is normally above 32 F. Pipe all pressure relief piping to within one foot of ice equipment room floor.
- F. Install valves for system drainage at all exposed low points in the system whether or not shown on the drawings.
- G. Provide all power and electrical systems as necessary for operation.
- H. Expansion tank shall be supported from the ceiling or supported with a floor mounted frame system with adequate supports and gauge glass placed in highly visible arrangement. Location to be approved by the General Contractor.
- I. Construction strainers in suction diffusers shall be removed after system start-up.
- J. Install thermowells for all temperature gauges.
- K. Resistance Temperature Detector (RTD) Assemblies
 1. Piping system shall be drained and fluid stored for installation of threadolets to install wells and RTD probes. No hot taps allowed.

2. For new projects, installation shall be done prior to installation of insulation systems. For renovation projects, remove pipe insulation as necessary for installation of wells and sensors. Reinsulate piping system with like materials to provide a sealed insulation system.
 3. Wire sensors directly to VFD's or other devices.
 4. Refill piping systems. Provide additional fluid as necessary for full system charge. Remove air from system.
- L. 30 days after start-up the following shall be performed on the system:
1. Replace filter dryer cores.
 2. Clean screens on pumps, strainers and other equipment.

3.05 GAUGES AND THERMOMETERS

- A. All gauges and thermometers shall be installed at eye level wherever possible unless specified otherwise and shall be positioned for ease of reading by operation and maintenance staff. All gauges and thermometers shall be calibrated per the manufacturer's recommendations prior to installation

3.06 HANGERS AND SUPPORTS

- A. The Contractor is responsible for adequately supporting all piping systems and equipment with hangers, floor supports, framing systems and all other components required to adequately support the piping systems and equipment. If supported from the ceiling, the Contractor shall verify that the building structure can support the total weight of all piping and equipment systems where hangers and supports are installed unless otherwise noted on the drawings. If requested, the contractor shall provide calculations, by a registered engineer, to verify construction of hangers and supports is adequate including the building structure they are attached to.
- B. Support all piping in such a manner as to prevent all vibration and vertical or horizontal movement.
- C. Pipe hangers and supports shall be spaced no more than eight (8) feet on center. Provide additional supports by equipment for assistance with equipment maintenance and replacement. Provide sufficient supports near equipment so that temporary supports are not needed to remove and replace equipment or to service and maintain equipment.
- D. All ground supports shall be located so that equipment, valves, etc. are fully accessible for easy maintenance and supports shall not impede the walkways.

3.07 INSULATION AND JACKETS

- A. Furnish and install insulation and jacketing on equipment and piping as noted on the drawings and all other cold surfaces which are part of the system including, but not limited to, chilled water pump bodies, chilled water filter, chemical bypass feeder, etc.
- B. Systems shall not be insulated until an inspection has been completed by the Engineer and pressure tests have been performed and accepted.
- C. All valves, fittings, and accessories connected to pipe and equipment systems shall be insulated and jacketed. Provide handle extensions as required to allow full insulation of valves.
- D. Provide vapor barrier for all systems operating below 65 F.
- E. Install all insulation and jacketing per manufacturer's recommendations. Use full length materials. Install insulation continuous through pipe hangers and supports with hangers and

supports on the exterior of insulation. Where a vapor barrier is not required, hangers or supports may be attached directly to piping with insulation completely covering hanger or support and jacket sealed at support rod penetrations. Where riser clamps are required to be attached directly to piping requiring a vapor barrier, extend insulation and vapor barrier jacketing/coating around riser clamp.

- F. Install all jacketing on exposed exterior piping systems with joints at 3 o'clock and 9 o'clock position and jacketing secured with specified banding and seals. Banding shall be installed at a maximum of 9" on center. End joints shall be secured with bands and seals centered directly over joint. Jacketing shall be installed in a manner to shed water and in accordance with the Midwest Insulation Contractors Association (M.I.C.A) National Commercial and Industrial Standards. Jacketing shall be caulked before closing and banding and positioned in an orientation to avoid water infiltration.
- G. All insulation joints shall be staggered and tight. Provide 2" minimum lap on jackets and 2" tape on butt joints, firmly and continuously cemented with lap adhesive or welding solvent as recommended by the manufacturer. Additionally, secure with staples along seams and butt joints. Coat staples with vapor barrier mastic on systems requiring vapor barrier.
- H. Provide inserts and pipe shields at all hanger and support locations. Inserts may be omitted on 3/4" and smaller copper piping provided 12" long 22-gauge pipe shields are used.
- I. Insulate entire piping system for a completely insulated system including all areas that will frost up during operation. This includes filling all gaps, spaces, voids, etc. completely to prevent frost or condensation build up. This also includes providing valve handle extensions and all other material to properly insulate valves and prevent condensation. Insulation shall be tightly butted and free of voids and gaps. Weather seal shall be continuous.
- J. All fasteners and bands shall be neatly aligned, and overall work must be of high-quality appearance and workmanship.
- K. Provide removable insulated covers for fill valves, equipment lifting hooks, access points to strainers, valves, nameplates, and all other areas that require periodic inspection, service or repair.
- L. All site glasses and nameplates shall be insulated to prevent frost build-up.
- M. Provide all adhesive, sealants and other products as required by the manufacturer to provide a completely sealed system. Seal all seams of the jacketing.

3.08 SEALING AND FIRESTOPPING

- A. All pipes piercing interior and exterior walls, ceiling, and floor shall be tightly sealed to the walls, ceiling and floors through which they pass as specified herein.
 - 1. Fire and/or Smoke Rated Penetrations. Install approved product in accordance with the manufacturer's instructions where pipes penetrate a fire/smoke rated surface. When pipe is insulated, use a product which maintains the integrity of the insulation and vapor barrier. Where firestop mortar is used to infill large fire-rated floor openings that could be required to support weight, provide permanent structural forming. Firestop mortar alone is not adequate to support any substantial weight.
 - 2. Non-Rated Penetrations. At all interior partitions and exterior walls, pipe penetrations are required to be sealed. Apply sealant to both sides of the penetration in such a manner that the annular space between the pipe sleeve and cored opening and the pipe or insulation is completely blocked.

3.09 PAINTING AND FINISHES

- A. All interior steel piping, equipment, fittings, supports, and accessories that are exposed to view shall be painted with one coat of primer and one coat of enamel. Ammonia piping colors per

IIAR Bulletin No. 114 March 2017. Prepare steel as recommended by the paint manufacturer. Colors shall be as outlined in table below:

Area or item	Color
Ammonia high pressure liquid lines	Orange (Pantone 152 C)
Ammonia high pressure vapor lines	Yellow (Pantone 109C)
Ammonia low pressure/high temperature liq. & vapor lines (0F to +47.3F)	Light blue (Pantone 298C)
Ammonia low pressure/low temperature liq.&vapor lines	Dark blue (Pantone 3015C)
Pressure relief vent piping	Grey (Pantone 430C)
Other refrigerant piping and vessels	Color selected by Owner
Condenser water piping (refrigerant piping specified above)	Color selected by Owner
Interior supports and frames in refrigeration room	Color selected by Owner
All other areas not mentioned	Color selected by Owner

- B. All exterior exposed steel piping shall be painted with one coat of primer and two coats of enamel. Prepare steel as recommend by the paint manufacturer. Owner to select color of paint.
- C. Touch up paint on all equipment, vessels, supports and exposed pipes after project is complete.
- D. Touch up damaged galvanized coatings and corrosion protection systems on condenser and remote sump.

END OF SECTION

SECTION 13 18 15
ICE RINK WASTE HEAT RECOVERY SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General system description and design criteria.
- B. Pumps.
- C. Heat Exchanger.
- D. Expansion Tank.
- E. Snowmelt Coil.
- F. Circulation Fluid.
- G. Pipe and Accessories.
- H. Waterproofing for Snow Melt Pit.

1.02 GENERAL SYSTEM DESCRIPTION AND DESIGN CRITERIA

- A. Provide all materials, equipment and controls necessary for a fully functional waste heat recovery system that recovers waste heat from the refrigeration system and uses it for heating the sub-floor heating system and for melting snow in the snow melt pit. The system shall be a closed piping system.
- B. The snow melt pump will operate continuously circulating a glycol/water solution while the compressors are operating. The glycol temperature shall be controlled by a thermostatic solenoid valve which stops the flow of refrigerant through the heat exchanger when the desired temperature is reached. The solenoid control valve shall be capable of automatically controlling glycol temperatures over a range of 40 F to 100 F. The snowmelt pump shall automatically lock out when the compressors are not operating.
- C. The sub-floor pump will be operated automatically by sensing the sub-floor temperature sensors in each rink floor as necessary to keep the soils beneath the ice rink slab between 32 F and 45 F. A temperature sensor and Honeywell T-775 controller should monitor the temperature of the glycol going to the sub-floor system. When the glycol temperature drops below 45 F (temperature setting shall be adjustable) the three-way valve shall modulate to allow more of the warmer glycol from the snow melt piping loop into the sub-floor piping loop until the desired glycol temperature and sub-floor temperature is satisfied. The sub-floor pumps shall automatically lock out when the compressors and snowmelt pump are not operating.

1.03 RELATED SECTIONS

- A. Section 007200 - General Conditions.
- B. Section 007300 – Supplementary Conditions.
- C. Section 131811 - Ice Rink General.
- D. Section 131812 – Ice Rink Refrigeration System.
- E. Section 131813 - Ice Rink Floor.
- F. Section 131814 - Ice Rink Piping, Valves and Accessories.

G. Section 131817 – ice Rink Central Control System.

1.04 SUBMITTALS

A. Shop Drawings. All submittals shall conform to the requirements of General Conditions and Section 131811 - Ice Rink General Requirements.

1.05 WARRANTY/GUARANTY

A. As required in Section 131811 - Ice Rink General Requirements.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING REQUIREMENTS

A. As required in Section 131811 - Ice Rink General Requirements.

PART 2 - PRODUCTS

2.01 PUMPS (BASE MOUNTED)

- A. Approved Manufacturers: Aurora Series 340/360, Xylem Inc. Bell and Gossett Series 1530, Armstrong, or equal.
- B. Design Criteria: See Ice Equipment List on drawings.
- C. Shall meet all requirements of the Rink Pumps in Section 131812 with the following exceptions:
1. Shall be horizontal, base mounted or close coupled.
 2. Impellers shall be cast bronze, enclosed type.
 3. Wearing rings shall be bronze construction.
- D. Energy Rating. After January 27, 2020, all pump and motor assemblies shall be in compliance with the pump energy efficiency regulations by the U.S. Department of Energy. Provide all documents with the shop drawing submittal and as required for the Owner to apply for a rebate through the electrical utility.

2.02 HEAT EXCHANGER (SHELL AND TUBE)

- A. Approved Manufacturers: Vilter Manufacturing Corporation, Chil-con, Henry Technologies, Xylem Inc. Bell and Gossett, Cimco, or equal.
- B. Design Criteria: See Ice Equipment List on drawings.
- C. Shell and Head Construction: Steel pipe construction conforming to ASME Specifications AS-53 Grade B, seamless or resistance welded; or rolled steel plate conforming to ASME SA-516 Grade 70 with electric fusion welds conforming to ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.
- D. Minimum design ratings on vessels shall be as follows:

Refrig.	Shell Side Pressure	Tube Side Pressure	Temperature Range
R-22	300 PSIG	250 PSIG	-20 F to 200 F
R-717	250 PSIG	150 PSIG	-20 F to 200 F

- E. Tube Construction: Carbon steel with outer diameter of 0.75 inch and a minimum wall thickness of 0.065 inches. Fouling resistance shall be 0.0005. See table above for design pressure and temperatures.

- F. Accessories: Provide a dual relief valve assembly as specified and per code requirements. Provide all valves, gauges, piping, electrical and other related materials and accessories as necessary for a fully operational system. Name plate shall clearly display code compliance and capacity of vessel.
- G. Vessel shall be mounted on a steel frame system or ceiling mounted. The steel frame and vessels shall be shop painted with one coat of primer and one coat of alkyd egg-shell enamel.
- H. All vessels must meet state requirements for national board registration.

2.03 EXPANSION TANK

- A. Approved Manufacturers: Aurora, Xylem Inc. Bell and Gossett, John Wood Company, Cimco, or equal.
- B. Capacity: See Ice Equipment List on drawings.
- C. Materials: Minimum pressure rating of 125 psig in accordance with Section VIII, Division 1, of the ASME Boiler Pressure Vessel Code, and registered with the National Board of Boiler Pressure Vessel Inspectors.
- D. Accessories: Gauge glass equal in construction to Henry Valve Co. Type 824. Air control fitting equal to Xylem Inc. Bell and Gossett tank fitting and ATFL including brass vent tube plug and stainless-steel ball check.
- E. Tank shall be painted with one coat of primer and one coat of enamel.

2.04 SNOW MELT COIL

- A. Fabricate coil from 2" Schedule 10 304L stainless steel pipe and fittings as shown on the plans. All connections shall be welded except for the flanged connection at the pit wall.
- B. Pipe supports shall be 3" high 304L stainless steel square stock, spaced at 3' on center to support the snow melt coil. If the snow melt pit is specified with a membrane liner, pipe supports shall be steel tubing, all edges shall be rounded to prevent puncturing liner and supports shall be tack welded to coil.
- C. Verify size of snow melt pit and location of drain pipe prior to fabricating the coil.

2.05 CIRCULATION FLUID

- A. Furnish and install a complete charge of 35% inhibited ethylene glycol and deionized water.
- B. Approved Manufacturers: Dow Chemical Company Dowtherm SR-1 or equal.
- C. The ethylene glycol solution shall be an industrial heat transfer fluid specifically designed for use in HVAC systems and shall conform to the following properties:

Specific Gravity	1.064 @ 15 F
Viscosity	7.50 @ 15 F
Freezing Point	-4.3 F
pH	8.0 to 9.2
Density	66.37 lbs./cf @ 15 F
Specific Heat	0.828 BTU/lb. F @ 15F
Thermal Conductivity	0.23 BTU/hr.-ft F @15F

- D. The deionized water shall conform to the following properties in maximum allowable concentrations:

Calcium Carbonate Hardness	100 ppm
Calcium plus Magnesium Ions	50 ppm
Chloride plus sulfate Ions	50 ppm

- E. The solution shall have a factory mixed corrosion inhibitor or neutralizing agent.
- F. Provide a weather resistant tag on the fill valve for the system that includes description of fluid, freezing and burst point, total gallons of system, Material Safety Data Sheet reference and date of original charge.
- G. Provide a certified test result of the final solution.

2.06 PIPING AND ACCESSORIES

- A. Provide all piping, thermometers, gauges, valves, insulation, controls, electric as required for a complete system, as shown on the drawings, and as specified in Section 131814 - Ice Rink Piping, Valves and Accessories.

2.07 WATERPROOFING FOR SNOW MELT PIT

- A. Provide a flexible cementitious waterproofing to all concrete surfaces of the existing snow melt pit.
- B. Shall be adhesive bonded substrate, troweled or spray application.
- C. Membrane Materials.
 - 1. Flexible cementitious waterproofing.
 - 2. Highly flexible, fiber-reinforced, breathable, cementitious slurry.
 - 3. Color: Industrial Gray.
 - 4. Manufacturers:
 - a. W.R. Meadows; Flexible Cementitious Waterproofing; CEM-KOTE FLEX ST.
 - b. Vandenx; Crystalline Waterproofing.
- D. Provide all accessories or other materials required for a complete installation and application.
- E. Verify product can be used on existing, aged, concrete.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install, test and start up equipment, piping, valves, insulation, etc. as specified in Sections 131813 - Ice Rink Floor, 131812 - Ice Rink Refrigeration System, and 131814 - Ice Rink Piping, Valves and Accessories.
- B. Verify with General Contractor prior to mounting piping, tanks, heat exchangers, to walls or ceiling in ice mechanical room.
- C. Provide all controls and electrical work as required for a complete operating system.

3.02 WATERPROOFING

- A. Verify existing conditions before starting work.
- B. Verify substrate surfaces are durable, free of matter detrimental to adhesion or application of waterproofing system.
- C. Verify that items that penetrate surfaces to receive waterproofing are securely installed.
- D. Ensure that all cavities in the substrate are filled.

E. Preparation:

1. Protect adjacent surfaces not designated to receive waterproofing.
2. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions.
3. Vacuum substrate clean.
4. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer
5. Surfaces for adhesive bonding: Apply surface conditioner at a rate recommended by manufacturer. Protect conditioner from rain or frost until dry.

3.03 START UP AND SHUTDOWN SERVICES

- A. See Section 131811 - Ice Rink General Requirements.

END OF SECTION

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SECTION 13 18 17
ICE RINK CENTRAL CONTROL SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This section includes labor, materials, equipment, skills and related services necessary to furnish and install an ice rink control system (IRCS) for the ice rink refrigeration system.
- B. General Requirements
- C. General System Description and Design Criteria
- D. References
- E. Submittals
- F. Warranty
- G. Products, Delivery, Storage and Handling Requirements
- H. Products
- I. Execution / Performance

1.02 RELATED SECTIONS

- A. Division 0, Division 1, General and Supplemental Conditions
- B. Section 131811 – Ice Rink General Requirements
- C. Section 131812 – Ice Rink Refrigeration System
- D. Section 131815 – Ice Rink Waste Heat Recovery Systems
- E. Drawing Sheets show locations and quantities of equipment for the refrigeration system.

1.03 GENERAL REQUIREMENTS

- A. All work of this Division shall be coordinated and provided by the single Ice Rink Control System (IRCS) Contractor.
- B. The work of this Division shall be scheduled, coordinated and interfaced with the associated work of other trades. Reference the other Division 13 Sections for details.
- C. The work of this Division shall be as required by the Specifications, Point Schedules and Drawings.
- D. If the IRCS Contractor believes there are conflicts or missing information in the project documents, the Contractor shall promptly request clarification and instruction from the Engineer.
- E. Provide connection points to collect and manipulate data from power monitoring device specified in Section 13 18 12 Ice Rink Refrigeration System.
- F. The IRCS Contractor is responsible for the design of the control system.
- G. The refrigeration system shall have sufficient manual controls to allow the system to operate without the computer control system if the computer control system fails.

1.04 GENERAL SYSTEM DESCRIPTION AND DESIGN CRITERIA

- A. The Ice Rink Control System (IRCS) shall be a complete system to operate the ice rink refrigeration system and all its functions and monitoring requirements and include the following:
 - 1. An 18" (minimum size) touch screen microprocessor control system to control and manage the refrigeration system and all its components, functions and alarms.
 - 2. The capability of remote access through an Owner provided data/phone circuit. Contractor to supply phone line to unit. Owner will supply any data lines require for connection with building management, energy management or IT systems.
 - 3. Provide all control and monitoring points and alarms to the Building Management System (BMS) or Energy Management System (EMS) as specified elsewhere.
- B. The work of the single IRCS Contractor shall be as defined individually and collectively in all Sections of Division 13 of these specifications together with the Drawings.
- C. The IRCS work shall consist of the provision of all labor, materials, tools, equipment, software, software licenses, software configurations and database entries, interfaces, wiring, tubing, installation, labeling, engineering, calibration, documentation, samples, submittals, testing, commissioning, training services, permits and licenses, transportation, shipping, handling, administration, supervision, management, insurance, temporary protection, cleaning, cutting and patching, warranties, services, and items, even though these may not be specifically mentioned in these Division documents which are required for the complete, fully functional and commissioned IRCS.
- D. Provide a complete, neat and workmanlike installation. Use only manufacturer employees who are skilled, experienced, trained, and familiar with the specific equipment, software, standards and configurations to be provided for this Project.
- E. The IRCS shall be integrated with the refrigeration system's specified motor control center (MCC) and shall be located in a wall mounted, NEMA rated, steel enclosure.

1.05 REFERENCES

- A. In addition to the references listed in Section 131811 - Ice Rink General, all work shall conform to the following Codes and Standards, as applicable:
 - 1. National Fire Protection Association (NFPA) Standards.
 - 2. National Electric Code (NEC) and applicable local Electric Code
 - 3. Underwriters Laboratories (UL) listing and labels.
 - 4. UL 864 UUKL Smoke Control
 - 5. UL 268 Smoke Detectors.
 - 6. UL 916 Energy Management
 - 7. NFPA 70 - National Electrical Code.
 - 8. NFPA 90A - Standard For The Installation Of Air Conditioning And Ventilating Systems.
 - 9. NFPA 92A and 92B Smoke Purge/Control Equipment. Factory Mutual (FM).
 - 10. American National Standards Institute (ANSI).
 - 11. National Electric Manufacturer's Association (NEMA).
 - 12. American Society of Mechanical Engineers (ASME).

13. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) [user note: add ASHRAE 62 IAQ as applicable].
 14. Air Movement and Control Association (AMCA).
 15. Institute of Electrical and Electronic Engineers (IEEE).
 16. American Standard Code for Information Interchange (ASCII).
 17. Electronics Industries Association (EIA).
 18. Occupational Safety and Health Administration (OSHA).
 19. American Society for Testing and Materials (ASTM).
 20. Federal Communications Commission (FCC) including Part 15, Radio Frequency Devices.
 21. Americans Disability Act (ADA)
 22. ANSI/EIA 909.1-A-1999 (LonWorks)
 23. ANSI/ASHRAE Standard 195-2004 (BACnet)
- B. In the case of conflicts or discrepancies, the more stringent regulation shall apply.
- C. All work shall meet the approval of the authorities having jurisdiction at the project site.
- D. Definitions:
1. EMS – Energy Management System
 2. BMS – Building Management System
 3. DDC – Direct Digital Control
 4. IRCS – Ice Rink Control System

1.06 SUBMITTALS

- A. Shop Drawings. All submittals shall conform to the requirements of General Conditions and Section 131811 - Ice Rink General Requirements.
- B. The IRCS contractor shall submit a list of all shop drawings with submittals dates within 45 days of contract award from City to Ice Rink Contractor.
- C. Submittals shall be in defined packages. Each package shall be complete and shall only reference itself and previously submitted packages. The packages shall be as approved by the Engineer for Contract compliance.
- D. Equipment and systems requiring approval of local authorities must comply with such regulations and be approved. Filing shall be at the expense of the IRCS Contractor where filing is necessary. Provide a copy of all related correspondence and permits to the Owner.
- E. Prepare an index of all submittals and shop drawings for the installation. Index shall include a shop drawing identification number, Contract Documents reference and item description.
- F. The IRCS Contractor shall correct any errors or omissions noted in the first review.
- G. At a minimum, submit the following:
 1. IRCS network architecture diagrams including all nodes and interconnections. Include future/existing BMS/EMS connection.
 2. Systems schematics, sequences and flow diagrams.
 3. Points schedule for each point in the IRCS, including: Point Type, Object Name, Expanded ID, Display Units, Controller type, and Address.

4. Samples of screen menus.
5. Details of all IRCS interfaces and connections.
6. Product data sheets or marked catalog pages including part number, photo and description for all products including software.

1.07 RECORD DOCUMENTATION

- A. Provide the following information in addition to the requirements of Section 131811 - Ice Rink General Requirements.
 1. Operation and Maintenance Manuals
 - a. One (1) hard copy and three (3) electronic copies on compact disc (CD) format of the entire Operation and Maintenance Manuals shall be provided to the Engineer upon completion of the Project. Include the following for the IRCS:
 - 1) Table of contents.
 - 2) As-built system record drawings. Computer Aided Drawings (CAD) record drawings shall represent the as-built condition of the system and incorporate all information supplied with the approved submittal.
 - 3) Manufacturer's product data sheets or catalog pages for all products including software.
 - 4) System and Software Operator's manuals.
 - 5) Archive copy of all site-specific databases and sequences.
 - 6) IRCS and BMS network diagrams.
 - 7) Interfaces to all third-party products and work by other trades.
 - 8) Operating license for all software.
 - b. The Operation and Maintenance Manual CD shall be self-contained, and include all necessary software required to access the product data sheets. A logically organized table of contents shall provide dynamic links to view and print all product data sheets. Viewer software shall provide the ability to display, zoom, and search all documents.

1.08 WARRANTY/GUARANTY

- A. As required in Section 131811 - Ice Rink General Requirements.
- B. Provide as-built drawings to include a board and points list for the system.
- C. The Ice Rink Control Contractor must furnish 8 hours of checkout and walk thru time at refrigeration start up with the Owners personnel.
- D. Contractor shall assure all warranties and extended warranties are properly filed for all systems and equipment. A copy of all warranties shall be inserted in the Operation and Maintenance Manuals.

1.09 PRODUCT DELIVERY, STORAGE AND HANDLING REQUIREMENTS

- A. As required in Section 131811 - Ice Rink General Requirements.

1.10 QUALIFICATIONS

- A. As evidence and assurance of the contractor's controls subcontractor's ability to construct the project, the control subcontractor must have successfully completed the design, programming and installation of five (5) ice rink control systems similar to this project within the past five (5) years.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Control systems by Alerton by NAC (651.490.9869, www.nac-hvac.com), Tridium-Vykon by Total Mechanical Services, Inc. (651.768.9367, www.totalmech.com) Cimco SmartHub and Distech, WAGO, or equal manufacturer.

2.02 GENERAL

- A. Furnish and install a complete ice rink control system (IRCS) including all controllers, alarm devices, enclosures, transformers, sensors, transducers, boards required for a complete monitoring system.
- B. Provide an uninterruptible power supply (UPS) that provides 20-minute run time during a power failure. The purpose of this system is to allow the system to run long enough to send out alarms.

2.03 CONTROLLERS

- A. Alerton Visual Logic Controller (VLC) or equal. Furnish and install all cards and boards required.
- B. Provide remote monitoring capabilities.
- C. All panels and devices must utilize BACnet ANSI/ASHRAE Standards 135-2004, as required to interact with the existing/future BMS/EMS, on a single building level network.
- D. Provide web accessible graphic monitoring and control system. All system access shall be compatible with standard, current web browsers.

2.04 GRAPHICAL USER INTERFACE (GUI)

- A. The Graphical User Interface shall allow the operator to view, configure, and edit values from multiple controllers. The GUI shall be completely programmable and shall be wall mounted.
- B. Operator interface shall be via a wall mounted touch screen display with ASHRAE standard user definable graphical icons associated with any displayed variable.
- C. Variables such as alarms, trends, set points, analog and digital values may be displayed and/or edited using the GUI.
- D. The GUI shall be menu based displaying a minimum of 16 menus. Menus shall be arranged logically
- E. The graphics shall provide a visual representation of the ice rink, refrigeration system and equipment with associated hardware point's locations displayed symbolically and monitoring inputs shown.

2.05 OTHER SYSTEMS

- A. ICRS shall communicate with the refrigerant gas monitoring system, power monitoring device, ventilation system, building management system and fire alarm system. See Section 131813 – Ice Rink Refrigeration System.

2.06 ENCLOSURES

- A. Furnish and install all required enclosures. Furnish and install weatherproof enclosures for exterior equipment such as the condenser. Seal all unused knockout holes with silicon sealant. Label enclosure.

2.07 SENSORS AND TRANSDUCERS

- A. Approved Manufacturers: Rochester Gauges, Inc., Computer Process Controls, Inc., Ashcroft Inc., Kele Inc., Omega, JW Instruments, ACI, SETRA, or equal.
- B. Furnish and install all sensors, transducers and all other devices required to control and monitor systems.
- C. Scale on sensors shall be as specified in the contract drawings for monitoring devices. If not specified, shall be typical of similar systems.
- D. Temperature Sensor Accuracy. The following point types (and the accuracy of each) are required, and their associated accuracy values include errors associated with the sensor, lead wire, and A to D conversion:

Point Type	Accuracy
Glycol/Brine (warm or cold)	+ .5°F
Ice/Subfloor Temperature	+ .5°F
All Others	+ .5°F

- E. Resistance Temperature Detectors (RTD) Assemblies:
 - 1. RTD: Single Element, platinum, 3 wire, Tolerance Class A, 316 stainless steel sheath. Length to be at approximately 10% longer than radius of pipe.
 - 2. Temperature Ranges:
 - a. Return brine/glycol: 0-50F
 - b. Others: As required.
 - 3. Spring loaded.
 - 4. NPT stainless steel hex nipple.
 - 5. Aluminum screw cover head – NEMA 4X rated.
- F. Thermowell:
 - 1. Shall be standard duty threaded (NPT), 304 stainless steel, NPT size as required to accommodate RTD or other devices.
 - 2. When thermo wells are required, the sensor and well shall be supplied as a complete assembly, including wellhead and Greenfield fitting.
 - 3. Thermo wells shall be pressure rated and constructed in accordance with the system working pressure.
- G. Transducers

1. Replace the adjustable transducers that come with the Bitzer screw compressors and others, and replace with a valve and fixed transducer on each gauge port.

2.08 LOW VOLTAGE CABLE

- A. Cable: Shall be level-4, twisted pair, stranded and shielded.
- B. Wire: Shall be 22 AWG, 0.65 mm diameter.
- C. Loop Resistance: 106 ohms/km
- D. Capacitance: 49 nf/km

2.09 CABLE FOR SENSORS, TRANSDUCERS AND CONTROL RELAY

- A. Temperature Sensors and 2 Wire Inputs Sensors: (Dry contact, 4-20 ma, and low voltage): 2-wire input sensor cable shall be 2 conductor, stranded, shielded, twisted, PVC jacketed 22 AWG, (Belden #8761 or equiv.). Cable runs over 800 feet shall be a minimum of 18 AWG.
- B. Control Relays (low voltage or dry contact only): Cable shall be 2 conductors, stranded, twisted, PVC jacketed 18 AWG cable, (Belden #8461 or equiv.).
- C. Pressure Transducers: Cable shall be 3 conductors, stranded, shielded, twisted, PVC jacketed 22 AWG, (Belden #8771 or equiv.). Cable runs over 800 feet shall be a minimum of 18 AWG.

2.10 CONDUIT

- A. Cable: General: Conduit for all high voltage, low voltage, and communication connections must be run and connected in accordance to meet current electrical code standards.
- B. High Voltage Connections:
 1. Separate conduit shall be run from each refrigeration/HVAC controller, IRLDS-II panels, Input/output boards, and control boards to each respective enclosure or panel housing their source of power. Conduit will not be necessary if equipment is mounted directly to enclosure housing source of power providing electrical couplings are fitted to link enclosures permitting enough room to supply power wires to equipment.
- C. Low Voltage Connections:
 1. Controllers: Separate conduit will be run to connect any Alerton VLC, or equal controllers where by the units are separated from each other in different rooms. Conduit will be labeled at each end as "echelon net and/or 485 com" and to what controller opposite end of conduit leads to.
 2. Input / output boards: Separate conduit will be run to connect any enclosures housing I/O and/or controller boards where communication wires are needed to link each other through an area outside of the building structure ensuring no communication wires are left exposed to outside air. Conduit will be labeled at each end as to what I/O board and/or controller the opposite end of conduit leads to.
 3. Sensors: Separate conduit per island or dual-temp case shall be run in slabs from equipment enclosure housing respective I/O boards of each case to enclosed area of case. Conduit shall be labeled with case or I/O board number on each end of conduit.

2.11 LABELS

- A. All components, devices and cables shall be identified with printed labels. Labels shall include name of equipment, unit numbers, identify associated equipment and devices.

- B. Cables shall have labels at each end.
- C. Input and Output relays, digitals controls shall be labeled with control description.
- D. Alarms shall be labeled as "out alarms" or "in alarms".

2.12 ALARM LIGHT AND STROBE

- A. Furnish one (1) alarm strobe light with time delay button.

PART 3 - EXECUTION / PERFORMANCE

3.01 GENERAL INSTALLATION

- A. Installation shall be in accordance with manufacturers recommendations.

3.02 SENSOR AND TRANSDUCER INSTALLATION

- A. All sensors and transducers are to be mounted in an appropriate location. All pressure transducers must be mounted in an upward vertical position and accessible for adjustment. All sensors and transducers are to be properly setup through software and hardware.

3.03 WIRE INSTALLATION

- A. No cable will be run in the same conduit as line voltage wiring.
- B. All cables can be run exposed whenever permitted by code, and shall be secured in such a manner so that it is not visible from the floor.
- C. Communications cables connecting boards shall be run from board to board in a logical daisy chained fashion with no breaks, or star configurations.

3.04 GAS MONITORING SYSTEM CONNECTIONS

- A. Connect gas monitoring system unit outputs to IRCS for alarming and monitoring functions.
- B. An alarm strobe light and bell with time delay button shall be mounted by the controller.
- C. Furnish and install one dry contact pushbutton. Mount switches to the outside of alarm panel. Label one switch as "Sign Override".
- D. Settings shall enable alarms to stay "on" if system fails.
- E. Program all necessary set points, parameters, and alarm settings for proper operation.

3.05 ALARMS

- A. All alarm parameters must be programmed and fine-tuned at time of product delivery.
- B. Owner must be notified of all alarms through email and text messages.
- C. Connect ice system controls to automatic dialer system, specified in Section 131812 – Ice Rink Refrigeration System, for alarm notifications.
- D. Outside alarms must be tested in the present of Owner's representative.
- E. All alarms and settings identified herein are recommended guidelines for initial system setup. These settings shall be fully adjustable.
- F. The following alarms and Set Points shall be established.

1. Compressor high discharge pressure - 200 psi
 2. Compressor high discharge temperature - 300°F
 3. Compressor low suction pressure - 10 psi
 4. Compressor high oil temperature - 150°F
 5. Compressor low oil temperature - 90°F
 6. Compressor low oil net pressure - 15 psi (net = oil pressure – suction pressure)
 7. Brine/glycol return high temperature - 24°F
 8. Heat recovery water heater high water temperature - 150°F
 9. Emergency bypass/crossover solenoid valve activation - 235psi
 10. Refrigeration system power failure.
- G. The following equipment shall be monitored for status/current after a start command has been given. Alarms shall be recorded and require manual user reset when the current monitoring has identified that the equipment is not operating.
1. Compressors
 2. Brine/glycol pumps
 3. Cooling tower glycol pumps
 4. Cooling tower fan and water pumps
 5. Snowmelt pump
 6. Subfloor pump
- H. The following alarms shall be recorded and automatically de-energize the associated compressor. When the alarms are cleared, the user must manually reset alarms through on-site access or remote access to bring associated compressors back into operation.
1. Compressor high discharge pressure.
 2. Compressor low suction pressure.
 3. Compressor high discharge temperature.
 4. Compressor high oil temperature.
 5. Compressor low oil pressure (net).
 6. Start failure (MCC failure for motor overload, phase loss, etc.)
- I. The following alarms shall be recorded and automatically de-energize all compressors. When the alarm condition is cleared, the compressor shall automatically reset. The alarm shall remain in a latched state for operator to identify that alarm occurred.
1. Chiller flow switch
 2. Emergency stop activated
 3. Refrigerant leak detection activation

3.06 CABLE FOR SENSOR, TRANSDUCERS, AND CONTROL RELAY INSTALLATION

- A. No cable will be run in the same conduit as line voltage wiring.
- B. All cables can be run exposed whenever permitted by code, and shall be secured in such a manner so that it is not visible from the floor.

- C. Cables with multiple conductors to accommodate more than one sensor can be utilized for island and dual-temp cases only, providing all limitations are met through specifications for each sensor connected.
- D. Cables for input sensors shall be run with no breaks or splices from the I/O board to sensors wires. Use wire butt connector. Do not use wire nuts.
- E. Cables for control relays shall be run with no breaks or splices from the I/O board to termination on points of relay.

3.07 PENETRATIONS

- A. Provide fire stopping for all penetrations used by dedicated BMS/EMS conduits and raceways.
- B. All openings in fire proofed or fire stopped components shall be closed by using approved fire resistive sealant.
- C. All wiring passing through penetrations, including walls shall be in conduit or enclosed raceway.
- D. Penetrations of floor slabs shall be by core drilling. All penetrations shall be plumb, true, and square.

3.08 GENERAL POINTS LIST

- A. The IRCS shall, at minimum, monitor the following system points and points necessary for a complete control system as describe in this section.
- B. Points Type Legend:
 - 1. AI – Analog Input
 - 2. AO – Analog Output
 - 3. BI – Binary Input
 - 4. BO – Binary Output

GENERAL				
Description	Function	Units	Input/ Output	Type
Outdoor Air Temperature	Monitor	Degree F	Input	AI
Outdoor Relative Humidity	Monitor	%	Input	AI
Refrigeration System Power Status	Monitor	On/Off	Input	BI
Power Usage (Electric Submeter)	Monitor/ Logging	KWH	Input	
System Enable Switch	Monitor	On/Off	Input	
Spare				
Spare				
ALARMS AND SAFETIES				
Description	Function	Units	Input/ Output	Type
Refrigeration System Emergency Stop	Control	On/Off	Input	BI
Leak Detection Refrigerant Level	Monitor	PPM	Input	AI
Leak Detection Alarm Level 1	Monitor		Input	BI
Leak Detection Alarm Level 2	Monitor		Input	BI
Leak Detection Alarm Level 3	Monitor		Input	BI

Leak Detection Alarm Level 4	Monitor		Input	BI
Chiller Flow Switch	Monitor		Input	BI
Condenser fan fails to run	Monitor		Input	BI
Spare				
SOLENOID VALVES				
Description	Function	Units	Input/ Output	Type
Chiller King Solenoid Valve	Control	Open/Closed	Output	BO
Bypass/Crossover Solenoid Valve	Control	Open/Closed	Output	BO
Compressor Only Enabled Solenoid Valves	Control	Open/Closed	Output	BO
Water Preheat System Solenoid Valve	Control	Open/Closed	Output	BO
COMPRESSORS				
Description	Function	Units	Input/ Output	Type
Compressor Common Discharge Pressure 1	Monitor	PSI	Input	AI
Compressor Common Discharge Pressure 2	Monitor	PSI	Input	AI
Compressor 1 Oil Temperature	Monitor	Degree F	Input	AI
Compressor 1 Oil Pressure	Monitor	PSI	Input	AI
Compressor 1 Discharge Pressure	Monitor	PSI	Input	AI
Compressor 1 Suction Pressure	Monitor	PSI	Input	AI
Compressor 1 Command	Control	On/Off	Output	BO
Compressor 1 Status	Monitor	Amps	Input	AI
Compressor 1 Stage 1 Loading	Control	On/Off	Output	BO
Compressor 1 Stage 2 Loading	Control	On/Off	Output	BO
Compressor 2 Oil Temperature	Monitor	Degree F	Input	AI
Compressor 2 Oil Pressure	Monitor	PSI	Input	AI
Compressor 2 Discharge Pressure	Monitor	PSI	Input	AI
Compressor 2 Suction Pressure	Monitor	PSI	Input	AI
Compressor 2 Command	Control	On/Off	Output	BO
Compressor 2 Status	Monitor	Amps	Input	AI
Compressor 2 Stage 1 Loading	Control	On/Off	Output	BO
Compressor 2 Stage 2 Loading	Control	On/Off	Output	BO
Compressor 3 Oil Temperature	Monitor	Degree F	Input	AI
Compressor 3 Oil Pressure	Monitor	PSI	Input	AI
Compressor 3 Discharge Pressure	Monitor	PSI	Input	AI
Compressor 3 Suction Pressure	Monitor	PSI	Input	AI
Compressor 3 Command	Control	On/Off	Output	BO
Compressor 3 Status	Monitor	Amps	Input	AI
Compressor 3 Stage 1 Loading	Control	On/Off	Output	BO
Compressor 3 Stage 2 Loading	Control	On/Off	Output	BO
Oil Pressure Filter Sensor (Pre-filter) for screws	Monitor	PSI	Output	
Oil Pressure Filter Sensor (Post-filter) for screws	Monitor	PSI	Output	
Spare				
EVAPORATIVE CONDENSER				

Fan Command	Control	On/Off	Output	BO
Fan Status	Monitor	Amps	Input	AI
Fan Speed Control (VFD)	Control		Output	AO
Water Pump Command	Control	On/Off	Output	BO
Water Pump Status	Monitor	Amps	Input	AI
Spare				
COOLING TOWER				
Glycol Return Temperature	Monitor	Degrees F	Input	AI
Glycol Pump 1 Command	Control	On/Off	Output	BO
Glycol Pump 1 Status	Monitor	Amps	Input	AI
Glycol Pump 1 Speed Control (VFD)	Control		Output	AO
Glycol Pump 2 Command	Control	On/Off	Output	BO
Glycol Pump 2 Status	Monitor	Amps	Input	AI
Glycol Pump 2 Speed Control (VFD)	Control		Output	AO
Fan Command	Control	On/Off	Output	BO
Fan Status	Monitor	Amps	Input	AI
Fan Speed Control (VFD)	Control		Output	AO
Water Pump 1 Command	Control	On/Off	Output	BO
Water Pump 1 Status	Monitor	Amps	Input	AI
Water Pump 2 Command	Control	On/Off	Output	BO
Water Pump 2 Status	Monitor	Amps	Input	AI
Spare				
ICE RINK				
Description	Function	Units	Input/ Output	Type
Brine/Glycol Supply Temperature	Monitor	Degrees F	Input	AI
Brine/Glycol Return Temperature 1	Monitor	Degrees F	Input	AI
Brine/Glycol Return Temperature 2	Monitor	Degrees F	Input	AI
Rink Floor Temperature 1	Monitor	Degrees F	Input	AI
Rink Floor Temperature 2	Monitor	Degrees F	Input	AI
Rink Floor Temperature 3	Monitor	Degrees F	Input	AI
Rink Floor Temperature 4	Monitor	Degrees F	Input	AI
Subfloor Temperature 1	Monitor	Degrees F	Input	AI
Subfloor Temperature 2	Monitor	Degrees F	Input	AI
Subfloor Temperature 3	Monitor	Degrees F	Input	AI
Subfloor Temperature 4	Monitor	Degrees F	Input	AI
RINK PUMPS				
Description	Function	Units	Input/ Output	Type
Rink Pump 1 Command	Control	On/Off	Output	BO
Rink Pump 1 Status	Monitor	Amps	Input	AI
Rink Pump 1 Speed Control (VFD)	Control		Output	AO
Rink Pump 2 Command	Control	On/Off	Output	BO
Rink Pump 2 Status	Monitor	Amps	Input	AI

Rink Pump 2 Speed Control (VFD)	Control		Output	AO
Rink Pump 3 Command	Control	On/Off	Output	BO
Rink Pump 3 Status	Monitor	Amps	Input	AI
Rink Pump 3 Speed Control (VFD)	Control		Output	AO
HEAT RECOVERY SYSTEMS				
Description	Function	Units	Input/ Output	Type
Snowmelt Pump Command	Control	On/Off	Output	BO
Snowmelt Pump Status	Monitor	Amps	Input	AI
Snowmelt Return Temperature	Monitor	Degrees F	Input	AI
Snowmelt Supply Temperature	Monitor	Degrees F	Input	AI
Subfloor Pump 1 Command	Control	On/Off	Output	BO
Subfloor Pump 1 Status	Monitor	Amps	Input	AI
Subfloor Supply Temperature 1	Monitor	Degrees F	Input	AI
Subfloor 3-Way Valve 1	Control		Output	AO
Subfloor Pump 2 Command	Control	On/Off	Output	BO
Subfloor Pump 2 Status	Monitor	Amps	Input	AI
Subfloor Supply Temperature 2	Monitor	Degrees F	Input	AI
Subfloor 3-Way Valve 2	Control		Output	AO
Water Preheat Temperature 1	Monitor	Degrees F	Input	AI
Water Preheat Temperature 2	Monitor	Degrees F	Input	AI
Water Preheat Temperature 3	Monitor	Degrees F	Input	AI
Arena Heating System Return Temperature	Monitor	Degrees F	Input	AI
Arena Heating System Supply Temperature	Monitor	Degrees F	Input	AI

3.09 SEQUENCE OF OPERATION

- A. The following is a general sequence of operation to familiarize the control system developer/supplier with the functions and controls of the ice system. It may not be comprehensive sequence or list and may be modified throughout the project.
- B. All temperatures and pressure settings identified herein are recommended guidelines for initial system setup. These settings should be adjusted during system operation to achieve optimum system performance.
- C. Compressors
 1. Compressor Lead/Lag.
 - a. The three (3) compressors shall rotate lead / lag positions based on operator sequence selection to rotate order of operation. The following compressor sequences shall be used.

Lead Position	Lag Position	Standby Position
1	2	3
2	3	1
3	1	2

2. Compressor Operation

- a. Compressor operation is controlled by secondary refrigerant temperature returning from rink floor based on operator adjustable Set Point (SP).
- b. Lead / Lag compressors shall be energized in accordance with the SP offsets in the table below. SP offsets shall be operator adjustable.

Compressor	ON (°F)	OFF (°F)
Lead	SP + 1°	SP - 1°
Lag	SP + 2°	SP - 1°

- c. Lag compressors shall not be energized until the SP offset has been reached and the lead compressor has been operating fully loaded for 10-minutes.
 - d. If the lead compressor fails to start, the lag compressor shall be energized within 2-minutes of the failure.
 - e. The standby compressor shall be automatically enabled if the lead or lag compressor are locked out on start fail or can be enabled manually in an emergency once the lead and lag compressors are enabled.
3. Compressor loading shall be fully adjustable with initial settings as follows:
 - a. Stage 1 loading will occur 1-minute after compressor start.
 - b. Stage 2 loading will occur 2-minutes after compressor start.

D. Heat Reclaim System

1. Snow Melting
 - a. Pump on and solenoid valve open when compressors are running.
2. Subfloor Heating
 - a. With subsoil temperature sensors: Pump on when compressors are running and subsoil temperature is less than 40° (F). If glycol temperature is less than 55° (F), the three-way valve shall modulate warmer glycol from the snow melt piping loop into the subfloor heat loop. Pump shall turn off when subsoil temperature reaches 45° (F).
 - b. Without subsoil temperature sensors: Pump on when compressors are running. If glycol return temperature is less than 40° (F), the three-way valve shall modulate warmer glycol from the snow melt piping loop into the subfloor heat loop until the glycol temperature reaches 45° (F).
3. Preheat Domestic and Resurfacer Water
 - a. Solenoid valve opens when compressors are running and water temperature inside heat recovery water heater is less than 140°F.

E. Condenser

1. Controlled by compressor discharge head pressure downstream of the pressure regulating valve. Condensing pressure shall be controlled by a combination of the fan and water pump to maintain the specified condensing temperature. Add ambient air sensor to assure water pump does not operate at very low air temperatures (0F, etc.) to avoid freeze up of unit. Typical set points are as follows. The fan speed is regulated by VFD. Initial fan and water pump set points are as follows:

Operation	Discharge Pressure (psi)
Fan ON @ min. speed	145
Fan ON @ max. speed	165
Water Pump ON	175

Water Pump OFF	150
Fan OFF	135

2. Provide two modes of operation.
 - a. Winter mode: Condenser fan leads and water pump follows.
 - b. Summer mode: Water pumps leads and condenser fan follows. Fans to shut off first as pressure decreases.
 - c. Provide an automatic switchover mode between winter and summer modes. When this mode is enabled, if the temperature falls below the User setpoint, the control switches to winter mode.

F. Cooling Tower

1. Cooling Tower Glycol Pump: Pump on when compressors are running. Pump speed regulated by VFD based on compressor discharge pressure downstream of pressure regulating valve. Initial settings for minimum pump speed based on 140 psi and maximum pump speed based on 160 psi.
2. Cooling Tower Fan and Water Pump: Controlled by fluid temperature returning to heat exchanger. The fan speed is regulated by VFD. Initial fan and water pump set points are as follows:

Operation	Fluid Temperature (°F)
Fan ON @ min. speed	80
Fan ON @ max. speed	85
Water Pump ON	87
Water Pump OFF	80
Fan OFF	78

3. Provide two modes of operation.
 - a. Winter mode: Condenser fan leads and water pump follows.
 - b. Summer mode: Water pumps leads and condenser fan follows. Fans to shut off first as pressure decreases.
 - c. Provide an automatic switchover mode between winter and summer modes. When this mode is enabled, if the temperature falls below the User setpoint, the control switches to winter mode.

G. Chiller

1. The level of refrigerant in the chiller vessel is controlled by:
 - a. A solenoid valve (king valve) as described below.
 - b. A high-level float switch shall be wired in series with the solenoid valve (king valve) to close the solenoid valve if the maximum set level in the chiller is reached.

H. Rink Pumps

1. Continuously running. Pump speed regulated by VFD based on operator adjustable Set Point (SP) for the secondary refrigerant temperature returning from the rink floor(s).

I. Solenoid Valves:

1. King Valve for Chiller Vessel:

- a. This valve allows refrigerant to pass from the high-pressure receiver to the chiller vessel.
 - b. This valve shall be enabled with any one or more compressors are running.
 - c. This valve shall be opened and closed by the specified adjustable level controller that is mounted on the liquid refrigerant column.
 - d. This valve shall be wired in series with the chiller high level float switch to close the solenoid valve if the maximum set level in the chiller is reached.
2. Emergency Bypass/Crossover Solenoid Valve: This valve allows high and low-pressure refrigerant to equalize if high discharge pressures are reached. Valve opens if compressor discharge pressure reaches 235 psi. Compressors shall be locked out when valve is open.
 3. Compressor Only Enabled Solenoid Valve: These valves control refrigerant hot gas flow to heat exchangers. Valves are open when compressors are running.
 4. Water Preheat System Solenoid Valve: This valve controls refrigerant hot gas flow to the heat recovery water heaters. Valve is open when compressors are running and the water temperature inside the heat recovery water heaters is less than 140°F.

END OF SECTION

SECTION 21 13 13

WET-PIPE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Steel pipe and fittings.
 - 2. Sprinklers.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For wet-pipe sprinkler systems.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Include diagrams for power, signal, and control wiring.
- C. Delegated Design Submittals: For wet-pipe sprinkler systems indicated to comply with performance requirements and design criteria, including analysis data, signed and sealed by the qualified professional engineer responsible for their preparation.

1.03 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Sprinkler system plans and sections, or Building Information Model (BIM), drawn to scale, showing the items described in this Section and coordinated with all building trades.
- B. Qualification Data: For qualified Installer and professional engineer.
- C. Design Data: Approved sprinkler piping working plans, prepared according to NFPA 13, including documented approval by authorities having jurisdiction, and including hydraulic calculations if applicable.
- D. Field Test Reports: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping."
- E. Field quality-control reports.

1.04 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Installer's responsibilities include designing, fabricating, and installing sprinkler systems and providing professional engineering services needed to assume engineering responsibility. Base calculations on results of fire-hydrant flow test.
 - a. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by qualified professional engineer.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Sprinkler system equipment, specialties, accessories, installation, and testing to comply with NFPA 13.
- C. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.

- D. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design wet-pipe sprinkler systems.
 - 1. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through water-service piping, valves, and backflow preventers.
 - 2. Sprinkler Occupancy Hazard Classifications:
 - a. Mechanical Equipment Rooms: Ordinary Hazard, Group 1.
 - 3. Minimum Density for Automatic-Sprinkler Piping Design:
 - a. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm/sq. ft. over 1500 sq. ft. area.
 - 4. Maximum protection area per sprinkler according to UL listing.
 - 5. Maximum Protection Area per Sprinkler:
 - a. Mechanical Equipment Rooms: 130 sq. ft..
- E. Obtain documented approval of sprinkler system design from authorities having jurisdiction.
- F. Seismic Performance: Sprinkler piping to withstand the effects of earthquake motions determined according to NFPA 13 and ASCE/SEI 7.

2.02 STEEL PIPE AND FITTINGS

- A. Standard-Weight Steel Pipe: black-steel pipe, ASTM A53/A53M, Type E, Grade B. Pipe ends may be factory or field formed to match joining method.
- B. Gray-Iron Threaded Fittings: Galvanized and uncoated gray-iron threaded fittings, ASME B16.4, Class 125, standard pattern.
- C. Malleable- or Ductile-Iron Unions: UL 860.

2.03 SPRINKLER PIPING SPECIALTIES

- A. Branch Outlet Fittings:
 - 1. Standard: UL 213.
 - 2. Pressure Rating: 175-psig minimum.
 - 3. Body Material: Ductile-iron housing with EPDM seals and bolts and nuts.
 - 4. Type: Mechanical-tee and -cross fittings.
 - 5. Configurations: Snap-on and strapless, ductile-iron housing with branch outlets.
 - 6. Size: Of dimension to fit onto sprinkler main and with outlet connections as required to match connected branch piping.
 - 7. Branch Outlets: Grooved, plain-end pipe, or threaded.
- B. Sprinkler Inspector's Test Fittings:
 - 1. Standard: UL's "Fire Protection Equipment Directory" or FM Global's "Approval Guide."
 - 2. Pressure Rating: 175-psig minimum.
 - 3. Body Material: Cast- or ductile-iron housing with sight glass.
 - 4. Size: Same as connected piping.
 - 5. Inlet and Outlet: Threaded.
- C. Adjustable Drop Nipples:
 - 1. Standard: UL 1474.
 - 2. Pressure Rating: 250-psig minimum.
 - 3. Body Material: Steel pipe with EPDM-rubber O-ring seals.
 - 4. Size: Same as connected piping.
 - 5. Length: Adjustable.
 - 6. Inlet and Outlet: Threaded.

2.04 SPRINKLERS

- A. Listed in UL's "Fire Protection Equipment Directory" or FM Global's "Approval Guide."
- B. Pressure Rating for Residential Sprinklers: 175-psig maximum.
- C. Pressure Rating for Automatic Sprinklers: 175-psig minimum.
- D. Automatic Sprinklers with Heat-Responsive Element:
 - 1. Early-Suppression, Fast-Response Applications: UL 1767.

2. Nonresidential Applications: UL 199.
 3. Characteristics: Nominal 1/2-inch orifice with Discharge Coefficient K of 5.6, and for "Ordinary" temperature classification rating unless otherwise indicated or required by application.
- E. Sprinkler Finishes: bronze.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPING

- A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated on approved working plans.
 1. Deviations from approved working plans for piping require written approval from authorities having jurisdiction. File written approval with Architect before deviating from approved working plans.
 2. Coordinate layout and installation of sprinklers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, and partition assemblies.
- B. Piping Standard: Comply with NFPA 13 requirements for installation of sprinkler piping.
- C. Install seismic restraints on piping. Comply with NFPA 13 requirements for seismic-restraint device materials and installation.
- D. Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.
- E. Install unions adjacent to each valve in pipes NPS 2 and smaller.
- F. Install "Inspector's Test Connections" in sprinkler system piping, complete with shutoff valve, and sized and located according to NFPA 13.
- G. Install sprinkler piping with drains for complete system drainage.
- H. Install hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13.
- I. Fill sprinkler system piping with water.
- J. Install escutcheons for piping penetrations of walls, ceilings, and floors.

3.02 JOINT CONSTRUCTION

- A. Install couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.
- B. Install unions adjacent to each valve in pipes NPS 2 and smaller.
- C. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- D. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.
- E. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 1. Apply appropriate tape or thread compound to external pipe threads.
 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- F. Steel-Piping, Cut-Grooved Joints: Cut square-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe joints.
- G. Steel-Piping, Roll-Grooved Joints: Roll rounded-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe grooved joints.

- H. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

3.03 IDENTIFICATION

- A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

3.04 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 - 3. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
- B. Sprinkler piping system will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.05 CLEANING

- A. Clean dirt and debris from sprinklers.
- B. Only sprinklers with their original factory finish are acceptable. Remove and replace any sprinklers that are painted or have any other finish than their original factory finish.

3.06 PIPING SCHEDULE

- A. Standard-Pressure, Wet-Pipe Sprinkler System, NPS 2 (DN 50) and Smaller, to Be One of the Following:
 - 1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.

3.07 SPRINKLER SCHEDULE

- A. Use sprinkler types in subparagraphs below for the following applications:
 - 1. Rooms without Ceilings: Upright sprinklers.
- B. Provide sprinkler types in subparagraphs below with finishes indicated.
 - 1. Upright, Pendent, and Sidewall Sprinklers: Chrome plated in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view; wax coated where exposed to acids, chemicals, or other corrosive fumes.

END OF SECTION 21 13 13

SECTION 22 05 23.12

BALL VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Brass ball valves.
 - 2. Bronze ball valves.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of valve.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Standards:
 - 1. Domestic water valves intended to convey or dispense water for human consumption must comply with the SDWA, requirements of authorities having jurisdiction, and NSF 61 and NSF 372, or must be certified to be in compliance with NSF 61 and NSF 372 (by an ANSI-accredited third-party certification body) that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.
- B. ASME Compliance:
 - 1. ASME B1.20.1 for threads for threaded end valves.
 - 2. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
 - 3. ASME B16.18 for cast copper solder-joint connections.
 - 4. ASME B16.22 for wrought copper and copper alloy solder-joint connections.
 - 5. ASME B16.34 for flanged and threaded end connections
- C. Provide bronze valves made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted.
- D. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- E. Valve Sizes: Same as upstream piping unless otherwise indicated.
- F. Valves in Insulated Piping:
 - 1. Provide 2-inch extended neck stems.
 - 2. Extended operating handles with nonthermal-conductive covering material and protective sleeves that allow operation of valves without breaking vapor seals or disturbing insulation.
 - 3. Memory stops that are fully adjustable after insulation is applied.

2.02 BRASS BALL VALVES

- A. Brass Ball Valves, One Piece, Threaded Ends:
 - 1. Standard: MSS SP-110, MSS SP-145.
 - 2. CWP Rating: 400 psig.
 - 3. Body Design: One piece.
 - 4. Body Material: Forged brass or bronze.
 - 5. Ends: Threaded.
 - 6. Seats: PTFE.
 - 7. Stem: Brass or stainless steel.
 - 8. Ball: Chrome-plated brass or stainless steel.
 - 9. Port: Reduced.
- B. Brass Ball Valves, Two Piece with Full Port and Brass Trim, Threaded or Soldered Ends:

1. Standard: MSS SP-110; MSS SP-145.
 2. CWP Rating: 600 psig.
 3. Body Design: Two piece.
 4. Body Material: Forged brass.
 5. Ends: Threaded or soldered.
 6. Seats: PTFE.
 7. Stem: Brass.
 8. Ball: Chrome-plated brass.
 9. Port: Full.
- C. Brass Ball Valves, Two Piece with Full Port and Brass Trim, Press Ends:
1. Standard: MSS SP-110; MSS SP-145; IAPMO/ANSI Z1157.
 2. CWP Rating: Minimum 200 psig.
 3. Body Design: Two piece.
 4. Body Material: Forged brass.
 5. Ends: Press.
 6. Press-End Connections Rating: Minimum 200 psig.
 7. Seats: PTFE or RPTFE.
 8. Stem: Brass.
 9. Ball: Chrome-plated brass.
 10. Port: Full.
 11. O-Ring Seal: Buna-N or EPDM.
- D. Brass Ball Valves, Two Piece with Regular Port and Brass Trim, Threaded or Soldered Ends:
1. Standard: MSS SP-110; MSS SP-145.
 2. CWP Rating: 600 psig.
 3. Body Design: Two piece.
 4. Body Material: Forged brass.
 5. Ends: Threaded or soldered.
 6. Seats: PTFE.
 7. Stem: Brass.
 8. Ball: Chrome-plated brass.
 9. Port: Regular.

2.03 BRONZE BALL VALVES

- A. Bronze Ball Valves, One Piece with Bronze Trim, Threaded Ends:
1. Standard: MSS SP-110; MSS SP-145.
 2. CWP Rating: 400 psig.
 3. Body Design: One piece.
 4. Body Material: Bronze.
 5. Ends: Threaded.
 6. Seats: PTFE.
 7. Stem: Bronze.
 8. Ball: Chrome-plated brass.
 9. Port: Reduced.
- B. Bronze Ball Valves, Two Piece with Full Port, and Bronze or Brass Trim, Threaded or Soldered Ends:
1. Standard: MSS SP-110; MSS SP-145.
 2. CWP Rating: 600 psig.
 3. Body Design: Two piece.
 4. Body Material: Bronze.
 5. Ends: Threaded or soldered.
 6. Seats: PTFE.
 7. Stem: Bronze or brass.
 8. Ball: Chrome-plated brass.
 9. Port: Full.
- C. Bronze Ball Valves, Two Piece with Full Port, and Bronze or Brass Trim, Press Ends:

1. Standard: MSS SP-110; MSS SP-145; IAPMO/ANSI Z1157.
 2. CWP Rating: Minimum 200 psig.
 3. Body Design: Two piece.
 4. Body Material: Bronze.
 5. Ends: Press.
 6. Press-End Connections Rating: Minimum 200 psig.
 7. Seats: PTFE or RTPFE.
 8. Stem: Bronze or brass.
 9. Ball: Chrome-plated brass.
 10. Port: Full.
 11. O-Ring Seal: EPDM or Buna-N.
- D. Bronze Ball Valves, Two Piece with Regular Port, and Bronze or Brass Trim, Threaded Ends:
1. Standard: MSS SP-110; MSS SP-145.
 2. CWP Rating: 600 psig.
 3. Body Design: Two piece.
 4. Body Material: Bronze.
 5. Ends: Threaded.
 6. Seats: PTFE.
 7. Stem: Bronze or brass.
 8. Ball: Chrome-plated brass.
 9. Port: Regular.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- C. Examine threads on valve and mating pipe for form and cleanliness.
- D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
- E. Do not attempt to repair defective valves; replace with new valves. Remove defective valves from site.

3.02 INSTALLATION OF VALVES

- A. Install valves with unions or flanges at each piece of equipment arranged to allow space for service, maintenance, and equipment removal without system shutdown.
- B. Provide support to piping adjacent to valves such that no force is imposed upon valves.
- C. Locate valves for easy access.
- D. For valves in horizontal piping, install valves with stem at or above center of pipe.
- E. Install valves in position to allow full valve actuation movement.
- F. Valve Tags: Comply with requirements in Section 22 05 53 "Identification for Plumbing Piping and Equipment" for valve tags and schedules.
- G. Adhere to manufacturer's written installation instructions. When soldering or brazing valves, do not heat valves above maximum permitted temperature. Do not use solder with melting point temperature above valve manufacturer's recommended maximum.
- H. Adjust or replace valve packing after piping systems have been tested and put into service, but before final adjusting and balancing. Replace valves exhibiting leakage.

3.03 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. If valves with specified CWP ratings are unavailable, provide the same types of valves with higher CWP ratings.
- B. Select valves with the following end connections:
 - 1. For Copper Tubing, NPS 2 and Smaller: Threaded ends except where solder-joint valve-end option or press-end option is indicated in valve schedules below.

3.04 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE

- A. Pipe NPS 2 and Smaller:
 - 1. Brass ball valve, one piece. Provide with threaded solder or press-connection-joint ends.
 - 2. Brass ball valves, two piece with full regular port, and brass trim. Provide with threaded solder or press-connection-joint ends.
 - 3. Bronze ball valves, two piece with full regular port, and bronze or brass trim. Provide with threaded solder or press-connection-joint ends.
 - 4. Brass ball valves, three piece with full port, and brass trim.
 - 5. Bronze ball valves, three piece with full port, and bronze or brass trim.
 - 6. Bronze ball valves, two piece with regular port, and bronze trim.

END OF SECTION 22 05 23.12

SECTION 22 05 29

HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Metal pipe hangers and supports.
 - 2. Trapeze pipe hangers.
 - 3. Thermal hanger-shield inserts.
 - 4. Fastener systems.
 - 5. Pipe-positioning systems.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations.
- C. Delegated-Design Submittal: For trapeze hangers indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.03 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

1.04 QUALITY ASSURANCE

- A. Structural-Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M.
- B. Pipe Welding Qualifications: Qualify procedures and operators according to "2015 ASME Boiler and Pressure Vessel Code, Section IX."

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design trapeze pipe hangers and equipment supports.
- B. Structural Performance: Hangers and supports for plumbing piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.
 - 1. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
 - 2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
 - 3. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction.

2.02 METAL PIPE HANGERS AND SUPPORTS

- A. Carbon-Steel Pipe Hangers and Supports:
 - 1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
 - 2. Galvanized Metallic Coatings: Pregalvanized, hot-dip galvanized, or electro-galvanized.
 - 3. Nonmetallic Coatings: Plastic coated or epoxy powder coated.
 - 4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.

5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel stainless steel.
- B. Stainless-Steel Pipe Hangers and Supports:
 1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
 2. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
 3. Hanger Rods: Continuous-thread rod, nuts, and washer made of stainless steel.
- C. Copper Pipe and Tube Hangers:
 1. Description: MSS SP-58, Types 1 through 58, copper-coated-steel, factory-fabricated components.
 2. Hanger Rods: Continuous-thread rod, nuts, and washer made of copper-coated steel stainless steel.

2.03 TRAPEZE PIPE HANGERS

- A. Description: MSS SP-58, Type 59, shop- or field-fabricated pipe-support assembly, made from structural-carbon-steel shapes, with MSS SP-58 carbon-steel hanger rods, nuts, saddles, and U-bolts.

2.04 THERMAL HANGER-SHIELD INSERTS

- A. Insulation-Insert Material for Cold Piping: ASTM C552, Type II cellular glass with 100-psig or ASTM C591, Type VI, Grade 1 polyisocyanurate with 125-psig minimum compressive strength and vapor barrier.
- B. Insulation-Insert Material for Hot Piping: ASTM C552, Type II cellular glass with 100-psig or ASTM C591, Type VI, Grade 1 polyisocyanurate with 125-psig minimum compressive strength.
- C. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
- D. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- E. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.05 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
- B. Mechanical-Expansion Anchors: Insert-wedge-type anchors, for use in hardened portland cement concrete, with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
 1. Indoor Applications: Zinc-coated or stainless steel.

2.06 PIPE-POSITIONING SYSTEMS

- A. Description: IAPMO PS 42 positioning system composed of metal brackets, clips, and straps for positioning piping in pipe spaces; for plumbing fixtures in commercial applications.

2.07 EQUIPMENT SUPPORTS

- A. Description: Welded, shop- or field-fabricated equipment support made from structural-carbon-steel shapes.

2.08 MATERIALS

- A. Aluminum: ASTM B221.
- B. Carbon Steel: ASTM A1011/A1011M.
- C. Structural Steel: ASTM A36/A36M carbon-steel plates, shapes, and bars; black and galvanized.
- D. Stainless Steel: ASTM A240/A240M.

- E. Grout: ASTM C1107/C1107M, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
 - 1. Properties: Nonstaining, noncorrosive, and nongaseous.
 - 2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.01 APPLICATION

- A. Comply with requirements in Section 07 84 13 "Penetration Firestopping" for firestopping materials and installation, for penetrations through fire-rated walls, ceilings, and assemblies.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components, so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

3.02 HANGER AND SUPPORT INSTALLATION

- A. Metal Pipe-Hanger Installation: Comply with MSS SP-58. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-58. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.
 - 1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size, or install intermediate supports for smaller-diameter pipes as specified for individual pipe hangers.
 - 2. Field fabricate from ASTM A36/A36M carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.
- C. Thermal Hanger-Shield Installation: Install in pipe hanger or shield for insulated piping.
- D. Fastener System Installation:
 - 1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete, after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
 - 2. Install mechanical-expansion anchors in concrete, after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- E. Pipe-Positioning-System Installation: Install support devices to make rigid supply and waste piping connections to each plumbing fixture.
- F. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
- G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- I. Install lateral bracing with pipe hangers and supports to prevent swaying.
- J. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms, and install reinforcing bars through openings at top of inserts.
- K. Load Distribution: Install hangers and supports, so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- L. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.
- M. Insulated Piping:

1. Attach clamps and spacers to piping.
 - a. Piping Operating Above Ambient Air Temperature: Clamp may project through insulation.
 - b. Piping Operating Below Ambient Air Temperature: Use thermal hanger-shield insert with clamp sized to match OD of insert.
 - c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.
2. Install MSS SP-58, Type 39 protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
 - a. Option: Thermal hanger-shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
3. Install MSS SP-58, Type 40 protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
 - a. Option: Thermal hanger-shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
4. Shield Dimensions for Pipe: Not less than the following:
 - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
5. Thermal Hanger Shields: Install with insulation of same thickness as piping insulation.

3.03 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work.

3.04 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.05 HANGER AND SUPPORT SCHEDULE

- A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-58 for pipe-hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finishes.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use carbon-steel pipe hangers and supports and metal trapeze pipe hangers and attachments for general service applications.
- F. Use stainless-steel pipe hangers and stainless-steel or corrosion-resistant attachments for hostile environment applications.
- G. Use copper-plated pipe hangers and copper or stainless-steel attachments for copper piping and tubing.
- H. Use padded hangers for piping that is subject to scratching.
- I. Use thermal hanger-shield inserts for insulated piping and tubing.
- J. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.
 2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of up to 1050 deg F pipes NPS 4 to NPS 24, requiring up to 4 inches of insulation.
 3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 4 inches of insulation.
 4. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 if little or no insulation is required.
 5. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
 6. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated, stationary pipes NPS 3/4 to NPS 8.
 7. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
 8. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
 9. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
 10. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 8.
 11. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 3.
 12. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.
 13. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
 14. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.
 15. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.
 16. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes NPS 2-1/2 to NPS 36 if vertical adjustment is required, with steel-pipe base stanchion support and cast-iron floor flange.
 17. Single-Pipe Rolls (MSS Type 41): For suspension of pipes NPS 1 to NPS 30, from two rods if longitudinal movement caused by expansion and contraction occurs.
 18. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes NPS 2-1/2 to NPS 24, from single rod if horizontal movement caused by expansion and contraction occurs.
 19. Complete Pipe Rolls (MSS Type 44): For support of pipes NPS 2 to NPS 42 if longitudinal movement caused by expansion and contraction occurs but vertical adjustment is unnecessary.
 20. Pipe Roll and Plate Units (MSS Type 45): For support of pipes NPS 2 to NPS 24 if small horizontal movement caused by expansion and contraction occurs and vertical adjustment is unnecessary.
 21. Adjustable Pipe Roll and Base Units (MSS Type 46): For support of pipes NPS 2 to NPS 30 if vertical and lateral adjustment during installation, in addition to expansion and contraction, is required.
- K. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.
- L. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment of up to 6 inches for heavy loads.
 2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
 3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11 split pipe rings.
 4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
 5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.
- M. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel or Malleable-Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
 2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
 3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
 4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
 5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
 6. C-Clamps (MSS Type 23): For structural shapes.
 7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
 8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
 9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
 10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.
 11. Malleable-Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
 12. Welded-Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:
 - a. Light (MSS Type 31): 750 lb.
 - b. Medium (MSS Type 32): 1500 lb.
 - c. Heavy (MSS Type 33): 3000 lb.
 13. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
 14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
 15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.
- N. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
 2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
 3. Thermal Hanger-Shield Inserts: For supporting insulated pipe.
- O. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
 2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
 3. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
 4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.
 5. Variable-Spring Hangers (MSS Type 51): Preset to indicated load, and limit variability factor to 25 percent to allow expansion and contraction of piping system from hanger.

6. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load, and limit variability factor to 25 percent to allow expansion and contraction of piping system from base support.
7. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load, and limit variability factor to 25 percent to allow expansion and contraction of piping system from trapeze support.
8. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:
 - a. Horizontal (MSS Type 54): Mounted horizontally.
 - b. Vertical (MSS Type 55): Mounted vertically.
 - c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.
- P. Comply with MSS SP-58 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.
- Q. Use pipe-positioning systems in pipe spaces behind plumbing fixtures to support supply and waste piping for plumbing fixtures.

END OF SECTION 22 05 29

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SECTION 22 07 19

PLUMBING PIPING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes insulating the following plumbing piping services:
 - 1. Domestic cold-water piping.
 - 2. Domestic hot-water piping.
 - 3. Domestic recirculating hot-water piping.
- B. Related Sections:
 - 1. Section 22 07 16 "Plumbing Equipment Insulation" for equipment insulation.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
 - 2. Detail insulation application at pipe expansion joints for each type of insulation.
 - 3. Detail insulation application at elbows, fittings, flanges, valves, and specialties for each type of insulation.
- C. Samples: For each type of insulation and jacket indicated.

1.03 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Material test reports.
- C. Field quality-control reports.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
- B. Comply with the following applicable standards and other requirements specified for miscellaneous components:
 - 1. Supply and Drain Protective Shielding Guards: ICC A117.1.

1.05 COORDINATION

- A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in Section 22 05 29 "Hangers and Supports for Plumbing Piping and Equipment."
- B. Coordinate clearance requirements with piping Installer for piping insulation application. Before preparing piping Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.
- C. Coordinate installation and testing of heat tracing.

1.06 SCHEDULING

- A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products in accordance with ASTM E84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation, jacket materials, adhesive, mastic, tapes, and cement material containers with appropriate markings of applicable testing agency.
 - 1. All Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

2.02 INSULATION MATERIALS

- A. Comply with requirements in "Piping Insulation Schedule, General," "Indoor Piping Insulation Schedule," "Outdoor, Aboveground Piping Insulation Schedule," and "Outdoor, Underground Piping Insulation Schedule" articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come into contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested in accordance with ASTM C871.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable in accordance with ASTM C795.
- E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.
- F. Cellular Glass: Inorganic, incombustible, foamed or cellulated glass with annealed, rigid, hermetically sealed cells. Comply with ASTM C552.
 - 1. Preformed Pipe Insulation: Type II, Class 1, unfaced.
 - 2. Preformed Pipe Insulation: Type II, Class 2, with factory-applied ASJ ASJ-SSL ASJ+ PSK jacket.
 - 3. Fabricated shapes in accordance with ASTM C450, ASTM C585, and ASTM C1639.
 - 4. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
- G. Flexible Elastomeric: Closed-cell or expanded-rubber materials; suitable for maximum use temperature between minus 70 deg F and 220 deg F. Comply with ASTM C534/C534M, Type I for tubular materials.
- H. Polyolefin: Polyethylene thermal plastic insulation. Comply with ASTM C534/C534M or ASTM C1427, Type I, Grade 1, for tubular materials, self-seal.

2.03 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.
- B. Cellular-Glass Adhesive: Two-component, thermosetting urethane adhesive containing no flammable solvents, with a service temperature range of minus 100 to plus 200 deg F.
- C. Flexible Elastomeric and Polyolefin Adhesive: Solvent-based adhesive.
 - 1. Flame-spread index shall be 25 or less and smoke-developed index shall be 50 or less as tested in accordance with ASTM E84.
 - 2. Wet Flash Point: Below 0 deg F.
 - 3. Service Temperature Range: 40 to 200 deg F.
 - 4. Color: Black.
- D. Materials shall be as recommended by the insulation manufacturer and shall be compatible with insulation materials, jackets, and substrates.
- E. Joint Sealants:
 - 1. Permanently flexible, elastomeric sealant.
 - 2. Service Temperature Range: Minus 58 to plus 176 deg F.
 - 3. Color: White or gray.

2.04 TAPES

- A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C1136.
 - 1. Width: 3 inches.
 - 2. Thickness: 11.5 mils.
 - 3. Adhesion: 90 ounces force/inch in width.
 - 4. Elongation: 2 percent.
 - 5. Tensile Strength: 40 lbf/inch in width.
 - 6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.
- B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C1136.
 - 1. Width: 3 inches.
 - 2. Thickness: 6.5 mils.
 - 3. Adhesion: 90 ounces force/inch in width.
 - 4. Elongation: 2 percent.
 - 5. Tensile Strength: 40 lbf/inch in width.
 - 6. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.
- C. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive; suitable for indoor and outdoor applications.
 - 1. Width: 2 inches.
 - 2. Thickness: 6 mils.
 - 3. Adhesion: 64 ounces force/inch in width.
 - 4. Elongation: 500 percent.
 - 5. Tensile Strength: 18 lbf/inch in width.
- D. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.
 - 1. Width: 2 inches.
 - 2. Thickness: 3.7 mils.
 - 3. Adhesion: 100 ounces force/inch in width.
 - 4. Elongation: 5 percent.
 - 5. Tensile Strength: 34 lbf/inch in width.

2.05 SECUREMENTS

- A. Bands:
 - 1. Stainless Steel: ASTM A240/A240M, Type 304 or Type 316; 0.015 inch thick, 1/2 inch 3/4 inch wide with wing seal or closed seal.
 - 2. Aluminum: ASTM B209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 1/2 inch 3/4 inch wide with wing seal or closed seal.
- B. Staples: Outward-clinching insulation staples, nominal 3/4-inch-wide, stainless steel or Monel.
- C. Wire: 0.080-inch nickel-copper alloy.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
- B. Clean and prepare surfaces to be insulated. Before insulating, apply a corrosion coating to insulated surfaces as follows:
 - 1. Stainless Steel: Coat 300 series stainless steel with an epoxy primer 5 mils thick and an epoxy finish 5 mils thick if operating in a temperature range of between 140 and 300 deg F. Consult coating manufacturer for appropriate coating materials and application methods for operating temperature range.

2. Carbon Steel: Coat carbon steel operating at a service temperature of between 32 and 300 deg F with an epoxy coating. Consult coating manufacturer for appropriate coating materials and application methods for operating temperature range.
- C. Coordinate insulation installation with the tradesman installing heat tracing. Comply with requirements for heat tracing that apply to insulation.
- D. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless steel surfaces, use demineralized water.

3.02 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping, including fittings, valves, and specialties.
- B. Install insulation materials, forms, vapor barriers or retarders, jackets, and of thicknesses required for each item of pipe system, as specified in insulation system schedules.
- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, compress, or otherwise damage insulation or jacket.
- D. Install insulation with longitudinal seams at top and bottom (12 o'clock and 6 o'clock positions) of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- G. Keep insulation materials dry during storage, application, and finishing. Replace insulation materials that get wet during storage or in the installation process before being properly covered and sealed in accordance with the contract documents, unless otherwise approved by the engineer-of-record.
- H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- I. Install insulation with least number of joints practical.
- J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 1. Install insulation continuously through hangers and around anchor attachments.
 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends attached to structure with vapor-barrier mastic.
 3. Install insert materials and insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
- K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- L. Cut insulation in a manner to avoid compressing insulation.
- M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches in similar fashion to butt joints.
- O. For above-ambient services, do not install insulation to the following:
 1. Vibration-control devices.
 2. Testing agency labels and stamps.
 3. Nameplates and data plates.
 4. Cleanouts.

3.03 PENETRATIONS

- A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
 - 1. Seal penetrations with flashing sealant.
 - 2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 - 3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
 - 4. Seal jacket to roof flashing with flashing sealant.
- B. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- C. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
 - 1. Comply with requirements in Section 07 84 13 "Penetration Firestopping" for firestopping and fire-resistive joint sealers.

3.04 GENERAL PIPE INSULATION INSTALLATION

- A. Requirements in this article generally apply to all insulation materials, except where more specific requirements are specified in various pipe insulation material installation articles below.
- B. Insulation Installation on Fittings, Valves, Strainers, Flanges, Mechanical Couplings, and Unions:
 - 1. Install insulation over fittings, valves, strainers, flanges, mechanical couplings, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.
 - 2. Insulate pipe elbows using preformed fitting insulation or mitered or routed fittings made from same material and density as that of adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
 - 3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as that used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
 - 4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as that used for adjacent pipe. Overlap adjoining pipe insulation by not less than 2 times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.
 - 5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than 2 times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers, so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below-ambient services, provide a design that maintains vapor barrier.
 - 6. Insulate flanges, mechanical couplings, and unions, using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than 2 times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Stencil or label the outside insulation jacket of each union with the word "union" matching size and color of pipe labels.

7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below-ambient services and a breather mastic for above-ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
 8. For services not specified to receive a field-applied jacket, except for flexible elastomeric and polyolefin, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing, using PVC tape.
- C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.
- D. Install removable insulation covers at locations indicated. Installation shall conform to the following:
1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as that of adjoining pipe insulation.
 2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union at least 2 times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless steel or aluminum bands. Select band material compatible with insulation and jacket.
 3. Construct removable valve insulation covers in same manner as for flanges, except divide the two-part section on the vertical center line of valve body.
 4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
 5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.

3.05 INSTALLATION OF CELLULAR-GLASS INSULATION

- A. Insulation Installation on Straight Pipes and Tubes:
1. Secure each layer of insulation to pipe with wire or bands, and tighten bands without deforming insulation materials.
 2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
 3. For insulation with jackets on above-ambient services, secure laps with outward-clinched staples at 6 inches o.c.
 4. For insulation with jackets on below-ambient services, do not staple longitudinal tabs. Instead, secure tabs with additional adhesive, as recommended by insulation material manufacturer, and seal with vapor-barrier mastic and flashing sealant.
- B. Insulation Installation on Pipe Fittings and Elbows:
1. Install prefabricated sections of same material as that of straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
 2. When preformed sections of insulation are not available, install mitered or routed sections of cellular-glass insulation. Secure insulation materials with wire or bands.
- C. Insulation Installation on Valves and Pipe Specialties:
1. Install prefabricated sections of cellular-glass insulation to valve body.
 2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 3. Install insulation to flanges as specified for flange insulation application.

3.06 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
 - 1. Install pipe insulation to outer diameter of pipe flange.
 - 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 - 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as that of pipe insulation.
 - 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
 - 1. Install sections of pipe insulation and miter if required in accordance with manufacturer's written instructions.
 - 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Valves and Pipe Specialties:
 - 1. Install prefabricated valve covers manufactured of same material as that of pipe insulation when available.
 - 2. When prefabricated valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 - 3. Install insulation to flanges as specified for flange insulation application.
 - 4. Secure insulation to valves and specialties, and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.07 FIELD QUALITY CONTROL

- A. Owner will engage a qualified testing agency to perform tests and inspections.
- B. Engage a qualified testing agency to perform tests and inspections.
- C. Perform tests and inspections with the assistance of a factory-authorized service representative.
- D. Tests and Inspections: Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, two locations of threaded strainers, two locations of welded strainers, three locations of threaded valves, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.
- E. All insulation applications will be considered defective if they do not pass tests and inspections.
- F. Prepare test and inspection reports.

3.08 PIPING INSULATION SCHEDULE, GENERAL

- A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

3.09 INDOOR PIPING INSULATION SCHEDULE

- A. Domestic Cold Water:
 - 1. NPS 1 and Smaller: Insulation shall be one of the following:
 - a. Flexible Elastomeric: 1/2 inch thick.
 - b. Glass-Fiber, Preformed Pipe Insulation, Type I: 1/2 inch thick.

2. NPS 1-1/4 and Larger: Insulation shall be one of the following:
 - a. Flexible Elastomeric: 1 inch thick.
 - b. Glass-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
- B. Domestic Hot and Recirculated Hot Water:
 1. NPS 1-1/4 and Smaller: Insulation shall be one of the following:
 - a. Flexible Elastomeric: 1 inch thick.
 - b. Glass-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
 2. NPS 1-1/2 and Larger: Insulation shall be one of the following:
 - a. Flexible Elastomeric: 1 inch thick.
 - b. Glass-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.

3.10 INDOOR, FIELD-APPLIED JACKET SCHEDULE

- A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.
- B. If more than one material is listed, selection from materials listed is Contractor's option.
- C. Piping, Exposed:
 1. None.
 2. PVC PVC, Color-Coded by System: 20 mils 30 mils thick.
 3. Aluminum, Smooth Corrugated Stucco Embossed: 0.016 inch 0.020 inch 0.024 inch 0.032 inch 0.040 inch thick.
 4. Painted Aluminum, Smooth Corrugated Stucco Embossed: 0.016 inch 0.020 inch 0.024 inch 0.032 inch thick.

END OF SECTION 22 07 19

SECTION 22 11 16

DOMESTIC WATER PIPING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Copper tube and fittings.
 - 2. Piping joining materials.

1.02 ACTION SUBMITTALS

- A. Product Data: For transition fittings and dielectric fittings.

1.03 INFORMATIONAL SUBMITTALS

- A. System purging and disinfecting activities report.
- B. Field quality-control reports.

1.04 WARRANTY

- A. Polypropylene Piping (PP-R) Manufacturer's Warranty: Manufacturer agrees to repair or replace PP-R pipe and fittings that fail in materials or workmanship within 10 years from date of Substantial Completion.
 - 1. Warranty is to cover labor and material costs of repairing and/or replacing defective materials and repairing any incidental damage caused by failure of the piping system due to defects in materials or manufacturing.
 - 2. Warranty is to be in effect only upon submission by the Contractor to the manufacturer of valid pressure/leak documentation indicating that the system was tested and passed the manufacturer's pressure/leak test.

PART 2 - PRODUCTS

2.01 PIPING MATERIALS

- A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.
- B. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372. Include marking "NSF-pw" on piping.

2.02 COPPER TUBE AND FITTINGS

- A. Drawn-Temper Copper Tube: ASTM B88, Type M.
- B. Annealed-Temper Copper Tube: ASTM B88, Type M.
- C. Cast-Copper, Solder-Joint Fittings: ASME B16.18, pressure fittings.
- D. Wrought-Copper, Solder-Joint Fittings: ASME B16.22, pressure fittings.
- E. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends.
- F. Cast Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.
- G. Wrought Copper Unions: ASME B16.22.
- H. Copper Tube, Push-on-Joint Fittings:
 - 1. Cast-copper fitting complying with ASME B16.18 or wrought-copper fitting complying with ASME B 16.22.
 - 2. Stainless steel teeth and EPDM-rubber, O-ring seal in each end instead of solder-joint ends.

2.03 PIPING JOINING MATERIALS

- A. Solder Filler Metals: ASTM B32, lead-free alloys.
- B. Flux: ASTM B813, water flushable.

PART 3 - EXECUTION

3.01 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.
- B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.
- C. Fitting Option: Extruded-tee connections and brazed joints may be used on aboveground copper tubing.
- D. Aboveground domestic water piping, NPS 2 and smaller, shall be[**one of**] the following:
 - 1. Hard copper tube, ASTM B88, Type M; cast- or wrought-copper, solder-joint fittings; and soldered joints.
 - 2. Hard copper tube, ASTM B88, Type M; copper pressure-seal-joint fittings; and pressure-sealed joints.
 - 3. Hard copper tube, ASTM B88, Type M; copper push-on-joint fittings; and push-on joints.

3.02 EARTHWORK

- A. Comply with requirements in Section 31 20 00 "Earth Moving" for excavating, trenching, and backfilling.

3.03 INSTALLATION OF PIPING

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.
- B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."
- C. Install ductile-iron piping under building slab with restrained joints according to AWWA C600 and AWWA M41.
- D. Install valves according to the following:
 - 1. Section 22 05 23.12 "Ball Valves for Plumbing Piping."
- E. Install domestic water piping level [with 0.25 percent slope downward toward drain] [without pitch] and plumb.
- F. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- G. Install piping to permit valve servicing.
- H. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than the system pressure rating used in applications below unless otherwise indicated.
- I. Install piping free of sags and bends.
- J. Install fittings for changes in direction and branch connections.

3.04 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

- C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- D. Brazed Joints for Copper Tubing: Comply with CDA's "Copper Tube Handbook," "Brazed Joints" chapter.
- E. Soldered Joints for Copper Tubing: Apply ASTM B813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B828 or CDA's "Copper Tube Handbook."
- F. Pressure-Sealed Joints for Copper Tubing: Join copper tube and pressure-seal fittings with tools recommended by fitting manufacturer.

3.05 INSTALLATION OF HANGERS AND SUPPORTS

- A. Comply with requirements for hangers, supports, and anchor devices in Section 22 05 29 "Hangers and Supports for Plumbing Piping and Equipment."
- B. Install hangers for [copper] [ductile iron] [and] [galvanized steel] [tubing] [and] [piping], with maximum horizontal spacing and minimum rod diameters, to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.
- C. Support horizontal piping within [12 inches] <Insert dimension> of each fitting.

3.06 ADJUSTING

- A. Perform the following adjustments before operation:
 - 1. Open shutoff valves to fully open position.
 - 2. Open throttling valves to proper setting. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
 - 3. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.07 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Piping Inspections:
 - a. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
 - b. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
 - 1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing in after roughing in and before setting fixtures.
 - 2) Final Inspection: Arrange for authorities having jurisdiction to observe tests specified in "Piping Tests" Subparagraph below and to ensure compliance with requirements.
 - c. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
 - d. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
 - 2. Piping Tests:
 - a. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
 - b. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
 - c. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.

- d. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow it to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
 - e. Repair leaks and defects with new materials, and retest piping or portion thereof until satisfactory results are obtained.
 - f. Prepare reports for tests and for corrective action required.
- B. Domestic water piping will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.08 CLEANING

- A. Clean and disinfect potable domestic water piping as follows:
 - 1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
 - 2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
 - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Repeat procedures if biological examination shows contamination.
 - e. Submit water samples in sterile bottles to authorities having jurisdiction.
- B. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.
- C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

END OF SECTION 22 11 16

SECTION 22 13 16

SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Hub-and-spigot, cast-iron soil pipe and fittings.
 - 2. Hubless, cast-iron soil pipe and fittings.
 - 3. PVC pipe and fittings.
- B. Related Requirements:
 - 1. Section 22 13 13 "Facility Sanitary Sewers" for sanitary sewerage piping and structures outside the building.
 - 2. Section 22 13 29 "Sanitary Sewerage Pumps" for effluent and sewage pumps.
 - 3. Section 22 66 00 "Chemical-Waste Systems for Laboratory and Healthcare Facilities" for chemical-waste and vent piping systems.

1.02 ACTION SUBMITTALS

- A. Product data.

1.03 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans and elevations, or Building Information Model (BIM) drawn to scale, showing items described in this Section and coordinated with all building trades.
- B. Seismic Qualification Certificates: For waste and vent piping, accessories, and components, from manufacturer.
- C. Field quality-control reports.

1.04 WARRANTY

- A. Listed manufacturers to provide labeling and warranty of their respective products.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Components and installation are capable of withstanding the following minimum working pressure unless otherwise indicated:
 - 1. Soil, Waste, and Vent Piping: 10 ft. head of water.
- B. Seismic Performance: Soil, waste, and vent piping and support and installation to withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
 - 2. Component Importance Factor: 1.0.

2.02 PIPING MATERIALS

- A. Piping materials to bear label, stamp, or other markings of specified testing agency.
- B. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.03 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings:
 - 1. Marked with CISPI collective trademark.
 - 2. ASTM A74, service and extra-heavy cast iron.

- B. Gaskets: ASTM C564, rubber.
- C. Caulking Materials: ASTM B29, pure lead and oakum or hemp fiber.

2.04 HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings:
 - 1. Marked with CISPI collective trademark.
 - 2. ASTM A888 or CISPI 301.
- B. CISPI, Hubless-Piping Couplings:
 - 1. Standards: ASTM C1277 and CISPI 310.
 - 2. Description: Stainless steel corrugated shield with stainless steel bands and tightening devices; and ASTM C564, rubber sleeve with integral, center pipe stop.

2.05 PVC PIPE AND FITTINGS

- A. Comply with NSF 14 for plastic piping components. Include "NSF-dwv" marking for plastic drain, waste, and vent piping and "NSF-sewer" marking for plastic sewer piping.
- B. Solid-Wall PVC Pipe: ASTM D2665 drain, waste, and vent.
- C. PVC Socket Fittings: ASTM D2665, made in accordance with ASTM D3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.
- D. Adhesive Primer: ASTM F656.
- E. Solvent Cement: ASTM D2564.

2.06 SPECIALTY PIPE FITTINGS

- A. Transition Couplings:
 - 1. General Requirements: Fitting or device for joining piping with small differences in ODs or of different materials. Include end connections of same size as and compatible with pipes to be joined.
 - 2. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.
 - 3. Unshielded, Nonpressure Transition Couplings:
 - a. Standard: ASTM C1173.
 - b. Description: Elastomeric, sleeve-type, reducing or transition pattern. Include shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - c. End Connections: Same size as and compatible with pipes to be joined.
 - d. Sleeve Materials:
 - 1) For Cast-Iron Soil Pipes: ASTM C564, rubber.
 - 2) For Plastic Pipes: ASTM F477, elastomeric seal or ASTM D5926 PVC.
 - 3) For Dissimilar Pipes: ASTM D5926 PVC or other material compatible with pipe materials being joined.
 - 4. Shielded, Nonpressure Transition Couplings:
 - a. Standard: ASTM C1460.
 - b. Description: Elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - c. End Connections: Same size as and compatible with pipes to be joined.

PART 3 - EXECUTION

3.01 EARTH MOVING

- A. Comply with requirements for excavating, trenching, and backfilling specified in Section 31 20 00 "Earth Moving."

3.02 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems.
 - 1. Install piping as indicated unless deviations to layout are approved on coordination drawings.
- B. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- C. Install piping at indicated slopes.
- D. Install piping free of sags and bends.
- E. Install fittings for changes in direction and branch connections.
- F. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends.
 - 1. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical.
 - 2. Use long-turn, double Y-branch, and 1/8-bend fittings if two fixtures are installed back to back or side by side with common drain pipe.
 - a. Straight tees, elbows, and crosses may be used on vent lines.
 - 3. Do not change direction of flow more than 90 degrees.
 - 4. Use proper size of standard increasers and reducers if pipes of different sizes are connected.
 - a. Reducing size of waste piping in direction of flow is prohibited.
- G. Lay buried building waste piping beginning at low point of each system.
 - 1. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream.
 - 2. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
 - 3. Maintain swab in piping and pull past each joint as completed.
- H. Install soil and waste and vent piping at the following minimum slopes unless otherwise indicated:
 - 1. Building Sanitary Waste: Two percent downward in direction of flow for piping NPS 3 and smaller; 2 percent downward in direction of flow for piping NPS 4 and larger.
 - 2. Horizontal Sanitary Waste Piping: Two percent downward in direction of flow.
 - 3. Vent Piping: One percent down toward vertical fixture vent or toward vent stack.
- I. Install cast-iron soil piping in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
- J. Install aboveground PVC piping in accordance with ASTM D2665.
- K. Install underground PVC piping in accordance with ASTM D2321.
- L. Plumbing Specialties:
 - 1. Install drains in sanitary waste gravity-flow piping.
 - a. Comply with requirements for drains specified in Section 22 13 19 "Sanitary Waste Piping Specialties."
- M. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

3.03 JOINT CONSTRUCTION

- A. Hub-and-Spigot, Cast-Iron Soil Piping Gasketed Joints: Join in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
- B. Hub-and-Spigot, Cast-Iron Soil Piping Caulked Joints: Join in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead-and-oakum caulked joints.
- C. Hubless, Cast-Iron Soil Piping Coupled Joints:

1. Join hubless, cast-iron soil piping in accordance with CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-piping coupling joints.
- D. Plastic, Nonpressure-Piping, Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings in accordance with the following:
 1. Comply with ASTM F402 for safe-handling practice of cleaners, primers, and solvent cements.
 2. ABS Piping: Join in accordance with ASTM D2235 and ASTM D2661 appendixes.
 3. PVC Piping: Join in accordance with ASTM D2855 and ASTM D2665 appendixes.
- E. Joint Restraints and Sway Bracing:
 1. Provide joint restraints and sway bracing for storm drainage piping joints to comply with the following conditions:
 - a. Provide rigid sway bracing for pipe and fittings 4 inches and larger, upstream and downstream of all changes in direction 45 degrees and greater.

3.04 INSTALLATION OF HANGERS AND SUPPORTS

- A. Comply with requirements for seismic-restraint devices specified in Section 22 05 48 "Vibration and Seismic Controls for Plumbing Piping and Equipment."
- B. Comply with requirements for pipe hanger and support devices and installation specified in Section 22 05 29 "Hangers and Supports for Plumbing Piping and Equipment".
 1. Install carbon-steel pipe hangers for horizontal piping in noncorrosive environments.
 2. Install stainless steel pipe hangers for horizontal piping in corrosive environments.
 3. Install carbon-steel pipe support clamps for vertical piping in noncorrosive environments.
 4. Install stainless steel pipe support clamps for vertical piping in corrosive environments.
 5. Vertical Piping: MSS Type 8 or Type 42 clamps.
 6. Install individual, straight, horizontal piping runs:
 - a. 100 Ft. and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Ft.: MSS Type 43, adjustable roller hangers.
 - c. Longer Than 100 Ft. if Indicated: MSS Type 49, spring cushion rolls.
 7. Multiple, Straight, Horizontal Piping Runs 100 Ft. or Longer: MSS Type 44 pipe rolls. Support pipe rolls on trapeze.
 8. Base of Vertical Piping: MSS Type 52 spring hangers.
- C. Install hangers for cast-iron soil piping, with maximum horizontal spacing and minimum rod diameters, to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.
- D. Install hangers for PVC piping, with maximum horizontal spacing and minimum rod diameters, to comply with manufacturer's written instructions, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.
- E. Support vertical runs of cast-iron soil piping to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.
- F. Support vertical runs of PVC piping to comply with manufacturer's written instructions, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

3.05 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.
- C. Connect waste and vent piping to the following:
 1. Plumbing Fixtures: Connect waste piping in sizes indicated, but not smaller than required by plumbing code.
 2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
 3. Plumbing Specialties: Connect waste and vent piping in sizes indicated, but not smaller than required by plumbing code.

4. Install test tees (wall cleanouts) in conductors near floor and floor cleanouts with cover flush with floor.
- D. Where installing piping adjacent to equipment, allow space for service and maintenance of equipment.
- E. Make connections in accordance with the following unless otherwise indicated:
 1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.

3.06 IDENTIFICATION

- A. Identify exposed sanitary waste and vent piping.
- B. Comply with requirements for identification specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

3.07 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test sanitary waste and vent piping in accordance with procedures of authorities having jurisdiction or, in absence of published procedures, as follows:
 1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired.
 - a. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 2. Leave uncovered and unconcealed new, altered, extended, or replaced waste and vent piping until it has been tested and approved.
 - a. Expose work that was covered or concealed before it was tested.
 3. Roughing-in Plumbing Test Procedure: Test waste and vent piping except outside leaders on completion of roughing-in.
 - a. Close openings in piping system and fill with water to point of overflow, but not less than 10 ft. head of water.
 - b. From 15 minutes before inspection starts to completion of inspection, water level must not drop.
 - c. Inspect joints for leaks.
 4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight.
 - a. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1 inch wg.
 - b. Use U-tube or manometer inserted in trap of water closet to measure this pressure.
 - c. Air pressure must remain constant without introducing additional air throughout period of inspection.
 - d. Inspect plumbing fixture connections for gas and water leaks.
 5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
 6. Prepare reports for tests and required corrective action.

3.08 CLEANING AND PROTECTION

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect sanitary waste and vent piping during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- C. Place plugs in ends of uncompleted piping at end of day and when work stops.
- D. Exposed PVC Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint.
- E. Repair damage to adjacent materials caused by waste and vent piping installation.

3.09 PIPING SCHEDULE

- A. Flanges and unions may be used on aboveground pressure piping unless otherwise indicated.
- B. Aboveground, vent piping NPS 4 and smaller is to be any of the following:
 - 1. Solid-wall PVC pipe, PVC socket fittings, and solvent-cemented joints.
- C. Underground, soil, waste, and vent piping NPS 4 and smaller are to be the following:
 - 1. Solid-wall PVC pipe, PVC socket fittings, and solvent-cemented joints.

END OF SECTION 22 13 16

SECTION 22 13 19

SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Miscellaneous sanitary drainage piping specialties.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Show fabrication and installation details for frost-resistant vent terminals.

1.03 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

1.04 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For sanitary waste piping specialties to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.01 ASSEMBLY DESCRIPTIONS

- A. Sanitary waste piping specialties shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 14 for plastic sanitary waste piping specialty components.

2.02 MISCELLANEOUS SANITARY DRAINAGE PIPING SPECIALTIES

- A. Deep-Seal Traps:
 - 1. Description: Cast-iron or bronze casting, with inlet and outlet matching connected piping and cleanout trap-seal primer valve connection.
 - 2. Size: Same as connected waste piping.
 - a. NPS 2: 4-inch-minimum water seal.
 - b. NPS 2-1/2 and Larger: 5-inch-minimum water seal.
- B. Floor-Drain, Trap-Seal Primer Fittings:
 - 1. Description: Cast iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
 - 2. Size: Same as floor drain outlet with NPS 1/2 side inlet.
- C. Floor-Drain, Inline Trap Seal:
 - 1. Description: Inline floor drain trap seal, forming a physical barrier to slow trap evaporation while not impeding flow from drain.
 - 2. Material: Polymer.
 - 3. Standard: Tested and certified in accordance with ASSE 1072.
 - 4. Listing: ICC-ES or IAPMO listed.
 - 5. Size: Same as floor drain outlet or strainer throat.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Assemble open drain fittings and install with top of hub 1 inch above floor.
- B. Install deep-seal traps on floor drains and other waste outlets, if indicated.

- C. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.
 - 1. Exception: Fitting may be omitted if trap has trap-seal primer connection.
 - 2. Size: Same as floor drain inlet.
- D. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

3.02 PIPING CONNECTIONS

- A. Comply with requirements in Section 22 13 16 "Sanitary Waste and Vent Piping" for piping installation requirements. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment, to allow service and maintenance.

3.03 LABELING AND IDENTIFYING

- A. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit.
 - 1. Nameplates and signs are specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

3.04 PROTECTION

- A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
- B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 22 13 19

SECTION 22 45 00

EMERGENCY PLUMBING FIXTURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Combination units.
 - 2. Water-tempering equipment.

1.02 DEFINITIONS

- A. Accessible Fixture: Emergency plumbing fixture that can be approached, entered, and used by people with disabilities.
- B. Plumbed Emergency Plumbing Fixture: Fixture with fixed, potable-water supply.
- C. Portable, Self-Contained Emergency Plumbing Fixture: Fixture with flushing-fluid supply.
- D. Tepid: Between 60 and 100 deg F.

1.03 ACTION SUBMITTALS

- A. Product data.
- B. Shop Drawings:
 - 1. Plans, elevations, sections, and mounting details.
 - 2. Details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
 - 4. Diagrams for power, signal, and control wiring.

1.04 INFORMATIONAL SUBMITTALS

- A. Field Quality-Control Submittals:
 - 1. Field quality-control reports.
- B. Emergency fixture third-party certification documentation.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Comply with ANSI/ISEA Z358.1 for emergency plumbing fixtures including third-party certification of fixtures.
- B. Comply with ASSE 1071 for temperature-actuated mixing valves for plumbed emergency fixtures.
- C. Comply with ASME A112.18.1/CSA B125.1 for water-supply fittings.
- D. Comply with ASME A112.18.2/CSA B125.2 for plumbing waste fittings.
- E. Comply with NSF 61 and NSF 372 for fixture materials that will be in contact with potable water.
- F. Comply with requirements in ICC A117.1 for plumbing fixtures for people with disabilities.
- G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.02 COMBINATION UNITS

- A. Combination Units - Emergency Shower with Eye/Face Wash, Standard, Plumbed: .
1. Piping:
 - a. Material: Galvanized steel Chrome-plated brass or stainless steel PVC.
 - b. Unit Supply: NPS 1-1/4 minimum.
 - c. Unit Drain: Outlet at back or side near bottom.
 2. Shower:
 - a. Capacity: Not less than 20 gpm for at least 15 minutes.
 - b. Supply Piping: NPS 1 with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Pull rod.
 - d. Shower Head: 8-inch-minimum diameter, chrome-plated brass or stainless steel plastic.
 - e. Mounting: Pedestal.
 3. Eye/Face Wash Unit:
 - a. Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - b. Supply Piping: NPS 1/2 with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Paddle.
 - d. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 - e. Receptor: Chrome-plated brass or stainless steel Plastic bowl.
 - f. Mounting: Attached shower pedestal.
 - g. Drench-Hose Option: May be provided instead of eye/face wash unit.
 - 1) Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - 2) Drench Hose: Handheld spray head with squeeze-handle actuator and hose.
 - 3) Mounting: Bracket on shower pedestal.
 4. Accessories:
 - a. Electric alarm with flashing light and horn.
 - b. Thermostatic mixing valve assembly including ball valve shutoffs and outlet temperature gauge.
 - c. Flow switch; single pole.
 - d. Modesty curtain.
 - e. Magnetically actuated proximity switch.
 - f. 60-inch pull rod.
 - g. stainless steel ball valve.

2.03 WATER-TEMPERING EQUIPMENT

- A. Water-Tempering Equipment - Hot and Cold Water: .
1. Description: Factory-fabricated equipment with thermostatic mixing valve.
 - a. Thermostatic Mixing Valve: Designed to provide 85 deg F tepid, potable water at emergency plumbing fixtures, to maintain temperature at plus or minus 5 deg F throughout required 15-minute test period, and in case of unit failure to continue cold-water flow, with union connections, controls, metal piping, and corrosion-resistant enclosure.
 - b. Supply Connections: For hot and cold water.

PART 3 - EXECUTION

3.01 INSTALLATION OF EMERGENCY PLUMBING FIXTURE

- A. Assemble emergency plumbing fixture piping, fittings, control valves, and other components.
- B. Install fixtures level and plumb.
- C. Fasten fixtures to substrate.
- D. Install shutoff valves in water-supply piping to fixtures, to facilitate maintenance of equipment. Use ball or gate valve if specific type valve is not indicated. Install valves chained or locked in open position if permitted. Install valves in locations where they can easily be reached for

operation. Comply with requirements for valves specified in Section 22 05 23.12 "Ball Valves for Plumbing Piping."

1. Exceptions:
 - a. Omit shutoff valve on supply to group of plumbing fixtures that includes emergency equipment.
 - b. Omit shutoff valve on supply to emergency equipment if prohibited by authorities having jurisdiction.
- E. Install dielectric fitting in supply piping to emergency equipment if piping and equipment connections are made of different metals. Comply with requirements for dielectric fittings specified in Section 22 11 16 "Domestic Water Piping."
- F. Install thermometers in supply and outlet piping connections to water-tempering equipment. Comply with requirements for thermometers specified in Section 22 05 19 "Meters and Gages for Plumbing Piping."
- G. Install trap and waste piping on drain outlet of emergency equipment receptors that are indicated to be directly connected to drainage system. Comply with requirements for waste piping specified in Section 22 13 16 "Sanitary Waste and Vent Piping."
- H. Install indirect waste piping on drain outlet of emergency equipment receptors that are indicated to be indirectly connected to drainage system. Comply with requirements for waste piping specified in Section 22 13 16 "Sanitary Waste and Vent Piping."
- I. Install escutcheons on piping wall and ceiling penetrations in exposed, finished locations. Comply with requirements for escutcheons specified in Section 22 05 18 "Escutcheons for Plumbing Piping."

3.02 PIPING CONNECTIONS

- A. Connect cold-water-supply piping to plumbed emergency plumbing fixtures not having water-tempering equipment. Comply with requirements for cold-water piping specified in Section 22 11 16 "Domestic Water Piping."
- B. Connect hot- and cold-water-supply piping to hot- and cold-water, water-tempering equipment. Connect output from water-tempering equipment to emergency plumbing fixtures. Comply with requirements for hot- and cold-water piping specified in Section 22 11 16 "Domestic Water Piping."
- C. Connect cold water and electrical power to electric heating water-tempering equipment. Comply with requirements for cold-water piping specified in Section 22 11 16 "Domestic Water Piping."
- D. Directly connect emergency plumbing fixture receptors with trapped drain outlet to sanitary waste and vent piping. Comply with requirements for waste piping specified in Section 22 13 16 "Sanitary Waste and Vent Piping."
- E. Indirectly connect emergency plumbing fixture receptors without trapped drain outlet to sanitary waste or storm drainage piping.
- F. Where installing piping adjacent to emergency plumbing fixtures, allow space for service and maintenance of fixtures.

3.03 IDENTIFICATION

- A. Install equipment nameplates or equipment markers on emergency plumbing fixtures and equipment and equipment signs on water-tempering equipment. Comply with requirements for identification materials specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

3.04 FIELD QUALITY CONTROL

- A. Mechanical-Component Testing: After plumbing connections have been made, test for compliance with requirements. Verify ability to achieve indicated capacities.
- B. Tests and Inspections:
 1. Perform each visual and mechanical inspection.

2. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation.
 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 5. Emergency plumbing fixtures and water-tempering equipment will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

3.05 ADJUSTING

- A. Operate and adjust emergency plumbing fixtures and controls. Replace damaged and malfunctioning fixtures and controls.
- B. Adjust or replace fixture flow regulators for proper flow.
- C. Adjust equipment temperature settings.

3.06 CLEANING AND PROTECTION

- A. Clean emergency plumbing fixtures with manufacturers' recommended cleaning methods and materials.
- B. Install protective covering for installed emergency plumbing fixtures and fittings.
- C. Do not allow use of emergency plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 22 45 00

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING FOR HVAC

1.01 SUMMARY

- A. Section Includes:
 - 1. Testing, Adjusting, and Balancing of Air Systems:
 - a. Exhaust air systems.
 - b. HVAC-control system verification.

1.02 DEFINITIONS

- A. AABC: Associated Air Balance Council.
- B. NEBB: National Environmental Balancing Bureau.
- C. TAB: Testing, adjusting, and balancing.
- D. TABB: Testing, Adjusting, and Balancing Bureau.
- E. TAB Specialist: An independent entity meeting qualifications to perform TAB work.
- F. TDH: Total dynamic head.
- G. UFAD: Underfloor air distribution.

1.03 QUALITY ASSURANCE

- A. TAB Specialists Qualifications, Certified by NEBB or TABB:
 - 1. TAB Technician: Employee of the TAB specialist and certified by NEBB or TABB.
- B. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.7.2.3 - "System Balancing."
- C. Code and AHJ Compliance: TAB is required to comply with governing codes and requirements of authorities having jurisdiction.

1.04 FIELD CONDITIONS

- A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems designs that may preclude proper TAB of systems and equipment.
- B. Examine installed systems for balancing devices, such as test ports, gauge cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are applicable for intended purpose and are accessible.
- C. Examine the approved submittals for HVAC systems and equipment.
- D. Examine design data, including HVAC system descriptions, statements of design assumptions for environmental conditions and systems output, and statements of philosophies and assumptions about HVAC system and equipment controls.
- E. Examine equipment performance data, including fan curves.
 - 1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.

2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.
- F. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.
- G. Examine test reports specified in individual system and equipment Sections.
- H. Examine HVAC equipment and verify that bearings are greased, belts are aligned and tight, filters are clean, and equipment with functioning controls is ready for operation.
- I. Examine operating safety interlocks and controls on HVAC equipment.
- J. Examine control dampers for proper installation for their intended function of isolating, throttling, diverting, or mixing air flows.
- K. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.02 PREPARATION

- A. Prepare a TAB plan that includes the following:
 1. Equipment and systems to be tested.
 2. Strategies and step-by-step procedures for balancing the systems.
 3. Instrumentation to be used.
 4. Sample forms with specific identification for all equipment.
- B. Perform system-readiness checks of HVAC systems and equipment to verify system readiness for TAB work. Include, at a minimum, the following:
 1. Airside:
 - a. Verify that leakage and pressure tests on air distribution systems have been satisfactorily completed.
 - b. Duct systems are complete with terminals installed.
 - c. Volume, smoke, and fire dampers are open and functional.
 - d. Fans are operating, free of vibration, and rotating in correct direction.
 - e. Variable-frequency controllers' startup is complete and safeties are verified.
 - f. Automatic temperature-control systems are operational.
 - g. Ceilings are installed.
 - h. Windows and doors are installed.
 - i. Suitable access to balancing devices and equipment is provided.

3.03 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system in accordance with the procedures contained in ASHRAE 111 NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and in this Section.
- B. Cut insulation, ducts, pipes, and equipment casings for installation of test probes to the minimum extent necessary for TAB procedures.
 1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
 2. After testing and balancing, install test ports and duct access doors that comply with requirements in Section 23 33 00 "Air Duct Accessories."
 3. Where holes for probes are required in piping or hydronic equipment, install pressure and temperature test plugs to seal systems.
 4. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish in accordance with Section 23 07 13 "Duct Insulation," Section 23 07 16 "HVAC Equipment Insulation," and Section 23 07 19 "HVAC Piping Insulation."

- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.04 TESTING, ADJUSTING, AND BALANCING OF HVAC EQUIPMENT

- A. Test, adjust, and balance HVAC equipment indicated on Drawings, including, but not limited to, the following:
 - 1. Motors.
 - 2. Fans and ventilators.

3.05 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.
- B. Prepare schematic diagrams of systems' Record drawings duct layouts.
- C. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.
- D. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.
- E. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- F. Verify that motor starters are equipped with properly sized thermal protection.
- G. Check dampers for proper position to achieve desired airflow path.
- H. Check for airflow blockages.

3.06 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
 - 1. Measure total airflow.
 - a. Set outside-air dampers for proper position that simulates minimum outdoor-air conditions.
 - b. Where duct conditions allow, measure airflow by main Pitot-tube traverse. If necessary, perform multiple Pitot-tube traverses close to the fan and prior to any outlets, to obtain total airflow.
 - 2. Measure fan static pressures as follows:
 - a. Measure static pressure directly at the fan outlet or through the flexible connection.
 - b. Measure static pressure directly at the fan inlet or through the flexible connection.
 - c. Measure static pressure across each component that makes up the air-handling system.
 - d. Report artificial loading of filters at the time static pressures are measured.
 - 3. Review Contractor-prepared shop drawings and Record drawings to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
 - 4. Obtain approval from Architect for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
 - 5. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload occurs. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.
- B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows.

1. Measure airflow of submain and branch ducts.
2. Adjust submain and branch duct volume dampers for specified airflow.
3. Re-measure each submain and branch duct after all have been adjusted.
- C. Adjust air inlets and outlets for each space to indicated airflows.
 1. Set airflow patterns of adjustable outlets for proper distribution without drafts.
 2. Measure inlets and outlets airflow.
 3. Adjust each inlet and outlet for specified airflow.
 4. Re-measure each inlet and outlet after they have been adjusted.
- D. Verify final system conditions.
 1. Re-measure and confirm that minimum outdoor, return, and relief airflows are within design. Readjust to design if necessary.
 2. Re-measure and confirm that total airflow is within design.
 3. Re-measure all final fan operating data, speed, volts, amps, and static profile.
 4. Mark all final settings.
 5. Test system in economizer mode. Verify proper operation and adjust if necessary.
 6. Measure and record all operating data.
 7. Record final fan-performance data.

3.07 PROCEDURES FOR MOTORS

- A. Motors 1/2 HP and Larger: Test at final balanced conditions and record the following data:
 1. Manufacturer's name, model number, and serial number.
 2. Motor horsepower rating.
 3. Motor rpm.
 4. Phase and hertz.
 5. Nameplate and measured voltage, each phase.
 6. Nameplate and measured amperage, each phase.
 7. Starter size and thermal-protection-element rating.
 8. Service factor and frame size.
- B. Motors Driven by Variable-Frequency Controllers: Test manual bypass of controller to prove proper operation.

3.08 HVAC CONTROLS VERIFICATION

- A. In conjunction with system balancing, perform the following:
 1. Verify HVAC control system is operating within the design limitations.
 2. Confirm that the sequences of operation are in compliance with Contract Documents.
 3. Verify that controllers are calibrated and function as intended.
 4. Verify that controller set points are as indicated.
 5. Verify the operation of lockout or interlock systems.
 6. Verify the operation of valve and damper actuators.
 7. Verify that controlled devices are properly installed and connected to correct controller.
 8. Verify that controlled devices travel freely and are in position indicated by controller: open, closed, or modulating.
 9. Verify location and installation of sensors to ensure that they sense only intended temperature, humidity, or pressure.
- B. Reporting: Include a summary of verifications performed, remaining deficiencies, and variations from indicated conditions.

3.09 TOLERANCES

- A. Set HVAC system's airflow rates and water flow rates within the following tolerances:
 1. Supply, Return, and Exhaust Fans and Equipment with Fans: **[Plus or minus 10 percent] [Plus 10 percent or minus 5 percent] <Insert value>**. If design value is less than 100 cfm, within 10 cfm.
 2. Air Outlets and Inlets: **[Plus or minus 10 percent] [Plus 10 percent or minus 5 percent] <Insert value>**. If design value is less than 100 cfm, within 10 cfm.

3. Heating-Water Flow Rate: **[Plus or minus 5 percent] [Plus or minus 10 percent] [Plus 10 percent or minus 5 percent]** <Insert value>. If design value is less than 10 gpm, within 10 percent.
 4. Chilled-Water Flow Rate: **[Plus or minus 5 percent] [Plus or minus 10 percent] [Plus 10 percent or minus 5 percent]** <Insert value>. If design value is less than 10 gpm, within 10 percent.
 5. Condenser-Water Flow Rate: **[Plus or minus 5 percent] [Plus or minus 10 percent] [Plus 10 percent or minus 5 percent]** <Insert value>.
- B. Maintaining pressure relationships as designed shall have priority over the tolerances specified above.

3.10 FINAL REPORT

General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.

1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
 2. Include a list of instruments used for procedures, along with proof of calibration.
 3. Certify validity and accuracy of field data.
- B. Final Report Contents: In addition to certified field-report data, include the following:
1. Fan curves.
 2. Manufacturers' test data.
 3. Field test reports prepared by system and equipment installers.
 4. Other information relative to equipment performance; do not include Shop Drawings and Product Data.
- C. General Report Data: In addition to form titles and entries, include the following data:
1. Title page.
 2. Name and address of the TAB specialist.
 3. Project name.
 4. Project location.
 5. Architect's name and address.
 6. Engineer's name and address.
 7. Contractor's name and address.
 8. Report date.
 9. Signature of TAB supervisor who certifies the report.
 10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
 11. Summary of contents, including the following:
 - a. Indicated versus final performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the Contract Documents.
 12. Nomenclature sheets for each item of equipment.
 13. Notes to explain why certain final data in the body of reports vary from indicated values.
 14. Test conditions for fans performance forms, including the following:
 - a. Settings for outdoor-air dampers.
 - b. Fan drive settings, including settings and percentage of maximum pitch diameter.
 - c. Variable-frequency controller settings for variable-air-volume systems.
 - d. Settings for pressure controller(s).
 - e. Other system operating conditions that affect performance.
- D. Fan Test Reports: For exhaust fans, include the following:
1. Fan Data:
 - a. System identification.
 - b. Location.
 - c. Make and type.

- d. Model number and size.
- e. Manufacturer's serial number.
- f. Arrangement and class.
- g. Sheave make, size in inches, and bore.
- h. Center-to-center dimensions of sheave and amount of adjustments in inches.
- 2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and speed.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.
 - f. Center-to-center dimensions of sheave and amount of adjustments in inches.
 - g. Number, make, and size of belts.
- 3. Test Data (Indicated and Actual Values):
 - a. Total airflow rate in cfm.
 - b. Total system static pressure in inches wg.
 - c. Fan speed.
 - d. Discharge static pressure in inches wg.
 - e. Suction static pressure in inches wg.

SECTION 23 34 16233416233416233416233416

CENTRIFUGAL HVAC FANS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Backward-inclined centrifugal fans, including airfoil and curved blade fans.
 - 2. Square in-line centrifugal fans.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include diagrams for power, signal, and control wiring.
- C. Delegated Design Submittal: For vibration isolation, supports, and seismic restraints indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Design Calculations: Calculate requirements for selecting vibration isolators, supports, , seismic restraints, and for designing vibration isolation bases.

1.03 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Fan room layout and relationships between components and adjacent structural and mechanical elements, drawn to scale, and coordinated with each other, using input from installers of the items involved.
- B. Seismic Qualification Data: For fans, accessories, and components, from manufacturer.
- C. Field quality-control reports.

1.04 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of unit components.
- C. ASHRAE 62.1 Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."
- D. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 4000 "Quality Requirements," to design vibration isolation, supports and seismic restraints, including comprehensive engineering analysis by a qualified professional engineer, using performance and design criteria indicated.

2.02 BACKWARD-INCLINED CENTRIFUGAL FANS

- A.
- B. Description:

1. Factory-fabricated, -assembled, -tested, and -finished, belt-driven centrifugal fans, consisting of housing, wheel, fan shaft, bearings, motor, drive assembly, and support structure. Deliver fans as factory-assembled units, to the extent allowable by shipping limitations.
 2. Factory-installed and -wired disconnect switch.
- C. Housings:
1. Housing Material: Aluminum.
 2. Housing Coating: Powder-baked enamel.
 3. Housing Assembly: Sideplates[**continuously welded**][or][**spot welded**][or][**attached by continuous Pittsburgh lock seal or similar seal**].
 4. Formed panels to make curved-scroll housings with shaped cutoff.
 5. Panel Bracing: Steel angle- or channel-iron member supports for mounting and supporting fan scroll, wheel, motor, and accessories.
 6. Horizontally split, bolted-flange housing.
 7. Spun inlet cone with flange.
 8. Outlet flange.
 9. Discharge Arrangement: Fan scroll housing rotated to upblast discharge positions. Provide fan with discharge positioned in proper direction to minimize connected duct turns.
- D. Wheels:
1. Wheel Configuration: SWSI construction with a precision-spun curved inlet flange and a backplate fastened to shaft with setscrews. Wheels shall be statically and dynamically balanced, and nonoverloading.
 2. Wheel and Blade Material: Aluminum.
 - a. Spark-Resistant Construction: Classified according to AMCA 99, Section 8, Type A.
 3. Wheel and Blade Coating: None.
 4. Cast-iron or cast-steel hub riveted to backplate and fastened to shaft with set screws.
 5. Backward-Inclined Airfoil Blades:
 - a. Aerodynamic design.
 - b. Heavy backplate.
 - c. Hollow die-formed, airfoil-shaped blades continuously welded at tip flange and backplate.
 6. Backward-Inclined Curved Blades:
 - a. Curved design.
 - b. Heavy backplate.
 - c. Single-thickness blades continuously welded at tip flange and backplate.
- E. Shafts:
1. Statically and dynamically balanced, and selected for continuous operation at maximum rated fan speed and motor horsepower, with adjustable alignment and belt tensioning.
 2. Turned, ground, and polished hot-rolled steel with keyway. Ship with protective coating of lubricating oil.
 3. Designed to operate at no more than 70 percent of first critical speed at top of fan's speed range.
- F. Bearings:
1. Grease-Lubricated Shaft Bearings, Ball or Roller:
 - a. Self-aligning, pillow-block-type, ball or roller bearings with adapter mount and two-piece, cast-iron housing.
 - b. Extended Lubrication Lines: Extend lines to accessible location.
 - c. Extended life bearings L10 life in excess of 200,000 hours.
- G. Belt Drives:
1. Factory mounted, with adjustable alignment and belt tensioning.
 2. Service Factor Based on Fan Motor Size: 1.5.

3. Fan Pulleys: Cast iron or cast steel with split, tapered bushing; dynamically balanced at factory.
4. Motor Pulleys: Adjustable pitch for use with motors through 5 hp. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions. Provide fixed pitch pulleys for use with motors larger than 5 hp.
5. Belts: Oil resistant, nonsparking, and nonstatic; matched sets for multiple belt drives.
6. Belt Guards: Comply with OSHA. Secure to fan or fan supports without short-circuiting vibration isolation. Include provisions for adjustment of belt tension, lubrication, and use of tachometer with guard in place.
7. Motor Mount: Adjustable for belt tensioning.
- H. Motor Enclosure: Open, dripproof.
- I. Accessories:
 1. Access for Inspection, Cleaning, and Maintenance: Comply with requirements in ASHRAE 62.1.
 2. Scroll Drain Connection: NPS 1 aluminum pipe coupling welded to low point of fan scroll.
 3. Companion Flanges: Rolled flanges for duct connections of same material as housing.
 4. Discharge Dampers: Assembly with parallel blades constructed of two plates formed around, and to, shaft, channel frame, and sealed ball bearings; with blades linked outside of airstream to single control lever of same material as housing.
 5. Inlet Screens: Grid screen of same material as housing.
 6. Shaft Cooler: Metal disk between bearings and fan wheel, designed to dissipate heat from shaft.
 7. Shaft Seals: Airtight seals installed around shaft on drive side of single-width fans.
 8. Weather Cover: Enameled-steel sheet with ventilation slots, access door, bolted to housing.
 9. Piezometer Ring: Piezometer ring mounted at fan inlet cone for airflow measurement.

2.03 SQUARE IN-LINE CENTRIFUGAL FANS

- A. Description: Square in-line centrifugal fans.
- B. Housing:
 1. Housing Material: Reinforced steel.
 2. Housing Coating: Anti-condensate.
 3. Housing Construction: Side panels shall be easily removable for service. Include inlet and outlet flanges, and support bracket adaptable to floor, side wall, or ceiling mounting.
- C. Direct-Drive Units: Motor mounted in airstream, factory wired to disconnect switch located on outside of fan housing.
- D. Belt-Driven Units: Motor mounted on adjustable base, with adjustable sheaves, enclosures around belts within fan housing, and lubricating tubes from fan bearings extended to outside of fan housing.
- E. Fan Wheels: Aluminum airfoil blades welded to aluminum hub.
- F. Motor Enclosure: .
- G. Accessories:
 1. Access for Inspection, Cleaning, and Maintenance: Comply with requirements in ASHRAE 62.1.
 2. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
 3. Volume-Control Damper: Manually operated with quadrant lock, located in fan outlet.
 4. Companion Flanges: For inlet and outlet duct connections.
 5. Fan Guards: 1/2- by 1-inch mesh of galvanized steel in removable frame. Provide guard for inlet or outlet for units not connected to ductwork.
 6. Motor and Drive Cover (Belt Guard): Epoxy-coated steel.
 7. Side Discharge: Flange connector and attachment hardware to provide right-angle discharge on side of unit.

2.04 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 23 0513 "Common Motor Requirements for HVAC Equipment."
- B. Where variable-frequency drives are indicated or scheduled, provide fan motor compatible with variable-frequency drive.

2.05 SOURCE QUALITY CONTROL

- A. AMCA Certification for Fan Sound Performance Rating: Test, rate, and label in accordance with AMCA 311.
- B. AMCA Certification for Fan Aerodynamic Performance Ratings: Test, rate, and label in accordance with AMCA 211.
- C.
- D. Operating Limits: Classify fans in accordance with AMCA 99, Section 14.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Install centrifugal fans level and plumb.
- B. Disassemble and reassemble units, as required for moving to the final location, according to manufacturer's written instructions.
- C. Lift and support units with manufacturer's designated lifting or supporting points.
- D. Equipment Mounting:
 - 1. Install floor- or roof-mounted centrifugal fans on cast-in-place concrete equipment base(s). Comply with requirements for equipment bases and foundations specified in Section 03 30 00 "Cast-in-Place Concrete."
 - 2. Support duct-mounted and other hanging centrifugal fans directly from the building structure, using suitable hanging systems as specified in Section 23 0529 "Hangers and Supports for HVAC Piping and Equipment."
 - 3. Comply with requirements for vibration isolation and seismic-control devices specified in Section 23 0548 "Vibration and Seismic Controls for HVAC."
 - 4. Comply with requirements for vibration isolation devices specified in Section 23 0548.13 "Vibration Controls for HVAC."
- E. Curb Support, Field Built-Up: Install roof curb on roof structure, level and secure, according to "The NRCA Roofing and Waterproofing Manual," detail "Equipment Support Curb," number "SPF-9" (page 1409) and detail "Equipment Support Curb," number "SPF-9S" (page 1410). Install and secure centrifugal fans on curbs, and coordinate roof penetrations and flashing with roof construction. Secure units to curb support with anchor bolts.
- F. Curb Support, Prefabricated: Rail-type wood support provided by fan manufacturer.
- G. Unit Support: Install centrifugal fans level on structural curbs. Coordinate with duct connections. Secure units to structural support with anchor bolts.
- H. Isolation Curb Support: Install centrifugal fans on isolation curbs, and install flexible duct connectors and vibration-isolation[**and seismic-control**] devices.
 - 1. Comply with requirements for vibration isolation and seismic-control devices specified in Section 23 05 48 "Vibration and Seismic Controls for HVAC".
 - 2. Comply with requirements in Section 23 0548.13 "Vibration Controls for HVAC."
- I. Install units with clearances for service and maintenance.
- J. Label fans according to requirements specified in Section 23 0553 "Identification for HVAC Piping and Equipment."

3.02 DUCTWORK AND PIPING CONNECTIONS

- A. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Section 23 3300 "Air Duct Accessories."
- B. Install ducts adjacent to fans to allow service and maintenance.

3.03 ELECTRICAL CONNECTIONS

- A. Connect wiring according to Section 26 0519 "Low-Voltage Electrical Power Conductors and Cables."
- B. Ground equipment according to Section 26 0526 "Grounding and Bonding for Electrical Systems."
- C. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.
- D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.
 - 1. Nameplate shall be laminated acrylic or melamine plastic signs, as specified in Section 26 05 53 "Identification for Electrical Systems."
 - 2. Nameplate shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

3.04 CONTROL CONNECTIONS

- A. Install control and electrical power wiring to field-mounted control devices.
- B. Connect control wiring according to Section 26 0523 "Control-Voltage Electrical Power Cables."

3.05 STARTUP SERVICE:

- A. Perform startup service.
 - 1. Complete installation and startup checks in accordance with manufacturer's written instructions.
 - 2. Verify that shipping, blocking, and bracing are removed.
 - 3. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
 - 4. Verify that cleaning and adjusting are complete.
 - 5. For direct-drive fans, verify proper motor rotation direction and verify fan wheel free rotation and smooth bearing operation.
 - 6. For belt-drive fans, disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
 - 7. Adjust belt tension.
 - 8. Adjust damper linkages for proper damper operation.
 - 9. Verify lubrication for bearings and other moving parts.
 - 10. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
 - 11. Disable automatic temperature-control operators, energize motor and confirm proper motor rotation and unit operation, adjust fan to indicated rpm, and measure and record motor voltage and amperage.
 - 12. Shut unit down and reconnect automatic temperature-control operators.
 - 13. Remove and replace malfunctioning units and retest as specified above.

3.06 ADJUSTING

- A. Adjust damper linkages for proper damper operation.
- B. Adjust belt tension.
- C. Lubricate bearings.

- D. Comply with requirements in Section 23 0593 "Testing, Adjusting, and Balancing for HVAC."

3.07 CLEANING

- A. After completing system installation and testing, adjusting, and balancing and after completing startup service, clean fans internally to remove foreign material and construction dirt and dust.

3.08 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain centrifugal fans.

END OF SECTION 23 34 16233416233416233416233416

SECTION 23 34 23

HVAC POWER VENTILATORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Centrifugal ventilators - roof upblast and sidewall.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include diagrams for power, signal, and control wiring.
- C. Delegated Design Submittal: For unit hangars and supports indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Design Calculations: Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.

1.04 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Floor plans, reflected ceiling plans, and other details, or BIM model, drawn to scale and coordinated with all building trades.
- B. Seismic Qualification Data: For fans, accessories, and components, from manufacturer.
- C. Product Certificates: Submit certificates that specified equipment will withstand required wind forces, from manufacturer.
- D. Field quality-control reports.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

PART 2 - PRODUCTS

2.01 CENTRIFUGAL VENTILATORS - ROOF UPBLAST OR SIDEWALL

- A. Configuration: Centrifugal roof upblast ventilator.
- B. Housing: Removable; square, one-piece aluminum base with venturi inlet cone.
 - 1. Upblast Units: Provide spun-aluminum discharge baffle to direct discharge air upward, with rain and snow drains.
- C. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.
- D. Belt Drives:
 - 1. Resiliently mounted to housing.
 - 2. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
 - 3. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings; minimum ABMA9, L(10) of 100,000 hours.

4. Fan Pulleys: Cast iron or cast steel with split, tapered bushing; dynamically balanced at factory.
 5. Motor Pulleys: Adjustable pitch for use with motors through 5 hp. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions. Provide fixed pitch for use with motors larger than 5 hp.
 6. Fan and motor isolated from exhaust airstream.
- E. Accessories:
1. Variable-Frequency Motor Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
 2. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted outside fan housing, factory wired through an internal aluminum conduit.
 3. Bird Screens: Removable, 1/2-inch mesh, aluminum or brass wire.
 4. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.
- F. Prefabricated Roof Curbs: Galvanized steel; mitered and welded corners; 1-1/2-inch-thick, rigid, fiberglass insulation adhered to inside walls; and 1-1/2-inch wood nailer. Size as required to suit roof opening and fan base.
1. Configuration: Manufactured to accommodate roof slope.

2.02 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors
1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

2.03 SOURCE QUALITY CONTROL

- A. AMCA Certification for Fan Sound Performance Rating: Test, rate, and label in accordance with AMCA 311.
- B. AMCA Certification for Fan Aerodynamic Performance Ratings: Test, rate, and label in accordance with AMCA 211.
- C.
- D. UL Standards: Power ventilators shall comply with UL 705. Power ventilators for use for restaurant kitchen exhaust shall also comply with UL 762.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Install power ventilators level and plumb.
- B. Equipment Mounting:
1. Secure roof-mounted fans to roof curbs with zinc-plated hardware. See Section 07 72 00 "Roof Accessories" for installation of roof curbs.
- C. Install units with clearances for service and maintenance.
- D. Label units according to requirements specified in Section 23 05 53 "Identification for HVAC Piping and Equipment."

3.02 DUCTWORK CONNECTIONS

- A. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Section 23 33 00 "Air Duct Accessories."

3.03 ELECTRICAL CONNECTIONS

- A. Connect wiring according to Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."

- B. Ground equipment according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."
- C. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.
 - 1. Nameplate shall be laminated acrylic or melamine plastic signs, as specified in Section 26 05 53 "Identification for Electrical Systems."
 - 2. Nameplate shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

3.04 CONTROL CONNECTIONS

- A. Install control and electrical power wiring to field-mounted control devices.
- B. Connect control wiring according to Section 26 05 23 "Control-Voltage Electrical Power Cables."

3.05 STARTUP SERVICE:

- A. Perform startup service.
 - 1. Complete installation and startup checks in accordance with manufacturer's written instructions.
 - 2. Verify that shipping, blocking, and bracing are removed.
 - 3. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
 - 4. Verify that cleaning and adjusting are complete.
 - 5. For direct-drive fans, verify proper motor rotation direction and verify fan wheel free rotation and smooth bearing operation.
 - 6. For belt-drive fans, disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
 - 7. Adjust belt tension.
 - 8. Adjust damper linkages for proper damper operation.
 - 9. Verify lubrication for bearings and other moving parts.
 - 10. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
 - 11. Disable automatic temperature-control operators, energize motor and confirm proper motor rotation and unit operation, adjust fan to indicated rpm, and measure and record motor voltage and amperage.
 - 12. Shut unit down and reconnect automatic temperature-control operators.
 - 13. Remove and replace malfunctioning units and retest as specified above.

3.06 ADJUSTING

- A. Adjust damper linkages for proper damper operation.
- B. Adjust belt tension.
- C. Lubricate bearings.
- D. Comply with requirements in Section 23 05 93 "Testing, Adjusting, and Balancing for HVAC."

3.07 CLEANING

- A. After completing system installation and testing, adjusting, and balancing and after completing startup service, clean fans internally to remove foreign material and construction dirt and dust.

3.08 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain centrifugal fans.

END OF SECTION

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SECTION 26 00 10

SUPPLEMENTAL REQUIREMENTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Supplemental requirements generally applicable to the Work specified in Division 26. This Section is also referenced by related Work specified in other Divisions.
- B. Related Requirements:
 - 1. Section 26 00 11 "Facility Performance Requirements for Electrical" for seismic-load, wind-load, acoustical, and other field conditions applicable to Work specified in this Section.

1.02 REFERENCES

- A. Abbreviations and Acronyms for Electrical Terms and Units of Measure:
 - 1. 8P8C: An 8-position 8-contact modular jack.
 - 2. A: Ampere, unit of electrical current.
 - 3. AC or ac: Alternating current.
 - 4. AFCI: Arc-fault circuit interrupter.
 - 5. AIC: Ampere interrupting capacity.
 - 6. AL, Al, or ALUM: Aluminum.
 - 7. ASD: Adjustable-speed drive.
 - 8. ATS: Automatic transfer switch.
 - 9. AWG: American wire gauge; see ASTM B258.
 - 10. BAS: Building automation system.
 - 11. BIL: Basic impulse insulation level.
 - 12. BIM: Building information modeling.
 - 13. CAD: Computer-aided design or drafting.
 - 14. CATV: Community antenna television.
 - 15. CB: Circuit breaker.
 - 16. cd: Candela, the SI fundamental unit of luminous intensity.
 - 17. CO/ALR: Copper-aluminum, revised.
 - 18. COPS: Critical operations power system.
 - 19. CU or Cu: Copper.
 - 20. CU-AL or AL-CU: Copper-aluminum.
 - 21. dB: Decibel, a unitless logarithmic ratio of two electrical, acoustical, or optical power values.
 - 22. dB(A-weighted) or dB(A): Decibel acoustical sound pressure level with A-weighting applied in accordance with IEC 61672-1.
 - 23. dB(adjusted) or dBa: Decibel weighted absolute noise power with respect to 3.16 pW (minus 85 dBm).
 - 24. dBm: Decibel absolute power with respect to 1 mW.
 - 25. DC or dc: Direct current.
 - 26. DCOA: Designated critical operations area.
 - 27. DDC: Direct digital control (HVAC).
 - 28. EGC: Equipment grounding conductor.
 - 29. ELV: Extra-low voltage.
 - 30. EMF: Electromotive force.
 - 31. EMI: Electromagnetic interference.
 - 32. EPM: Electrical preventive maintenance.
 - 33. EPS: Emergency power supply.
 - 34. EPSS: Emergency power supply system.
 - 35. ESS: Energy storage system.

36. EV: Electric vehicle.
37. EVPE: Electric vehicle power export equipment.
38. EVSE: Electric vehicle supply equipment.
39. fc: Footcandle, an internationally recognized unit of illuminance equal to one lumen per square foot or 10.76 lx. The simplified conversion 1 fc = 10 lx in the Specifications is common practice and considered adequate precision for building construction activities. When there are conflicts, lux is the primary unit; footcandle is specified for convenience.
40. FLC: Full-load current.
41. ft: Foot.
42. ft-cd: Foot-candle, the antiquated U.S. Standard unit of illuminance, equal to one international candle measured at a distance of one foot, that was superseded in 1948 by the unit "footcandle" after the SI unit candela (cd) replaced the international candle; see "fc,"
43. GEC: Grounding electrode conductor.
44. GFCI: Ground-fault circuit interrupter.
45. GFPE: Ground-fault protection of equipment.
46. GND: Ground.
47. HACR: Heating, air conditioning, and refrigeration.
48. HDPE: High-density polyethylene.
49. HID: High-intensity discharge.
50. HP or hp: Horsepower.
51. HVAC: Heating, ventilating, and air conditioning.
52. Hz: Hertz.
53. IBT: Intersystem bonding termination.
54. inch: Inch. To avoid confusion, the abbreviation "in." is not used.
55. IP: Ingress protection rating (enclosures); Internet protocol (communications).
56. IR: Infrared.
57. IS: Intrinsically safe.
58. IT&R: Inspecting, testing, and repair.
59. ITE: Information technology equipment.
60. kAIC: Kiloampere interrupting capacity.
61. kcmil or MCM: One thousand circular mils.
62. kV: Kilovolt.
63. kVA: Kilovolt-ampere.
64. kVA_r or kVAR: Kilovolt-ampere reactive.
65. kW: Kilowatt.
66. kWh: Kilowatt-hour.
67. LAN: Local area network.
68. lb: Pound (weight).
69. lbf: Pound (force).
70. LCD: Liquid-crystal display.
71. LCDI: Leakage-current detector-interrupter.
72. LED: Light-emitting diode.
73. Li-ion: Lithium-ion.
74. lm: Lumen, the SI derived unit of luminous flux.
75. LNG: Liquefied natural gas.
76. LP-Gas: Liquefied petroleum gas.
77. LRC: Locked-rotor current.
78. LV: Low voltage.
79. lx: Lux, the SI derived unit of illuminance equal to one lumen per square meter.
80. m: Meter.
81. MCC: Motor-control center.
82. MDC: Modular data center.
83. MG set: Motor-generator set.
84. MIDI: Musical instrument digital interface.
85. MLO: Main lugs only.

86. MV: Medium voltage.
87. MVA: Megavolt-ampere.
88. mW: Milliwatt.
89. MW: Megawatt.
90. MWh: Megawatt-hour.
91. NC: Normally closed.
92. Ni-Cd: Nickel-cadmium.
93. Ni-MH: Nickel-metal hydride.
94. NIU: Network interface unit.
95. NO: Normally open.
96. NPT: National (American) standard pipe taper.
97. OCPD: Overcurrent protective device.
98. ONT: Optical network terminal.
99. PC: Personal computer.
100. PCS: Power conversion system.
101. PCU: Power-conditioning unit.
102. PF or pf: Power factor.
103. PHEV: Plug-in hybrid electric vehicle.
104. PLC: Programmable logic controller.
105. PLFA: Power-limited fire alarm.
106. PoE: Power over Ethernet.
107. PV: Photovoltaic.
108. PVC: Polyvinyl chloride.
109. pW: Picowatt.
110. RFI: (electrical) Radio-frequency interference; (contract) Request for interpretation.
111. RMS or rms: Root-mean-square.
112. RPM or rpm: Revolutions per minute.
113. SCADA: Supervisory control and data acquisition.
114. SCR: Silicon-controlled rectifier.
115. SPD: Surge protective device.
116. sq.: Square.
117. SWD: Switching duty.
118. TCP/IP: Transmission control protocol/Internet protocol.
119. TEFC: Totally enclosed fan-cooled.
120. TR: Tamper resistant.
121. TVSS: Transient voltage surge suppressor.
122. UL: (standards) Underwriters Laboratories, Inc.; (product categories) UL, LLC.
123. UL CCN: UL Category Control Number.
124. UPS: Uninterruptible power supply.
125. USB: Universal serial bus.
126. UV: Ultraviolet.
127. V: Volt, unit of electromotive force.
128. V(ac): Volt, alternating current.
129. V(dc): Volt, direct current.
130. VA: Volt-ampere, unit of complex electrical power.
131. VAR: Volt-ampere reactive, unit of reactive electrical power.
132. VFC: Variable-frequency controller.
133. VOM: Volt-ohm-multimeter.
134. VPN: Virtual private network.
135. VRLA: Valve regulated lead acid; also called "sealed lead acid (SLA)" or "valve regulated sealed lead acid."
136. W: Watt, unit of real electrical power.
137. Wh: Watt-hour, unit of electrical energy usage.
138. WPT: Wireless power transfer.
139. WPTE: Wireless power transfer equipment.
140. WR: Weather resistant.

B. Abbreviations and Acronyms for Electrical Raceway Types:

1. EMT: Electrical metallic tubing.
2. EMT-A: Aluminum electrical metallic tubing.
3. EMT-S: Steel electrical metallic tubing.
4. EMT-SS: Stainless steel electrical metallic tubing.
5. ENT: Electrical nonmetallic tubing.
6. EPEC: Electrical HDPE underground conduit.
7. EPEC-40: Schedule 40 electrical HDPE underground conduit.
8. EPEC-80: Schedule 80 electrical HDPE underground conduit.
9. EPEC-A: Type A electrical HDPE underground conduit.
10. EPEC-B: Type B electrical HDPE underground conduit.
11. ERMC: Electrical rigid metal conduit.
12. ERMC-A: Aluminum electrical rigid metal conduit.
13. ERMC-S: Steel electrical rigid metal conduit.
14. ERMC-S-G: Galvanized-steel electrical rigid metal conduit.
15. ERMC-S-PVC: PVC-coated-steel electrical rigid metal conduit.
16. ERMC-SS: Stainless steel electrical rigid metal conduit.
17. FMC: Flexible metal conduit.
18. FMC-A: Aluminum flexible metal conduit.
19. FMC-S: Steel flexible metal conduit.
20. FMT: Steel flexible metallic tubing.
21. FNMC: Flexible nonmetallic conduit. See "LFNC."
22. HDPE: See EPEC.
23. IMC: Steel electrical intermediate metal conduit.
24. LFMC: Liquidtight flexible metal conduit.
25. LFMC-A: Aluminum liquidtight flexible metal conduit.
26. LFMC-S: Steel liquidtight flexible metal conduit.
27. LFMC-SS: Stainless steel liquidtight flexible metal conduit.
28. LFNC: Liquidtight flexible nonmetallic conduit.
29. LFNC-A: Layered (Type A) liquidtight flexible nonmetallic conduit.
30. LFNC-B: Integral (Type B) liquidtight flexible nonmetallic conduit.
31. LFNC-C: Corrugated (Type C) liquidtight flexible nonmetallic conduit.
32. PVC: Rigid PVC conduit.
33. PVC-40: Schedule 40 rigid PVC conduit.
34. PVC-80: Schedule 80 rigid PVC Conduit.
35. PVC-A: Type A rigid PVC concrete-encased conduit.
36. PVC-EB: Type EB rigid PVC concrete-encased underground conduit.
37. RGS: See ERMC-S-G.
38. RMC: See ERMC.
39. RTRC: Reinforced thermosetting resin conduit.
40. RTRC-AG: Low-halogen, aboveground reinforced thermosetting resin conduit.
41. RTRC-AG-HW: Heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
42. RTRC-AG-SW: Standard wall, low-halogen, aboveground reinforced thermosetting resin conduit.
43. RTRC-AG-XW: Extra heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
44. RTRC-BG: Low-halogen, belowground reinforced thermosetting resin conduit.

C. Abbreviations and Acronyms for Electrical Single-Conductor and Multiple-Conductor Cable Types:

1. AC: Armored cable.
2. CATV: Coaxial general-purpose cable.
3. CATVP: Coaxial plenum cable.
4. CATVR: Coaxial riser cable.
5. CI: Circuit integrity cable.

6. CL2: Class 2 cable.
7. CL2P: Class 2 plenum cable.
8. CL2R: Class 2 riser cable.
9. CL2X: Class 2 cable, limited use.
10. CL3: Class 3 cable.
11. CL3P: Class 3 plenum cable.
12. CL3R: Class 3 riser cable.
13. CL3X: Class 3 cable, limited use.
14. CM: Communications general-purpose cable.
15. CMG: Communications general-purpose cable.
16. CMP: Communications plenum cable.
17. CMR: Communications riser cable.
18. CMUC: Under-carpet communications wire and cable.
19. CMX: Communications cable, limited use.
20. DG: Distributed generation cable.
21. FC: Flat cable.
22. FCC: Flat conductor cable.
23. FPL: Power-limited fire-alarm cable.
24. FPLP: Power-limited fire-alarm plenum cable.
25. FPLR: Power-limited fire-alarm riser cable.
26. IGS: Integrated gas spacer cable.
27. ITC: Instrumentation tray cable.
28. ITC-ER: Instrumentation tray cable, exposed run.
29. MC: Metal-clad cable.
30. MC-HL: Metal-clad cable, hazardous location.
31. MI: Mineral-insulated, metal-sheathed cable.
32. MTW: (machine tool wiring) Moisture-, heat-, and oil-resistant thermoplastic cable.
33. MV: Medium-voltage cable.
34. NM: Nonmetallic sheathed cable.
35. NMC: Nonmetallic sheathed cable with corrosion-resistant nonmetallic jacket.
36. NMS: Nonmetallic sheathed cable with signaling, data, and communications conductors, plus power or control conductors.
37. NPLF: Non-power-limited fire-alarm circuit cable.
38. NPLFP: Non-power-limited fire-alarm circuit cable for environmental air spaces.
39. NPLFR: Non-power-limited fire-alarm circuit riser cable.
40. NUCC: Nonmetallic underground conduit with conductors.
41. OFC: Conductive optical fiber general-purpose cable.
42. OFCG: Conductive optical fiber general-purpose cable.
43. OFCP: Conductive optical fiber plenum cable.
44. OFCR: Conductive optical fiber riser cable.
45. OFN: Nonconductive optical fiber general-purpose cable.
46. OFNG: Nonconductive optical fiber general-purpose cable.
47. OFNP: Nonconductive optical fiber plenum cable.
48. OFNR: Nonconductive optical fiber riser cable.
49. P: Marine shipboard cable.
50. PLTC: Power-limited tray cable.
51. PLTC-ER: Power-limited tray cable, exposed run.
52. PV: Photovoltaic cable.
53. RHH: (high heat) Thermoset rubber, heat-resistant cable.
54. RHW: Thermoset rubber, moisture-resistant cable.
55. SA: Silicone rubber cable.
56. SE: Service-entrance cable.
57. SER: Service-entrance cable, round.
58. SEU: Service-entrance cable, flat.
59. SIS: Thermoset cable for switchboard and switchgear wiring.
60. TBS: Thermoplastic cable with outer braid.

61. TC: Tray cable.
 62. TC-ER: Tray cable, exposed run.
 63. TC-ER-HL: Tray cable, exposed run, hazardous location.
 64. THW: Thermoplastic, heat- and moisture-resistant cable.
 65. THHN: Thermoplastic, heat-resistant cable with nylon jacket outer sheath.
 66. THHW: Thermoplastic, heat- and moisture-resistant cable.
 67. THWN: Thermoplastic, moisture- and heat-resistant cable with nylon jacket outer sheath.
 68. TW: Thermoplastic, moisture-resistant cable.
 69. UF: Underground feeder and branch-circuit cable.
 70. USE: Underground service-entrance cable.
 71. XHH: Cross-linked polyethylene, heat-resistant cable.
 72. XHHW: Cross-linked polyethylene, heat- and moisture-resistant cable.
- D. Abbreviations and Acronyms for Electrical Flexible Cord Types:
1. SEO: 600 V extra-hard-usage, hard-service cord with thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer covering for damp locations.
 2. SEOW: 600 V extra-hard-usage, hard-service cord with thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer covering for damp or wet locations.
 3. SEOO: 600 V extra-hard-usage, hard-service cord with oil-resistant thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer covering for damp locations.
 4. SEOWW: 600 V extra-hard-usage, hard-service cord with oil-resistant thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer covering for damp or wet locations.
 5. SJEO: 300 V hard-usage, junior hard-service cord with thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer cover for damp locations.
 6. SJEOW: 300 V hard-usage, junior hard-service cord with thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer cover for damp or wet locations.
 7. SJEOO: 300 V hard-usage, junior hard-service cord with oil-resistant thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer cover for damp locations.
 8. SJEOOW: 300 V hard-usage, junior hard-service cord with oil-resistant thermoplastic elastomer insulation and oil-resistant thermoplastic elastomer outer cover for damp or wet locations.
 9. SJO: 300 V hard-usage, junior hard-service cord with thermoset insulation and oil-resistant thermoset outer cover for damp locations.
 10. SJOW: 300 V hard-usage, junior hard-service cord with thermoset insulation and oil-resistant thermoset outer cover for damp or wet locations.
 11. SJOO: 300 V hard-usage, junior hard-service cord with oil-resistant thermoset insulation and oil-resistant thermoset outer cover for damp locations.
 12. SJOWW: 300 V hard-usage, junior hard-service cord with oil-resistant thermoset insulation and oil-resistant thermoset outer cover for damp or wet locations.
 13. SJTO: 300 V hard-usage, junior hard-service cord with thermoplastic insulation and oil-resistant thermoplastic outer cover for damp locations.
 14. SJTOW: 300 V hard-usage, junior hard-service cord with thermoplastic insulation and oil-resistant thermoplastic outer cover for damp or wet locations.
 15. SJTOO: 300 V hard-usage, junior hard-service cord with oil-resistant thermoplastic insulation and oil-resistant thermoplastic outer cover for damp locations.
 16. SJTOOW: 300 V hard-usage, junior hard-service cord with oil-resistant thermoplastic insulation and oil-resistant thermoplastic outer cover for damp or wet locations.
 17. SO: 600 V extra-hard-usage, hard-service cord with thermoset insulation and oil-resistant thermoset outer covering for damp locations.
 18. SOW: 600 V extra-hard-usage, hard-service cord with thermoset insulation and oil-resistant thermoset outer covering for damp or wet locations.
 19. SOO: 600 V extra-hard-usage, hard-service cord with oil-resistant thermoset insulation and oil-resistant thermoset outer covering for damp locations.

20. SOOW: 600 V extra-hard-usage, hard-service cord with oil-resistant thermoset insulation and oil-resistant thermoset outer covering for damp or wet locations.
21. STO: 600 V extra-hard-usage, hard-service cord with thermoplastic insulation and oil-resistant thermoplastic outer covering for damp locations.
22. STOW: 600 V extra-hard-usage, hard-service cord with thermoplastic insulation and oil-resistant thermoplastic outer covering for damp or wet locations.
23. STOO: 600 V extra-hard-usage, hard-service cord with oil-resistant thermoplastic insulation and oil-resistant thermoplastic outer covering for damp locations.
24. STOOW: 600 V extra-hard-usage, hard-service cord with oil-resistant thermoplastic insulation and oil-resistant thermoplastic outer covering for damp or wet locations.

E. Definitions:

1. 8-Position 8-Contact (8P8C) Modular Jack: An unkeyed jack with up to eight contacts commonly used to terminate twisted-pair and multiconductor Ethernet cable. Also called a "TIA-1096 miniature 8-position series jack" (8PSJ), or an "IEC 8877 8-pole jack."
 - a. Be careful when suppliers use "RJ45" generically. Obsolete RJ45 jacks used for analog telephone cables have rejection keys. 8P8C jacks used for digital telephone cables and Ethernet cables do not have rejection keys.
2. Basic Impulse Insulation Level (BIL): Reference insulation level expressed in impulse crest voltage with a standard wave not longer than 1.5 times 50 microseconds and 1.5 times 40 microseconds.
3. Cable: In accordance with NIST NBS Circular 37 and IEEE standards, in the United States for the purpose of interstate commerce, the definition of "cable" is (1) a conductor with insulation, or a stranded conductor with or without insulation (single-conductor cable); or (2) a combination of conductors insulated from one another (multiple-conductor cable).
4. Communications Jack: A fixed connecting device designed for insertion of a communications cable plug.
5. Communications Outlet: One or more communications jacks, or cables and plugs, mounted in a box or ring, with a suitable protective cover.
6. Conductor: In accordance with NIST NBS Circular 37 and IEEE standards, in the United States for the purpose of interstate commerce, the definition of "conductor" is (1) a wire or combination of wires not insulated from one another, suitable for carrying an electric current; (2) (National Electrical Safety Code) a material, usually in the form of wire, cable, or bar, suitable for carrying an electric current; or (3) (general) a substance or body that allows a current of electricity to pass continuously along it.
7. Designated Seismic System: A system component that requires design in accordance with Chapter 13 of ASCE/SEI 7 and for which the Component Importance Factor is greater than 1.0.
8. Direct Buried: Installed underground without encasement in concrete or other protective material.
9. Enclosure: The case or housing of an apparatus, or the fence or wall(s) surrounding an installation, to prevent personnel from accidentally contacting energized parts or to protect the equipment from physical damage. Types of enclosures and enclosure covers include the following:
 - a. Cabinet: An enclosure that is designed for either surface mounting or flush mounting and is provided with a frame, mat, or trim in which a swinging door or doors are or can be hung.
 - b. Concrete Box: A box intended for use in poured concrete.
 - c. Conduit Body: A means for providing access to the interior of a conduit or tubing system through one or more removable covers at a junction or terminal point. In the United States, conduit bodies are listed in accordance with outlet box requirements.
 - d. Conduit Box: A box having threaded openings or knockouts for conduit, EMT, or fittings.
 - e. Cutout Box: An enclosure designed for surface mounting that has swinging doors or covers secured directly to and telescoping with the walls of the enclosure.

- f. Device Box: A box with provisions for mounting a wiring device directly to the box.
 - g. Extension Ring: A ring intended to extend the sides of an outlet box or device box to increase the box depth, volume, or both.
 - h. Floor Box: A box mounted in the floor intended for use with a floor box cover and other components to complete the floor box enclosure.
 - i. Floor-Mounted Enclosure: A floor box and floor box cover assembly with means to mount in the floor that is sealed against the entrance of scrub water at the floor level.
 - j. Floor Nozzle: An enclosure used on a wiring system, intended primarily as a housing for a receptacle, provided with a means, such as a collar, for surface-mounting on a floor, which may or may not include a stem to support it above the floor level, and is sealed against the entrance of scrub water at the floor level.
 - k. Junction Box: A box with a blank cover that joins different runs of raceway or cable and provides space for connection and branching of the enclosed conductors.
 - l. Outlet Box: A box that provides access to a wiring system having pryout openings, knockouts, threaded entries, or hubs in either the sides or the back, or both, for the entrance of conduit, conduit or cable fittings, or cables, with provisions for mounting an outlet box cover, but without provisions for mounting a wiring device directly to the box.
 - m. Pedestal Floor Box Cover: A floor box cover that, when installed as intended, provides a means for typically vertical or near-vertical mounting of receptacle outlets above the floor's finished surface.
 - n. Pull Box: A box with a blank cover that joins different runs of raceway and provides access for pulling or replacing the enclosed cables or conductors.
 - o. Raised-Floor Box: A floor box intended for use in raised floors.
 - p. Recessed Access Floor Box: A floor box with provisions for mounting wiring devices below the floor surface.
 - q. Recessed Access Floor Box Cover: A floor box cover with provisions for passage of cords to recessed wiring devices mounted within a recessed floor box.
 - r. Ring: A sleeve, which is not necessarily round, used for positioning a recessed wiring device flush with the plaster, concrete, drywall, or other wall surface.
 - s. Ring Cover: A box cover, with raised center portion to accommodate a specific wall or ceiling thickness, for mounting wiring devices or luminaires flush with the surface.
 - t. Termination Box: An enclosure designed for installation of termination base assemblies consisting of bus bars, terminal strips, or terminal blocks with provision for wire connectors to accommodate incoming or outgoing conductors, or both.
10. Emergency Systems: Those systems legally required and classed as emergency by municipal, state, federal, or other codes, or by any governmental agency having jurisdiction that are designed to ensure continuity of lighting, electrical power, or both, to designated areas and equipment in the event of failure of the normal supply for safety to human life.
 11. Essential Electrical Systems: (healthcare facilities) Those systems designed to ensure continuity of electrical power to designated areas and functions of a healthcare facility during disruption of normal power sources, and also to minimize disruption within the internal wiring system.
 12. Fault Limited: Providing or being served by a source of electrical power that is limited to not more than 100 W when tested in accordance with UL 62368-1.
 - a. The term "fault limited" is intended to encompass most Class 1, 2, and 3 power-limited sources complying with Article 725 of NFPA 70; Class ES1 and ES2 electrical energy sources that are Class PS1 electrical power sources (e.g., USB); and Class ES3 electrical energy sources that are Class PS1 and PS2 electrical power sources (e.g., PoE). See UL 62368-1 for discussion of classes of electrical energy sources and classes of electrical power sources.
 13. High-Performance Building: A building that integrates and optimizes on a life-cycle basis all major high-performance attributes, including energy conservation, environment,

- safety, security, durability, accessibility, cost-benefit, productivity, sustainability, functionality, and operational considerations.
14. Jacket: A continuous nonmetallic outer covering for conductors or cables.
 15. Luminaire: A complete lighting unit consisting of a light source such as a lamp, together with the parts designed to position the light source and connect it to the power supply. It may also include parts to protect the light source or the ballast or to distribute the light.
 16. Mode: The terms "Active Mode," "Off Mode," and "Standby Mode" are used as defined in the Energy Independence and Security Act (EISA) of 2007.
 17. Multi-Outlet Assembly: A type of surface, flush, or freestanding raceway designed to hold conductors, receptacles, and switches, assembled in the field or at the factory.
 18. Plenum: A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system.
 19. Receptacle: A fixed connecting device arranged for insertion of a power cord plug. Also called a power jack.
 20. Receptacle Outlet: One or more receptacles mounted in a box with a suitable protective cover.
 21. Sheath: A continuous metallic covering for conductors or cables.
 22. UL Category Control Number (CCN): An alphabetic or alphanumeric code used to identify product categories covered by UL's Listing, Classification, and Recognition Services.
 23. Voltage Class: For specified circuits and equipment, voltage classes are defined as follows:
 - a. Control Voltage: Having electromotive force between any two conductors, or between a single conductor and ground, that is supplied from a battery or other Class 2 or Class 3 power-limited source.
 - b. Line Voltage: (1) (controls) Designed to operate using the supplied low-voltage power without transformation. (2) (transmission lines, transformers, SPDs) The line-to-line voltage of the supplying power system.
 - c. Extra-Low Voltage (ELV): Not having electromotive force between any two conductors, or between a single conductor and ground, exceeding 30 V(ac rms), 42 V(ac peak), or 60 V(dc).
 - d. Low Voltage (LV): Having electromotive force between any two conductors, or between a single conductor and ground, that is rated above 30 V but not exceeding 1000 V.
 - e. Medium Voltage (MV): Having electromotive force between any two conductors, or between a single conductor and ground, that is rated about 1 kV but not exceeding 69 kV.
 - f. High Voltage: (1) (circuits) Having electromotive force between any two conductors, or between a single conductor and ground, that is rated above 69 kV but not exceeding 230 kV. (2) (safety) Having sufficient electromotive force to inflict bodily harm or injury.
 24. Wire: In accordance with NIST NBS Circular 37 and IEEE standards, in the United States for the purpose of interstate commerce, the definition of "wire" is a slender rod or filament of drawn metal. A group of small wires used as a single wire is properly called a "stranded wire." A wire or stranded wire covered with insulation is properly called an "insulated wire" or a "single-conductor cable." Nevertheless, when the context indicates that the wire is insulated, the term "wire" will be understood to include the insulation.

1.03 COORDINATION

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions:
 1. Notify Architect, Construction Manager, and Owner no fewer than seven days in advance of proposed interruption of electrical service.
 2. Do not proceed with interruption of electrical service without Architect's, Construction Manager's, and Owner's written permission.
 3. Coordinate interruption with systems impacted by outage including, but not limited to, the following:

- a. Emergency lighting.
 - b. Fire-alarm systems.
- B. Arrange to provide temporary electrical service in accordance with requirements specified in Division 01.

1.04 PREINSTALLATION MEETINGS

- A. Electrical Preconstruction Conference: Schedule conference with Architect and Owner, not later than 10 days after notice to proceed. Agenda topics include, but are not limited to, the following:
 - 1. Electrical installation schedule.
 - 2. Status of power system studies.
 - 3. Value analysis proposals and requests for substitution of electrical equipment.
 - 4. Utility work coordination and class of service requests.
 - 5. Commissioning activities.

1.05 SEQUENCING

- A. Conduct and submit results of power system studies before submitting Product Data and Shop Drawings for electrical equipment.

1.06 ACTION SUBMITTALS

- A. Coordination Drawings for Structural Supports: Show coordination of structural supports for equipment and devices, including restraints and bracing for control of seismic and wind loads, with other systems, equipment, and structural supports in the vicinity.
- B. Coordination Drawings for Large Equipment Indoor Installations:
 - 1. Location plan, drawn to scale, showing heavy equipment or truck access paths to loading dock or other freight access into building. Indicate available width and height of doors or openings.
 - 2. Floor plan for entry floor and floor where equipment is located, drawn to scale, showing heavy equipment access paths for maintenance and replacement, with the following items shown and coordinated with each other, based on input from installers of the items involved:
 - a. Dimensioned concrete bases, outlines of equipment, conduit entries, and grounding equipment locations.
 - b. If freight elevator must be used, indicate width and height of door and depth of car. Indicate if large equipment must be tipped to use elevator.
 - c. Dimensioned working clearances and dedicated areas below and around electrical equipment where obstructions and tripping hazards are prohibited.
 - 3. Reflected ceiling plans for entry floor and floor where equipment is located, drawn to scale, on which the following items shown and coordinated with each other, based on input from installers of the items involved:
 - a. Support locations, type of support, and weight on each support. Locate structural supports for structure-supported raceways and seismic bracing.
 - b. Location of lighting fixtures, sprinkler piping and sprinklers, ducts and diffusers, and other obstructions, indicating available overhead clearance.
 - c. Dimensioned working clearances and dedicated areas above and around electrical equipment where foreign systems and equipment are prohibited.
- C. Coordination Drawings for Large Equipment Outdoor Installations:
 - 1. Utilities site plan, drawn to scale, showing heavy equipment or truck access paths for maintenance and replacement, with the following items shown and coordinated with each other, based on input from installers of the items involved:
 - a. Fences and walls, dimensioned concrete bases, outlines of equipment, conduit entries, and grounding and bonding locations.
 - b. Indicate clear dimensions for fence gates and wall openings.
 - c. Indicate depth and type of ground cover, and locations of trees, shrubbery, and other obstructions in access path.

- d. Indicate clear height below tree branches, overhead lines, bridges, and other overhead obstructions in access path, or where cranes and hoists will be needed to handle large electrical equipment.
- e. Support locations, type of support, and weight on each support. Locate structural supports for structure-supported raceways[, **busways**,] [**and seismic bracing**].
- f. Dimensioned working clearances and dedicated areas around electrical equipment.

1.07 INFORMATIONAL SUBMITTALS

- A. Electrical Installation Schedule: At preconstruction meeting, and periodically thereafter as dates change, provide schedule for electrical installation Work to Owner and Architect including, but not limited to, milestone dates for the following activities:
 - 1. Submission of specified coordination drawings.
 - 2. Submission of action submittals specified in Division 26.
 - 3. Orders placed for major electrical equipment.
 - 4. Arrival of major electrical equipment on-site.
 - 5. Preinstallation meetings specified in Division 26.
 - 6. Closing of walls and ceilings containing electrical Work.
 - 7. System startup, testing, and commissioning activities for major electrical equipment.
 - 8. System startup, testing, and commissioning activities for emergency lighting.
 - 9. System startup, testing, and commissioning activities for automation systems (SCADA, BMS, lighting, HVAC, fire alarm, fire pump, etc.).
 - 10. Pouring of concrete housekeeping pads for electrical equipment and testing of concrete samples.
 - 11. Requests for special inspections.
 - 12. Requests for inspections by authorities having jurisdiction.
- B. Delegated Design Drawings for Structural Masonry Wall Penetrations: Where indicated on Drawings, provide reflected ceiling plan(s), supplemented by elevations, sections, and other details, drawn to scale, signed and sealed by a qualified structural professional engineer, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Location and dimensions of structural members supporting wall.
 - 2. Location and dimensions of columns near penetrations.
 - 3. Location and dimension of headers and lintels.
 - 4. Doors and windows near penetrations.
 - 5. Location and dimensions of penetrating cuts.
 - 6. Sprinkler piping and sleeves.
 - 7. Plumbing piping and sleeves.
 - 8. Ductwork and sleeves.
 - 9. Cable tray and sleeves.
 - 10. Conduit and sleeves.
 - 11. Firestopping assemblies for rated penetrations.
 - 12. Structural supports for piping, ductwork, and conduit on both sides of wall.
- C. Certificates:
 - 1. Welding certificates.
 - 2. Seismic-Load Performance Certificates: Provide special certification for designated seismic systems as indicated in Paragraph 13.2.2 "Special Certification Requirements for Designated Seismic Systems" of ASCE/SEI 7-05 or ASCE/SEI 7-10 or ASCE/SEI 7-16 (confirm with structural engineer) for all designated seismic-load systems identified on Drawings or in the Specifications.
 - a. Include the following information:
 - 1) Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2) Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.

- 3) Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- 4) Detailed description of conduit support devices and interconnections on which the certification is based and their installation requirements.
- 5) Provide equipment manufacturer's written certification for each designated active electrical seismic device and system, stating that it will remain operable following the design earthquake. Certification must be based on requirements of ASCE/SEI 7, including shake table testing per ICC-ES AC156 or a similar nationally recognized testing standard procedure acceptable to authorities having jurisdiction[, or experience data as permitted by ASCE/SEI 7-05, or ASCE/SEI 7-10, or ASCE/SEI 7-16 (confirm with structural engineer).
- 6) Provide equipment manufacturer's written certification that components with hazardous contents maintain containment following the design earthquake by methods required in ASCE/SEI 7-05 or ASCE/SEI 7-10 or ASCE/SEI 7-16 (confirm with structural engineer).
- 7) Submit evidence demonstrating compliance with these requirements for approval to authorities having jurisdiction after review and acceptance by qualified structural professional engineer.
- b. The following systems and components are Designated Seismic Systems and require written special certification of seismic qualification by manufacturer:
 - 1) Hangers and supports specified in Section 26 05 29 "Hangers and Supports for Electrical Systems."
 - 2) Raceways, enclosures, cabinets, boxes, and their mounting provisions specified in Section 26 05 33 "Raceway and Boxes for Electrical Systems."
 - 3) Seismic restraints specified in Section 26 05 48 "Vibration and Seismic Controls for Electrical Systems."
 - 4) Equipment, accessories, and components specified in Section 26 24 16 "Panelboards."
 - 5) Equipment, accessories, and components specified in Section 26 28 16 "Enclosed Switches and Circuit Breakers."
 - 6) Luminaires, accessories, and components specified in Section 26 51 19 "LED Interior Lighting."
 - 7) Luminaires, accessories, and components specified in Section 26 52 13 "Emergency and Exit Lighting."
 - 8) Luminaires, accessories, and components specified in Section 26 56 19 "LED Exterior Lighting."
3. Wind-Load Performance Certificates: Provide special certification for systems and components designated on Drawings or in the Specifications to be subject to high wind exposure and impact damage.
 - a. Include the following information:
 - 1) Provide equipment manufacturer's written certification for each designated system and component, stating that it will remain in place and operable following the design wind event and comply with requirements of authorities having jurisdiction.
 - 2) Certification must be based on ICC-ES or similar nationally recognized testing standard procedures acceptable to authorities having jurisdiction.
 - b. The following systems and components require written special certification of resistance to effects of high wind-load and impact damage by manufacturer:
- D. Qualification Statements:
 1. For qualified regional manufacturer.
 2. For structural professional engineer.
 3. For electrical professional engineer.
 4. For lighting professional engineer.
 5. For EPM specialist.
 6. For welder.

7. For ERM-C-S-PVC raceway Installer.
8. For switchboard Installer.
9. For low-voltage electrical testing agency and on-site electrical testing supervisor.
10. For power-limited electrical testing agency and on-site power-limited testing supervisor.
11. For structural testing and inspecting agency.
12. For luminaire photometric testing laboratory.
13. For lighting testing and inspecting agency.

1.08 CLOSEOUT SUBMITTALS

- A. Facility EPM Program Binders:
 1. Complete Set: On approved online or cloud solution and USB media that is clearly and permanently labeled with attached placard on lanyard to prevent misplacement.
 2. Volumes 2 and 8: Reproducible hardcopy on archival quality, 28 lb, acid-free, bond paper.
- B. Operation and Maintenance Data:
 1. Provide emergency operation, normal operation, and preventive maintenance manuals for each system, equipment, and device listed below:
 - a. Power Distribution Panelboard if bid alternate is elected.
 2. Include the following information:
 - a. Manufacturer's operating specifications.
 - b. User's guides for software and hardware.
 - c. Schedule of maintenance material items recommended to be stored at Project site.
 - d. Detailed instructions covering operation under both normal and abnormal conditions.
 - e. Time-current curves for overcurrent protective devices and manufacturer's written instructions for testing and adjusting their settings.
 - f. List of load-current and overload-relay heaters with related motor nameplate data.
 - g. List of lamp types and photoelectric relays used on Project, with ANSI and manufacturers' codes.
 - h. Manufacturer's instructions for setting field-adjustable components.
 - i. Manufacturer's instructions for testing, adjusting, and reprogramming microprocessor controls.
 - j. EPSS: Manufacturer's system checklists, maintenance schedule, and maintenance log sheets in accordance with NFPA 110.
 - k. Exterior pole inspection and repair procedures.
- C. Software and Firmware Operational Documentation: Provide software and firmware operational documentation in Facility EPM Program Binders, including the following:
 1. Software operating and upgrade manuals.
 2. Names, versions, and website addresses for locations of installed software.
 3. Device address list.
 4. Printout of software application and graphic screens.
 5. Testing and adjusting of panic and emergency power features.
 6. For lighting controls, include the following:
 - a. Adjustments of scene preset controls, adjustable fade rates, and fade overrides.
 - b. Operation of adjustable zone controls.
- D. Software:
 1. Program Software Backup: Provide username and password for approved online or cloud solution and USB media that is clearly and permanently labeled with attached placard on lanyard to prevent misplacement.
 2. Provide to Owner upgrades and unrestricted licenses for installed and backup software, including operating systems and programming tools required for operation and maintenance.

1.09 QUALIFICATIONS

- A. Qualified Regional Manufacturer: Manufacturer, possessing qualifications specified in Section 01 40 00 "Quality Requirements," that maintains a service center capable of providing training, parts, and emergency on-site repairs to Project site with response time less than eight hours.
- B. Structural Professional Engineer: Professional engineer possessing active qualifications specified in Section 01 40 00 "Quality Requirements," with expertise in structural engineering, including seismic- and wind-load modeling and analysis.
- C. Electrical Professional Engineer: Professional engineer possessing active qualifications specified in Section 01 40 00 "Quality Requirements," with expertise in electrical engineering, including electrical power system modeling and analysis of electrical safety in accordance with NFPA 70E.
- D. Lighting Professional Engineer: Professional engineer possessing active qualifications in accordance with Section 01 40 00 "Quality Requirements" and the following:
 - 1. Expertise in electrical engineering, lighting design, and structural requirements for exterior poles and standards.
 - 2. Lighting Certified (LC) Professional by the National Council on Qualifications for the Lighting Professions (NCQLP).
- E. EPM Specialist: Recognized experts possessing the following qualifications in accordance with Section 01 40 00 "Quality Requirements" and NFPA 70B:
 - 1. Technical Competence: Person should, by education, training, and experience, be well-rounded in all aspects of electrical maintenance.
 - 2. Administrative and Supervisory Skills: Person should be skilled in planning and development of long-range objectives to achieve specific results and should be able to command respect and solicit cooperation of persons involved in EPM Program development.
- F. Welder: Installer possessing active qualifications specified in Section 01 40 00 "Quality Requirements," with training and certification in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M.
- G. ERMC-S-PVC Installers: Installer possessing active qualifications specified in Section 01 40 00 "Quality Requirements," and able to present unexpired certified Installer credentials issued by ERMC-S-PVC manufacturer prior to starting installation.
- H. Electrical Power Monitoring Installers: Installer possessing active qualifications specified in Section 01 40 00 "Quality Requirements," and able to present unexpired certified Installer credentials issued by manufacturer prior to starting installation.
- I. Low-Voltage Electrical Testing and Inspecting Agency: Entities possessing active credentials from a qualified electrical testing laboratory recognized by authorities having jurisdiction.
 - 1. On-site electrical testing supervisors must have documented certification and experience with testing electrical equipment in accordance with NETA testing standards.
- J. Power-Limited Electrical Testing Agency: Entity possessing active credentials from a qualified electrical testing laboratory recognized by authorities having jurisdiction.
 - 1. On-site power-limited testing supervisor must have BICSI Registered Communications Distribution Designer certification and documented training and experience with testing power-limited equipment in accordance with NETA testing standards.
- K. Structural Testing and Inspecting Agency: Entity possessing active qualifications specified in Section 01 40 00 "Quality Requirements" with documented training and experience with testing structural concrete, seismic controls, and wind-load controls.
- L. Luminaire Photometric Testing Laboratory: Entity possessing active qualifications specified in Section 01 40 00 "Quality Requirements" accredited under the NVLAP for Energy Efficient Lighting Products, and complying with applicable IES testing standards.

- M. Lighting Testing and Inspecting Agency: Entity possessing active qualifications specified in Section 01 40 00 "Quality Requirements" with documented training and experience with testing and inspecting lighting installations in accordance with IES LM-5.

1.10 FIELD CONDITIONS

- A. Modeling, analysis, product selection, installation, and quality control for Work specified in Division 26 must comply with requirements specified in Section 26 00 11 "Facility Performance Requirements for Electrical."
- B. Service Conditions for Electrical Power Equipment: Besides conditions specified in Section 26 00 11 "Facility Performance Requirements for Electrical," specified electrical power equipment must be suitable for operation under service conditions specified as usual service conditions in applicable NEMA PB series, IEEE C37 series, and IEEE C57 series standards, except for the following:
 - 1. Indoors:
 - a. Exposure to fumes, vapors, or dust.
 - b. Ambient temperature not exceeding 104 deg F.
 - c. Exposure to hot and humid climate or to excessive moisture, including steam, salt spray, and dripping water.
 - d. Unusual transportation or storage conditions.
 - e. Unusual grounding resistance conditions.
 - f. Unusual space limitations.

PART 2 - PRODUCTS

2.01 SUBSTITUTION LIMITATIONS FOR ELECTRICAL EQUIPMENT

- A. Substitution requests for electrical equipment will be entertained under the following conditions:
 - 1. Substitution requests may be submitted for consideration prior to the Electrical Preconstruction Conference if accompanied by value analysis data indicating that substitution will comply with Project performance requirements while significantly increasing value for Owner throughout life of facility.
 - 2. Substitution requests may be submitted for consideration concurrently with submission of power system study reports when those reports indicate that substitution is necessary for safety of maintenance personnel and facility occupants.
 - 3. Contractor is responsible for sequencing and scheduling power system studies and electrical equipment procurement. After the Electrical Preconstruction Conference, insufficient lead time for electrical equipment delivery will not be considered a valid reason for substitution.

2.02 FACILITY ELECTRICAL PREVENTIVE MAINTENANCE (EPM) PROGRAM BINDERS

- A. Description: Set of binders containing operation and maintenance data for facility's electrical equipment that was compiled during analysis of installed electrical Work for Facility EPM Program development.
- B. Applicable Standards:
 - 1. Regulatory Requirements: Comply with recommendations in NFPA 70B.
 - 2. General Characteristics:
 - a. Volume 1 - Introduction:
 - 1) Summarize how Facility EPM Program Analysis was performed, how data were collected, and how volumes are organized.
 - 2) Describe Facility EPM Program and provide recommended policies and procedures for implementing the program and keeping it current.
 - 3) Provide place for Owner to identify contact information for employees responsible for implementing and maintaining Facility EPM Program.
 - b. Volume 2 - Facility Safety, Hazards Awareness, and Emergency Procedures:
 - 1) Include training requirements for employees and contractors.

- 2) Include list of known facility hazards impacting IT&R activities.
- 3) Include approval and permitting procedures for IT&R activities.
- 4) Include incident emergency response procedures.
- 5) Include emergency shutdown procedures.
- 6) Include electrical disaster recovery procedures.
- c. Volume 4 - Facility Diagrams and Schedules:
 - 1) Include single-line diagrams.
 - 2) Include grounding and bonding diagrams.
 - 3) Include essential wiring diagrams.
 - 4) Include system automation diagrams (SCADA, BMS, lighting, HVAC, etc.).
 - 5) Include records of switchgear, switchboard, and panelboard schedules.
 - 6) Include time-current curves for overcurrent protective devices.
 - 7) Include list of load-current and overload-relay heaters with related motor nameplate data.
- d. Volume 5 - Inventory of Facility Equipment Using Electrical Power:
 - 1) Include simplified floor plans showing equipment locations.
 - 2) Identify critical equipment (electrical or otherwise).
 - 3) Include identifying designations and nameplate data.
 - 4) Include warranty and maintenance contract information.
- e. Volume 6 - Inventory of Facility Tools, Supplies, and Personnel Protective Equipment:
 - 1) Include schedules of maintenance material items recommended to be stored at facility.
 - 2) Include list of lamp types and photoelectric relays used in facility with ANSI and manufacturers' codes.
 - 3) Include calibration and servicing data for each item.
- f. Volume 7 - Inspection, Testing, and Repair (IT&R) Plan:
 - 1) Include tables showing frequency of activities for each item.
 - 2) Include annual schedule with activities mapped to specific days of the year.
 - 3) Include exterior pole inspection and repair procedures.
- g. Volume 8 - Inspection, Testing, and Repair (IT&R) Forms:
 - 1) Per AHJ.
- h. Volume 9 - Inspection, Testing, and Repair (IT&R) Procedures:
 - 1) Per AHJ.
- i. Volume 10 - Spare Parts List:
 - 1) Include list of all parts required to perform IT&R procedures.
 - 2) Identify quantities of which parts are recommended to be stored on-site.
 - 3) Include source contact information and budget cost for each item.
- j. Volume 11 - Construction Project Closeout Record Documentation:
 - 1) Include records of power system studies and photometric studies.
 - 2) Include records of risk assessment studies.
 - 3) Include records of electrical system startup and commissioning activities.
 - 4) Include records of baseline inspections and tests.
 - 5) Include records of baseline infrared photographs with normal light photographs showing the location, direction, angle, and conditions necessary for reproducing each infrared photograph.
 - 6) Include records of baseline settings for adjustable equipment and devices.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:
 1. Per AHJ.
- B. Preinstallation Testing:
 1. Per AHJ.

- C. Evaluation and Assessment:

- 1. Per AHJ.

3.02 PREPARATION

- A. Protection of In-Place Conditions:

- 1. Per Owner.

3.03 DEVELOPMENT OF FACILITY EPM PROGRAM

- A. Facility EPM Program must be developed by qualified EPM specialist.
- B. Conduct Facility EPM Program analysis in accordance with NFPA 70B recommendations.
 - 1. Renovation Projects:
 - a. Facility diagrams must include connected existing equipment for entire facility where known. Areas of uncertainty should be clearly indicated.
 - b. Obtain copies of existing operation and maintenance data and existing Facility EPM Program information from Owner.
 - c. Facility EPM Program analysis should identify existing equipment that does not have available operation and maintenance data, and should explain the Owner's risks because this equipment is not included in Facility EPM Program.
 - d. Data for existing equipment outside scope of Project may be inserted in Facility EPM Program Binders without analysis.
 - e. Data for existing equipment impacted by scope of Project should be analyzed and documented similar to Project's new equipment data as much as possible.
- C. Compile operation and maintenance data from Facility EPM Program analysis and submit Facility EPM Program Binders.

3.04 INSTALLATION OF ELECTRICAL WORK

- A. Unless more stringent requirements are specified in the Contract Documents or manufacturers' written instructions, comply with NFPA 70 and NECA NEIS 1 for installation of Work specified in Division 26. Consult Architect for resolution of conflicting requirements.

3.05 SYSTEM STARTUP

- A. Commissioning Activities:
 - 1. As defined by B32.

3.06 FIELD QUALITY CONTROL

- A. Adminstrant for Low-Voltage Electrical Tests and Inspections (choose one of the following):
 - 1. Engage qualified low-voltage electrical testing and inspecting agency to administer and perform tests and inspections.
 - 2. Engage factory-authorized service representative to administer and perform tests and inspections on components, assemblies, and equipment installations, including connections.
 - 3. Administer and perform tests and inspections with assistance of factory-authorized service representative.
- B. Adminstrant for Field Tests and Inspections of Lighting Installations (choose one of the following):
 - 1. Engage qualified lighting testing and inspecting agency to administer and perform tests and inspections.
 - 2. Engage factory-authorized service representative to administer and perform tests and inspections on components, assemblies, and equipment installations, including connections.
 - 3. Administer and perform tests and inspections with assistance of factory-authorized service representative.

3.07 CLEANING

- A. Waste Management:

1. Dispose of materials per MO.gov PUB2045.

3.08 CLOSEOUT ACTIVITIES

A. Demonstration:

1. Demonstrate to Owner's maintenance and clerical personnel how to operate the following systems and equipment:
 - a. Lighting control devices specified in Section 26 09 23 "Lighting Control Devices."
 - b. Power distribution panelboard if bid alternate is elected.

END OF SECTION

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Copper building wire rated 600 V or less.
 - 2. Aluminum building wire rated 600 V or less.
 - 3. Metal-clad cable, Type MC, rated 600 V or less.
 - 4. Fire-alarm wire and cable.
 - 5. Connectors, splices, and terminations rated 600 V and less.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

1.03 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

PART 2 - PRODUCTS

2.01 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. [Cerro Wire LLC.](#)
 - 2. [Encore Wire Corporation.](#)
 - 3. [General Cable; Prysmian Group North America.](#)
 - 4. [Okonite Company \(The\).](#)
 - 5. [Southwire Company, LLC.](#)
- C. Standards:
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 - 2. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Copper, complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.
- E. Conductor Insulation:
 - 1. Type THHN and Type THWN-2: Comply with UL 83.
 - 2. Type THW and Type THW-2: Comply with NEMA WC-70/ICEA S-95-658 and UL 83.
 - 3. Type XHHW-2: Comply with UL 44.

2.02 ALUMINUM BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn aluminum current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Cerro Wire LLC.
 2. Encore Wire Corporation.
 3. General Cable; Prysmian Group North America.
 4. Okonite Company (The).
 5. Southwire Company, LLC.
- C. Standards:
1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 2. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Aluminum, complying with ASTM B800 and ASTM B801.
- E. Conductor Insulation:
1. Type THHN and Type THWN-2: Comply with UL 83.
 2. Type THW and Type THW-2: Comply with NEMA WC-70/ICEA S-95-658 and UL 83.
 3. Type XHHW-2: Comply with UL 44.

2.03 METAL-CLAD CABLE, TYPE MC

- A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.
- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. AFC Cable Systems; Atkore International.
 2. Encore Wire Corporation.
 3. General Cable; Prysmian Group North America.
 4. Southwire Company, LLC.
- C. Standards:
1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 2. Comply with UL 1569.
 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Circuits:
1. Single circuit.
 2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.
- E. Conductors: Copper, complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.
- F. Ground Conductor: Insulated.
- G. Conductor Insulation:
1. Type TFN/THHN/THWN-2: Comply with UL 83.
 2. Type XHHW-2: Comply with UL 44.
- H. Armor: **[Steel] [Aluminum]**, interlocked.
- I. Jacket: PVC applied over armor.

2.04 FIRE-ALARM WIRE AND CABLE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Allied Wire & Cable Inc.
 2. Genesis Cable Products; Honeywell International, Inc.
 3. PYROTENAX; brand of nVent Electrical plc.
 4. Superior Essex Inc.; subsidiary of LS Corp.

5. [West Penn Wire; brand of Belden, Inc.](#)
- B. General Wire and Cable Requirements: NRTL listed and labeled as complying with NFPA 70, Article 760.
- C. Signaling Line Circuits: Twisted, shielded pair, not less than No. 18 AWG.
- D. Non-Power-Limited Circuits: Solid-copper conductors with 600 V rated, 75 deg C, color-coded insulation, and complying with requirements in UL 2196 for a two-hour rating.
 1. Low-Voltage Circuits: No. 16 AWG, minimum, in pathway.
 2. Line-Voltage Circuits: No. 12 AWG, minimum, in pathway.

2.05 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. [Manufacturers](#): Subject to compliance with requirements, provide products by one of the following:
 1. [3M Electrical Products.](#)
 2. [ABB, Electrification Business.](#)
 3. [AFC Cable Systems; Atkore International.](#)
 4. [Hubbell Utility Solutions; Hubbell Incorporated.](#)
 5. [ILSCO.](#)
 6. [Ideal Industries, Inc.](#)
 7. [NSi Industries LLC.](#)
 8. [O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.](#)
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
 1. Material: Aluminum.
 2. Type: One or Two hole with standard barrels.
 3. Termination: Crimp.

PART 3 - EXECUTION

3.01 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders:
 1. Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
 2. Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Conductors must be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits:
 1. Copper, Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
 2. Copper, Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.
- C. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

3.02 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN/THWN-2, single conductors in raceway Type XHHW-2, single conductors in raceway.
- B. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway Type XHHW-2, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.

- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway Type XHHW-2, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway Metal-clad cable, Type MC.
- G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway Type XHHW-2, single conductors in raceway.

3.03 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 26 05 33 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 26 05 29 "Hangers and Supports for Electrical Systems."

3.04 INSTALLATION OF FIRE-ALARM WIRE AND CABLE

- A. Comply with NFPA 72.
- B. Wiring Method: Install wiring in metal pathway according to Section 28 05 28 "Pathways for Electronic Safety and Security."
 - 1. Install plenum cable in environmental airspaces, including plenum ceilings.
 - 2. Fire-alarm circuits and equipment control wiring associated with fire-alarm system must be installed in a dedicated pathway system.
 - a. Cables and pathways used for fire-alarm circuits, and equipment control wiring associated with fire-alarm system, may not contain any other wire or cable.
 - 3. Fire-Rated Cables: Use of two-hour, fire-rated fire-alarm cables, NFPA 70, Types MI and CI, is permitted.
 - 4. Signaling Line Circuits: Power-limited fire-alarm cables **[may]** **[must not]** be installed in the same cable or pathway as signaling line circuits.
- C. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with fire-alarm system to terminal blocks. Mark each terminal according to system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
- D. Color-Coding: Color-code fire-alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and another for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire-alarm system junction boxes and covers red.

- E. Wiring to Remote Alarm Transmitting Device: 1 inch conduit between the fire-alarm control panel and the transmitter. Install number of conductors and electrical supervision for connecting wiring as needed to suit monitoring function.

3.05 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least **[6 inch] [12 inch]** of slack.
- D. Comply with requirements in Section 28 46 21.11 "Addressable Fire-Alarm Systems" for connecting, terminating, and identifying wires and cables.

3.06 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 26 05 53 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor and identify as spare conductor.

3.07 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.08 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 07 84 13 "Penetration Firestopping."

END OF SECTION

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SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Grounding and bonding conductors.
 - 2. Grounding and bonding clamps.
 - 3. Grounding and bonding bushings.
 - 4. Grounding and bonding connectors.
 - 5. Grounding and bonding busbars.
 - 6. Grounding (earthing) electrodes.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.

1.02 ACTION SUBMITTALS

- A. Product Data:
 - 1. For each type of product indicated.
- B. Shop Drawings: Plans showing dimensioned locations of grounding features described in "Field Quality Control" Article, including the following:
 - 1. Rod electrodes.
- C. Field Quality-Control Submittals:
 - 1. Field quality-control reports.

1.03 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data:
 - 1. In addition to items specified in Section 26 00 10 "Supplemental Requirements for Electrical," include the following:
 - a. Plans showing locations of grounding features described in "Field Quality Control" Article, including the following:
 - 1) Rod electrodes.

PART 2 - PRODUCTS

2.01 GROUNDING AND BONDING CONDUCTORS

- A. Equipment Grounding Conductor:
 - 1. General Characteristics: 600 V, THHN/THWN-2 or THWN-2, copper wire or cable, green color, in accordance with Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."
- B. ASTM - Bare Copper Grounding and Bonding Conductor:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ERICO; brand of nVent Electrical plc.
 - b. Harger Lightning & Grounding; business of Harger, Inc.
 - 2. Referenced Standards: Complying with one or more of the following:
 - a. Soft or Annealed Copper Wire: ASTM B3
 - b. Concentric-Lay Stranded Copper Conductor: ASTM B8.
 - c. Tin-Coated Soft or Annealed Copper Wire: ASTM B33.
 - d. 19-Wire Combination Unilay-Stranded Copper Conductor: ASTM B787/B787M.
- C. UL KDER - Armored Grounding Wire:

1. Description: Single corrosion-resistant copper, aluminum, or copper-clad aluminum conductor within helically formed steel armor.
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Southwire Company, LLC.
 - b. Superior Essex Inc.; subsidiary of LS Corp.
 3. Regulatory Requirements:
 - a. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 4. Listing Criteria:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
- D. UL KDSH - Protector Grounding Conductor:
1. Description: Conductors intended to be used for grounding primary protector or metallic members of cable sheath in accordance with Chapters 7 and 8 of NFPA 70.
 2. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Superior Essex Inc.; subsidiary of LS Corp.
 3. Regulatory Requirements:
 - a. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction and marked for intended location and application.
 4. Listing Criteria:
 - a. Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
 5. Options:
 - a. Color: Light olive gray or green.

2.02 GROUNDING AND BONDING CLAMPS

- A. Description: Clamps suitable for attachment of grounding and bonding conductors to grounding electrodes, pipes, tubing, and rebar. Grounding and bonding clamps specified in this article are also suitable for use with communications applications; see Section 27 05 26 "Grounding and Bonding for Communications Systems," for selection and installation guidelines.
- B. Performance Criteria:
1. Regulatory Requirements:
 - a. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 2. Listing Criteria:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - b. Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
- C. UL KDER and KDSH - Hex-Fitting-Type Pipe and Rod Grounding and Bonding Clamp:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Cooper B-line; brand of Eaton, Electrical Sector.
 - b. ERICO; brand of nVent Electrical plc.
 - c. ILSCO.
 2. General Characteristics:
 - a. Two pieces with zinc-plated or stainless steel bolts.
 - b. Clamp Material: Silicon bronze, Die-cast zinc alloy.
 - c. Listed for outdoor use.
- D. UL KDER and KDSH - U-Bolt-Type Pipe and Rod Grounding and Bonding Clamp:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. ERICO; brand of nVent Electrical plc.
 - b. ILSCO.
 - c. Panduit Corp.
 - d. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 2. General Characteristics:
 - a. Clamp Material: Brass Tinned brass.
 - b. Listed for outdoor use.
- E. UL KDER and KDSH - Strap-Type Pipe and Rod Grounding and Bonding Clamp:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Burndy; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. ERICO; brand of nVent Electrical plc.
 - d. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - e. Panduit Corp.
 2. General Characteristics:
 - a. Clamp Material: Copper Tinned copper Galvanized steel.
 - b. Listed for outdoor use.
- F. UL KDER - Beam Grounding and Bonding Clamp:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. ABB, Electrification Business.
 - b. Anderson; brand of Hubbell Utility Solutions; Hubbell Incorporated.
 - c. Panduit Corp.
 - d. Penn-Union Corp.; subsidiary of NESCO, Inc.
 2. General Characteristics: Mechanical-type, terminal, ground wire access from four directions; with dual, tin-plated or silicon bronze bolts.
- G. UL KDER - Exothermically Welded Connection:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. ABB, Electrification Business.
 - b. ALLTEC LLC.
 - c. Continental Industries; brand of Hubbell Utility Solutions; Hubbell Incorporated.
 - d. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - e. ERICO; brand of nVent Electrical plc.
 - f. Harger Lightning & Grounding; business of Harger, Inc.
 2. General Characteristics: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.03 GROUNDING AND BONDING BUSHINGS

- A. Description: Bonding bushings connect conduit fittings, tubing fittings, threaded metal conduit, and unthreaded metal conduit to metal boxes and equipment enclosures and have one or more bonding screws intended to provide electrical continuity between bushing and enclosure. Grounding bushings have provision for connection of bonding or grounding conductor and may or may not also have bonding screws.
- B. Performance Criteria:
 1. Regulatory Requirements:

- a. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Listing Criteria:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
- C. UL KDER - Bonding Bushing:
 - 1. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. [ABB, Electrification Business.](#)
 - b. [Arlington Industries, Inc.](#)
 - c. [Crouse-Hinds; brand of Eaton, Electrical Sector.](#)
 - d. [Killark; brand of Hubbell Electrical Solutions; Hubbell Incorporated.](#)
 - e. [O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.](#)
 - f. [Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.](#)
 - 2. General Characteristics: Threaded bushing with insulated throat.
- D. UL KDER - Grounding Bushing:
 - 1. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. [ABB, Electrification Business.](#)
 - b. [Arlington Industries, Inc.](#)
 - c. [Crouse-Hinds; brand of Eaton, Electrical Sector.](#)
 - d. [Killark; brand of Hubbell Electrical Solutions; Hubbell Incorporated.](#)
 - e. [O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.](#)
 - f. [Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.](#)
 - 2. General Characteristics: Threaded bushing with insulated throat and mechanical-type wire terminal.

2.04 GROUNDING AND BONDING CONNECTORS

- A. Performance Criteria:
 - 1. Regulatory Requirements:
 - a. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Listing Criteria:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - b. Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
- B. UL KDER - Pressure-Type Grounding and Bonding Busbar Cable Connector:
 - 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. [ABB, Electrification Business.](#)
 - b. [Burndy; brand of Hubbell Electrical Solutions; Hubbell Incorporated.](#)
 - 2. General Characteristics: Copper or copper alloy, for compression bonding of one or more conductor directly to copper busbar. Listed for direct burial.
- C. UL KDER - Lay-In Lug Mechanical-Type Grounding and Bonding Busbar Terminal:
 - 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. [ABB, Electrification Business.](#)
 - b. [Chatsworth Products, Inc.](#)
 - c. [Greaves Corp.; Essex Products Group, Inc.](#)

- d. [ILSCO](#).
- 2. General Characteristics: Mechanical-type, copper rated for direct burial terminal with set screw.
- D. UL KDER - Crimped Lug Pressure-Type Grounding and Bonding Busbar Terminal:
 - 1. [Manufacturers](#): Subject to compliance with requirements, provide products by one of the following:
 - a. [ABB, Electrification Business](#).
 - b. [Harger Lightning & Grounding; business of Harger, Inc.](#)
 - c. [ILSCO](#).
 - 2. General Characteristics: Cast silicon bronze, solderless compression-type wire terminals; with long barrel and two holes spaced on 5/8 or 1 inch centers for two-bolt connection to busbar.
- E. UL KDER - Split-Bolt Service-Post Pressure-Type Grounding and Bonding Busbar Terminal:
 - 1. [Manufacturers](#): Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. [Panduit Corp.](#)
 - 2. General Characteristics: Bolts that surround cable and bond to cable under compression when nut is tightened after assembly is screwed into busbar opening.
- F. UL KDER - Crimped Pressure-Type Grounding and Bonding Cable Connector:
 - 1. [Manufacturers](#): Subject to compliance with requirements, provide products by one of the following:
 - a. [ABB, Electrification Business](#).
 - b. [Burdny; brand of Hubbell Electrical Solutions; Hubbell Incorporated](#).
 - c. [ILSCO](#).
 - d. [allG Fabrication \(formerly ALT\)](#).
 - 2. General Characteristics: Crimp-and-compress connectors that bond to conductor when connector is compressed around conductor.
 - a. Copper Copper alloy Tinned copper, C and H shaped.
- G. UL KDER - Split-Bolt Pressure-Type Grounding and Bonding Cable Connector:
 - 1. [Manufacturers](#): Subject to compliance with requirements, provide products by one of the following:
 - a. [ABB, Electrification Business](#).
 - b. [ERICO; brand of nVent Electrical plc](#).
 - c. [Greaves Corp.; Essex Products Group, Inc.](#)
 - d. [allG Fabrication \(formerly ALT\)](#).
 - 2. General Characteristics: Bolts that surround cable and bond to cable under compression when nut is tightened.
 - a. Copper Copper alloy Tinned copper.

2.05 GROUNDING AND BONDING BUSBARS

- A. Description: Miscellaneous grounding and bonding device that serves as common connection for multiple grounding and bonding conductors.
- B. Performance Criteria:
 - 1. Regulatory Requirements:
 - a. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Listing Criteria:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
- C. UL KDER - Equipment Room Grounding and Bonding Busbar:
 - 1. [Manufacturers](#): Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. [Chatsworth Products, Inc.](#)
- b. [Cooper B-line; brand of Eaton, Electrical Sector.](#)
- c. [ERICO; brand of nVent Electrical plc.](#)
- d. [ILSCO.](#)
- e. [Panduit Corp.](#)
- 2. General Characteristics:
 - a. Bus: Rectangular bar of annealed copper.
 - b. Mounting Stand-Off Insulators: Lexan or PVC.
 - 1) Comply with UL 891 for use in 600 V switchboards, impulse tested at 5000 V.
- 3. Options:
 - a. Dimensions: 1/4 by 4 inch in cross section; length as indicated on Drawings.
 - b. Predrilled Hole Pattern: 9/32 inch holes spaced 1-1/8 inch apart Suitable for installing specified grounding and bonding connectors.
 - c. Mounting Hardware: Stand-off brackets that provide 2 inch clearance to access rear of bus. Brackets and bolts must be stainless steel.

2.06 GROUNDING (EARTHING) ELECTRODES

- A. Description: Grounding electrodes include rod electrodes, ring electrodes, metal underground water pipes, metal building frames, concrete-encased electrodes, and pipe and plate electrodes.
- B. Performance Criteria:
 - 1. Regulatory Requirements:
 - a. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Listing Criteria:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
- C. UL KDER - Rod Electrode:
 - 1. [Manufacturers:](#) Subject to compliance with requirements, provide products by one of the following:
 - a. [ABB, Electrification Business.](#)
 - b. [Continental Industries; brand of Hubbell Utility Solutions; Hubbell Incorporated.](#)
 - c. [ERICO; brand of nVent Electrical plc.](#)
 - d. [Galvan Industries, Inc.; Electrical Products Division, LLC.](#)
 - e. [Harger Lightning & Grounding; business of Harger, Inc.](#)
 - f. [allG Fabrication \(formerly ALT\).](#)
 - 2. General Characteristics: Copper-clad Zinc-coated steel; 3/4 inch by 10 ft or 5/8 inch by 8 ft.
- D. UL KDER - Plate Electrode:
 - 1. [Manufacturers:](#) Subject to compliance with requirements, provide products by one of the following:
 - a. [ALLTEC LLC.](#)
 - b. [Galvan Industries, Inc.; Electrical Products Division, LLC.](#)
 - 2. General Characteristics: 1/4 inch thick, hot-dip galvanized.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine facility's grounding electrode system and equipment grounding for compliance with requirements for maximum ground-resistance level and other conditions affecting performance of grounding and bonding of electrical system.
- B. Inspect test results of grounding system measured at point of electrical service equipment connection.

- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with connection of electrical service equipment only after unsatisfactory conditions have been corrected.

3.02 SELECTION OF BUSBARS

- A. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - 1. Install bus horizontally, on insulated spacers 2 inch minimum from wall, 6 inch above finished floor unless otherwise indicated.
 - 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

3.03 SELECTION OF GROUNDING AND BONDING CONDUCTORS

- A. Conductors: Install solid conductor for 8 AWG and smaller, and stranded conductors for 6 AWG and larger unless otherwise indicated.
- B. Custom-Length Insulated Equipment Bonding Jumpers: 6 AWG, 19-strand, Type THHN.
- C. Bonding Cable: 28 kcmil, 14 strands of 17 AWG conductor, 1/4 inch in diameter.
- D. Bonding Conductor: 4 AWG or 6 AWG, stranded conductor.
- E. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inch wide and 1/16 inch thick.
- F. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inch wide and 1/16 inch thick.
- G. Underground Grounding Conductors: Install bare tinned-copper conductor, 2/0 AWG minimum.
 - 1. Bury at least 30 inch below grade.
 - 2. Duct-Bank Grounding Conductor: Bury 12 inch above duct bank when indicated as part of duct-bank installation.

3.04 SELECTION OF CONNECTORS

- A. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.05 INSTALLATION

- A. Comply with manufacturer's published instructions.
- B. Reference Standards:
 - 1. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.
 - 2. Consult Architect for resolution of conflicting requirements.
- C. Special Techniques:
 - 1. Conductors:
 - a. Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

2. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
 - a. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 - b. Make connections with clean, bare metal at points of contact.
 - c. Make aluminum-to-steel connections with stainless steel separators and mechanical clamps.
 - d. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
 - e. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
 - f. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1) Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate adjacent parts.
 - 2) Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
 - 3) Use exothermic-welded connectors for outdoor locations; if disconnect-type connection is required, use bolted clamp.
 - g. Grounding and Bonding for Piping:
 - 1) Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use bolted clamp connector or bolt lug-type connector to pipe flange by using one of lug bolts of flange. Where dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 - 2) Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with bolted connector.
 - 3) Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
 - h. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.
 - i. Grounding for Steel Building Structure: Install driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 ft apart.
3. Electrodes:
 - a. Ground Rods: Drive rods until tops are 2 inch below finished floor or final grade unless otherwise indicated.
 - 1) Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
 - 2) Use exothermic welds for below-grade connections.
 - b. For grounding electrode system, install at least **[three]** **<Insert number>** rods spaced at least one-rod length from each other and located at least same distance from other grounding electrodes, and connect to service grounding electrode conductor.
 - c. Ring Electrode: Install grounding conductor, electrically connected to each building structure ground rod and to each **[steel column]** **[indicated item]**, extending around perimeter of **[building]** **[area or item indicated]**.

- 1) Install tinned-copper conductor not less than [2/0 AWG] <Insert wire size> for ring electrode and for taps to building steel.
 - 2) Bury ring electrode not less than [24 inch] <Insert dimension> from building's foundation.
4. Grounding at Service:
- a. Equipment grounding conductors and grounding electrode conductors must be connected to ground bus. Install main bonding jumper between neutral and ground buses.
5. Equipment Grounding:
- a. Install insulated equipment grounding conductors with feeders and branch circuits.
 - b. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1) Feeders and branch circuits.
 - 2) Lighting circuits.
 - 3) Receptacle circuits.
 - 4) Single-phase motor and appliance branch circuits.
 - 5) Three-phase motor and appliance branch circuits.
 - 6) Flexible raceway runs.
 - 7) Armored and metal-clad cable runs.
 - 8) Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
 - c. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
 - d. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
 - e. Isolated Grounding Receptacle Circuits: Install insulated equipment grounding conductor connected to receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of applicable derived system or service unless otherwise indicated.

3.06 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with calibrated torque wrench in accordance with manufacturer's published instructions.
3. Test completed grounding system at each location where maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at individual ground rods. Make tests at ground rods before conductors are connected.
 - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method in accordance with IEEE Std 81.
 - c. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.
4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order,

and key to record of tests and observations. Include number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

B. Nonconforming Work:

1. Grounding system will be considered defective if it does not pass tests and inspections.
2. Remove and replace defective components and retest.

C. Collect, assemble, and submit test and inspection reports.

1. Report measured ground resistances that exceed the following values:
 - a. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 Ω .
 - b. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 Ω .

3.07 PROTECTION

- A. After installation, protect grounding and bonding cables and equipment from construction activities. Remove and replace items that are contaminated, defaced, damaged, or otherwise caused to be unfit for use prior to acceptance by Owner.

END OF SECTION

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Steel slotted support systems.
 - 2. Conduit and cable support devices.
 - 3. Support for conductors in vertical conduit.
 - 4. Structural steel for fabricated supports and restraints.
 - 5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
 - 6. Fabricated metal equipment support assemblies.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For fabrication and installation details for electrical hangers and support systems.
 - 1. Hangers. Include product data for components.
 - 2. Slotted support systems.
 - 3. Equipment supports.
 - 4. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
- C. Delegated Design Submittal: For hangers and supports for electrical systems.
 - 1. Include design calculations and details of hangers.
 - 2. Include design calculations for seismic restraints.

1.03 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified structural professional engineer to design hanger and support system.
- B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame Rating: Class 1.
 - 2. Self-extinguishing according to ASTM D635.

2.02 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32 inch diameter holes at a maximum of 8 inch on center in at least one surface.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Cooper B-line; brand of Eaton, Electrical Sector.
 - b. Unistrut; Atkore International.
2. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
3. Material for Channel, Fittings, and Accessories: Galvanized steel.
4. Channel Width: Selected for applicable load criteria.
5. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
6. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
7. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
8. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs must have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body must be made of malleable iron.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A36/A36M steel plates, shapes, and bars; black and galvanized.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Hilti, Inc.
 - 2) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.
 2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated or stainless steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Cooper B-line; brand of Eaton, Electrical Sector.
 - 2) Empire Industries, Inc.
 - 3) Hilti, Inc.
 - 4) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
 3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM F3125/F3125M, Grade A325.
 6. Toggle Bolts: All or Stainless steel springhead type.
 7. Hanger Rods: Threaded steel.

2.03 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 05 50 00 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.01 SELECTION

- A. Comply with the following standards for selection and installation of hangers and supports, except where requirements on Drawings or in this Section are stricter:
 - 1. NECA NEIS 101
 - 2. NECA NEIS 102.
 - 3. NECA NEIS 105.
 - 4. NECA NEIS 111.
- B. Comply with requirements in Section 07 84 13 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- C. Comply with requirements for raceways and boxes specified in Section 26 05 33 "Raceway and Boxes for Electrical Systems."
- D. Provide vibration and [seismic] controls with hangers and supports in accordance with requirements specified in "Section 26 05 48 "Vibration and Seismic Controls for Electrical Systems."
- E. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and ERM as required by NFPA 70. Minimum rod size must be 1/4 inch in diameter.
- F. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with two-bolt conduit clamps.
- G. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2 inch and smaller raceways serving branch circuits and communication systems above suspended ceilings, and for fastening raceways to trapeze supports.

3.02 INSTALLATION OF SUPPORTS

- A. Comply with NECA NEIS 101 for installation requirements except as specified in this article.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination must be weight of supported components plus 200 lb.
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inch thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inch thick.

6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69 Spring-tension clamps.
 7. To Light Steel: Sheet metal screws.
 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that comply with seismic-restraint strength and anchorage requirements.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.03 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Section 05 50 00 "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M. Submit welding certificates.

END OF SECTION

SECTION 26 05 33

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Metal conduits, tubing, and fittings.
 - 2. Nonmetal conduits, tubing, and fittings.
 - 3. Metal wireways and auxiliary gutters.
 - 4. Surface raceways.
 - 5. Boxes, enclosures, and cabinets.
 - 6. Handhole and boxes for exterior underground cabling.

1.03 DEFINITIONS

- A. ARC: Aluminum rigid conduit.
- B. GRC: Galvanized rigid steel conduit.
- C. IMC: Intermediate metal conduit.

1.04 ACTION SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.05 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:
 - 1. Structural members in paths of conduit groups with common supports.
 - 2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.
- B. Qualification Data: For professional engineer.

PART 2 - PRODUCTS

2.01 METAL CONDUITS, TUBING, AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Allied Tube & Conduit; a Tyco International Ltd. Co.
 - 3. Anamet Electrical, Inc.
 - 4. Electri-Flex Company.
 - 5. O-Z/Gedney; a brand of EGS Electrical Group.
 - 6. Picoma Industries, a subsidiary of Mueller Water Products, Inc.
 - 7. Republic Conduit.
 - 8. Robroy Industries.
 - 9. Southwire Company.
 - 10. Thomas & Betts Corporation.
 - 11. Western Tube and Conduit Corporation.
 - 12. Wheatland Tube Company; a division of John Maneely Company.

- B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. GRC: Comply with ANSI C80.1 and UL 6.
- D. ARC: Comply with ANSI C80.5 and UL 6A.
- E. IMC: Comply with ANSI C80.6 and UL 1242.
- F. EMT: Comply with ANSI C80.3 and UL 797.
- G. FMC: Comply with UL 1; zinc-coated steel or aluminum.
- H. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- I. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
 - 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
 - 2. Fittings for EMT:
 - a. Material: Steel or die cast.
 - b. Type: Setscrew or compression.
 - 3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
 - 4. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.
- J. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.02 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Anamet Electrical, Inc.
 - 3. Arnco Corporation.
 - 4. CANTEX Inc.
 - 5. CertainTeed Corp.
 - 6. Condux International, Inc.
 - 7. Electri-Flex Company.
 - 8. Kraloy.
 - 9. Lamson & Sessions; Carlon Electrical Products.
 - 10. Niedax-Kleinhuis USA, Inc.
 - 11. RACO; a Hubbell company.
 - 12. Thomas & Betts Corporation.
- B. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- D. LFNC: Comply with UL 1660.
- E. Continuous HDPE: Comply with UL 651B.
- F. RTRC: Comply with UL 1684A and NEMA TC 14.
- G. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
- H. Fittings for LFNC: Comply with UL 514B.

2.03 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper B-Line, Inc.
 - 2. Hoffman; a Pentair company.
 - 3. Mono-Systems, Inc.
 - 4. Square D; a brand of Schneider Electric.

- B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.
 - 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways for complete system.
- D. Wireway Covers: Screw-cover type unless otherwise indicated.
- E. Finish: Manufacturer's standard enamel finish.

2.04 SURFACE RACEWAYS

- A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Panduit Corp.
 - b. Wiremold / Legrand.

2.05 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Adalet.
 - 2. Cooper Technologies Company; Cooper Crouse-Hinds.
 - 3. EGS/Appleton Electric.
 - 4. Erickson Electrical Equipment Company.
 - 5. FSR Inc.
 - 6. Hoffman; a Pentair company.
 - 7. Hubbell Incorporated; Killark Division.
 - 8. Kraloy.
 - 9. Milbank Manufacturing Co.
 - 10. Mono-Systems, Inc.
 - 11. O-Z/Gedney; a brand of EGS Electrical Group.
 - 12. RACO; a Hubbell Company.
 - 13. Robroy Industries.
 - 14. Spring City Electrical Manufacturing Company.
 - 15. Stahlin Non-Metallic Enclosures; a division of Robroy Industries.
 - 16. Thomas & Betts Corporation.
 - 17. Wiremold / Legrand.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- E. Non-metallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- F. Metal Floor Boxes:
 - 1. Material: Cast metal.
 - 2. Type: Fully adjustable.
 - 3. Shape: Rectangular.
 - 4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- G. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

- H. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- I. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.
- J. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- K. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.
- L. Gangable boxes are allowed.
- M. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Plastic.
 - 3. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
- N. Cabinets:
 - 1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 - 2. Hinged door in front cover with flush latch and concealed hinge.
 - 3. Key latch to match panelboards.
 - 4. Metal barriers to separate wiring of different systems and voltage.
 - 5. Accessory feet where required for freestanding equipment.
 - 6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.06 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. General Requirements for Handholes and Boxes:
 - 1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
 - 2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Armorcast Products Company.
 - b. Carson Industries LLC.
 - c. CDR Systems Corporation; Hubbell Power Systems.
 - d. NewBasis.
 - e. Oldcastle Precast, Inc.; Christy Concrete Products.
 - f. Synertech Moulded Products; a division of Oldcastle Precast, Inc.
 - 2. Standard: Comply with SCTE 77.
 - 3. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
 - 4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
 - 5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 - 6. Cover Legend: Molded lettering, "ELECTRIC".
 - 7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
 - 8. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.
- C. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with frame and covers of polymer concrete.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Armorcast Products Company.

- b. Carson Industries LLC.
- c. CDR Systems Corporation; Hubbell Power Systems.
- d. NewBasis.
- e. Nordic Fiberglass, Inc.
- f. Oldcastle Precast, Inc.; Christy Concrete Products.
- g. Synertech Moulded Products; a division of Oldcastle Precast, Inc.
- 2. Standard: Comply with SCTE 77.
- 3. Color of Frame and Cover: Gray.
- 4. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
- 5. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
- 6. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
- 7. Cover Legend: Molded lettering, "ELECTRIC."
- 8. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
- 9. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.07 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

- A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
 - 1. Tests of materials shall be performed by an independent testing agency.
 - 2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
 - 3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012 and traceable to NIST standards.

PART 3 - EXECUTION

3.01 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed Conduit: GRC or IMC.
 - 2. Concealed Conduit, Aboveground: GRC, IMC or EMT.
 - 3. Underground Conduit: RNC, Type EPC-80-PVC, direct buried.
 - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed, Not Subject to Physical Damage: EMT.
 - 2. Exposed, Not Subject to Severe Physical Damage: EMT.
 - 3. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 - 5. Damp or Wet Locations: GRC or IMC.
 - 6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 1/2-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
 - 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 - 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.

3. EMT: Use setscrew or compression, steel or cast-metal fittings. Comply with NEMA FB 2.10.
4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.
- F. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- G. Install surface raceways only where indicated on Drawings.
- H. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.02 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for hangers and supports.
- E. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- H. Support conduit within 12 inches of enclosures to which attached.
- I. Raceways Embedded in Slabs:
 1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot intervals.
 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
 3. Arrange raceways to keep a minimum of 2 inches of concrete cover in all directions.
 4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.
 5. Change from ENT to GRC or IMC before rising above floor.
- J. Stub-ups to Above Recessed Ceilings:
 1. Use EMT, IMC, or RMC for raceways.
 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- K. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- L. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- M. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- N. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- O. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

- P. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- Q. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- R. Surface Raceways:
 - 1. Install surface raceway with a minimum 2-inch radius control at bend points.
 - 2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.
- S. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- T. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
 - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2. Where an underground service raceway enters a building or structure.
 - 3. Where otherwise required by NFPA 70.
- U. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- V. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 - 1. Use LFMC in damp or wet locations subject to severe physical damage.
 - 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- W. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- X. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- Y. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- Z. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- AA. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.03 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
 - 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Section 31 20 00 "Earth Moving" for pipe less than 6 inches in nominal diameter.
 - 2. Install backfill as specified in Section 31 20 00 "Earth Moving."
 - 3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 31 20 00 "Earth Moving."

4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Underground Warning Tape: Comply with requirements in Section 26 05 53 "Identification for Electrical Systems."

3.04 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.
- D. Install handholes with bottom below frost line, 30" below grade.
- E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.05 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.06 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 07 84 00 "Firestopping."

3.07 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

END OF SECTION

SECTION 26 05 44

SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Round sleeves.
 - 2. Rectangular sleeves.
 - 3. Sleeve seal systems.
 - 4. Grout.
 - 5. Pourable sealants.
 - 6. Foam sealants.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.01 ROUND SLEEVES

- A. Wall Sleeves, Steel:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Advance Products & Systems, LLC.
 - b. CCI Piping Systems.
 - c. Flexicraft Industries.
 - d. GPT; an EnPro Industries company.
 - 2. Description: ASTM A53/A53M, Type E, Grade B, Schedule 40, zinc coated, plain ends and integral waterstop.
- B. Sheet Metal Sleeves, Galvanized Steel, Round:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Benefast.
 - b. Specified Technologies, Inc.
 - 2. Description: Galvanized-steel sheet; thickness not less than 0.0239-inch; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

2.02 RECTANGULAR SLEEVES

- A. Sheet Metal Sleeves, Galvanized Steel, Rectangular:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Abesco Fire LLC.
 - b. Specified Technologies, Inc.
 - c. Wiremold; Legrand North America, LLC.
 - 2. Description:
 - a. Material: Galvanized sheet steel.
 - b. Minimum Metal Thickness:

- 1) For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness must be 0.052 inch.
- 2) For sleeve cross-section rectangle perimeter not less than 50 inches or with one or more sides larger than 16 inches, thickness must be 0.138 inch.

2.03 SLEEVE SEAL SYSTEMS

- A. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 1. [Advance Products & Systems, LLC.](#)
 2. [BWM Company.](#)
 3. [CALPICO, Inc.](#)
 4. [Flexicraft Industries.](#)
 5. [GPT; a division of EnPRO Industries.](#)
 6. [Metraflex Company \(The\).](#)
 7. [Proco Products, Inc.](#)
- B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and pathway or cable or between pathway and cable.
 1. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
 2. Pressure Plates: Carbon steel, Fiber-reinforced plastic, or Stainless steel.
 3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, or Stainless steel of length required to secure pressure plates to sealing elements.

2.04 GROUT

- A. **Manufacturers:** Subject to compliance with requirements, provide products by the following:
 1. [W. R. Meadows, Inc.](#)
- B. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
 1. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
 2. Design Mix: 5000-psi, 28-day compressive strength.
 3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.01 INSTALLATION OF SLEEVES FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

- A. Comply with NECA 1.
- B. Sleeves for Conduits Penetrating Above-Grade, Non-Fire-Rated, Concrete and Masonry-Unit Floors and Walls:
 1. Interior Penetrations of Non-Fire-Rated Walls and Floors:
 - a. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall or floor so no voids remain. Tool exposed surfaces smooth; protect material while curing.
 - b. Seal annular space between sleeve and pathway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 07 92 00 "Joint Sealants."
 2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
 3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and pathway or cable, unless sleeve seal system is to be installed or seismic criteria require different clearance.
 4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.

5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.
- C. Sleeves for Conduits Penetrating Non-Fire-Rated Wall Assemblies:
 1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
 2. Seal space outside of sleeves with approved joint compound for wall assemblies.
- D. Roof-Penetration Sleeves: Seal penetration of individual pathways and cables with flexible boot-type flashing units applied in coordination with roofing work.
- E. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seal systems. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- F. Underground, Exterior-Wall and Floor Penetrations:
 1. Install steel pipe sleeves with integral water stops. Size sleeves to allow for 1-inch annular clear space between pathway or cable and sleeve for installing sleeve seal system. Install sleeve during construction of floor or wall.
 2. Install steel pipe sleeves. Size sleeves to allow for 1-inch annular clear space between pathway or cable and sleeve for installing sleeve seal system. Grout sleeve into wall or floor opening.

3.02 INSTALLATION OF RECTANGULAR SLEEVES AND SLEEVE SEALS

- A. Install sleeves in existing walls without compromising structural integrity of walls. Do not cut structural elements without reinforcing the wall to maintain the designed weight bearing and wall stiffness.
- B. Install conduits and cable with no crossings within the sleeve.
- C. Fill opening around conduits and cables with expanding foam without leaving voids.
- D. Provide metal sheet covering at both wall surfaces and finish to match surrounding surfaces. Metal sheet must be same material as sleeve.

3.03 INSTALLATION OF SLEEVE SEAL SYSTEMS

- A. Install sleeve seal systems in sleeves in exterior concrete walls and slabs-on-grade at pathway entries into building.
- B. Install type and number of sealing elements recommended by manufacturer for pathway or cable material and size. Position pathway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pathway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

END OF SECTION

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SECTION 26 05 48

VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Restraints - rigid type.
 - 2. Restraints - cable type.
 - 3. Restraint accessories.
 - 4. Post-Installed concrete anchors.
 - 5. Concrete inserts.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.
 - 2. Section 26 05 29 "Hangers and Supports for Electrical Systems" for commonly used electrical supports and installation requirements.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include rated load capacity for each seismic restraint device.
 - 2. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
 - 3. Annotate types and sizes of seismic restraints and accessories, complete with listing markings or report numbers and load rating in tension and compression as evaluated by an agency acceptable to authorities having jurisdiction.
 - 4. Annotate to indicate application of each product submitted and compliance with requirements.
- B. Shop Drawings:
 - 1. Detail fabrication and assembly of equipment bases.
 - 2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
- C. Delegated Design Submittal for Each Seismic-Restraint Device: Signed and sealed by qualified structural professional engineer.
 - 1. For each seismic-restraint device, including restraint - rigid and cable type, restraint accessory, and concrete anchor and insert that is required by this Section or is indicated on Drawings, submit the following:
 - a. Seismic Restraints: Select seismic restraints complying with performance requirements, design criteria, and analysis data.
 - b. Post-Installed Concrete Anchors and Inserts: Include calculations showing anticipated seismic loads. Include certification that device is approved by an NRTL for seismic reinforcement use.
 - c. Seismic Design Calculations: Submit input data and loading calculations prepared under "Seismic Design Calculations" Paragraph in "Performance Requirements" Article.

1.03 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage qualified structural professional engineer to design seismic control system in accordance with criteria specified in Section 26 00 10 "Supplemental Requirements for Electrical" and Section 26 00 11 "Facility Performance Requirements for Electrical."
- B. Seismic Restraint Device Load Ratings: Devices to be tested and rated in accordance with applicable code requirements and authorities having jurisdiction. Devices to be listed by a nationally recognized third party that requires periodic follow-up inspections and has a listing directory available to the public. Provide third-party listing by one or more of the following: an agency acceptable to authorities having jurisdiction.
- C. Consequential Damage: Provide additional seismic restraints for suspended electrical components or anchorage of floor-, roof-, or wall-mounted components so that failure of a non-essential or essential component will not cause failure of any other essential building component.
- D. Fire/Smoke Resistance: Seismic-restraint devices that are not constructed of ferrous metals must have a maximum flame-spread index of 25 and maximum smoke-developed index of 50 when tested by an NRTL in accordance with ASTM E84 or UL 723, and be so labeled.
- E. Component Supports:
 - 1. Load ratings, features, and applications of reinforcement components must be based on testing standards of a nationally recognized testing agency.

2.02 RESTRAINTS - RIGID TYPE

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. CADDY; brand of nVent Electrical plc.
 - 2. Cooper B-line; brand of Eaton, Electrical Sector.
 - 3. Hilti, Inc.
 - 4. Unistrut; Atkore International.
- B. Description: Shop- or field-fabricated bracing assembly made of ANSI/AISI S110-07-S1 slotted steel channels, ANSI/ASTM A53/A53M steel pipe, or other rigid steel brace member. Includes accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; rated in tension, compression, and torsion forces.

2.03 RESTRAINTS - CABLE TYPE

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. CADDY; brand of nVent Electrical plc.
 - 2. Cooper B-line; brand of Eaton, Electrical Sector.
- B. Seismic-Restraint Cables: ASTM A1023/A1023M galvanized or ASTM A603 galvanized-steel cables. End connections made of steel assemblies with thimbles, brackets, swivel, and bolts designed for seismic-restraining cable service; with fittings attached by means of poured socket, swaged socket, or mechanical (Flemish eye) loop.
- C. Restraint cable assembly and cable fittings must comply with ASCE/SEI 19. Cable fittings and complete cable assembly must maintain the minimum cable breaking force. U-shaped cable clips and wedge-type end fittings do not comply and are unacceptable.

2.04 RESTRAINT ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. CADDY; brand of nVent Electrical plc.
 - 2. Cooper B-line; brand of Eaton, Electrical Sector.

3. [Hilti, Inc.](#)
 4. [Mason Industries, Inc.](#)
 5. [Unistrut; Atkore International.](#)
- B. Hanger-Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections or Reinforcing steel angle clamped to hanger rod. Non-metallic stiffeners are unacceptable.
- C. Hinged and Swivel Brace Attachments: Multifunctional steel connectors for attaching hangers to rigid channel bracings and/or restraint cables.
- D. Bushings for Floor-Mounted Equipment Anchor Bolts: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchor bolts and studs.
- E. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings, and matched to type and size of attachment devices used.
- F. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.

2.05 POST-INSTALLED CONCRETE ANCHORS

- A. Mechanical Anchor Bolts:
1. [Manufacturers:](#) Subject to compliance with requirements, provide products by one of the following:
 - a. [Cooper B-line; brand of Eaton, Electrical Sector.](#)
 - b. [Hilti, Inc.](#)
 - c. [Mason Industries, Inc.](#)
 - d. [Unistrut; Atkore International.](#)
 2. Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength for anchor and as tested according to ASTM E488/E488M.
- B. Provide post-installed concrete anchors that have been prequalified for use in seismic and wind-load applications.
1. Prequalify post-installed anchors in concrete in accordance with ACI 355.2 or other approved qualification testing procedures.
 2. Prequalify post-installed anchors in masonry in accordance with approved qualification procedures.
- C. Expansion-type anchor bolts are not permitted for equipment in excess of 10 hp that is not vibration isolated.
1. Undercut expansion anchors are permitted.

2.06 CONCRETE INSERTS

- A. [Manufacturers:](#) Subject to compliance with requirements, provide products by one of the following:
1. [Cooper B-line; brand of Eaton, Electrical Sector.](#)
 2. [Hilti, Inc.](#)
 3. [Mason Industries, Inc.](#)
 4. [Unistrut; Atkore International.](#)
- B. Provide preset concrete inserts that are seismically prequalified in accordance with ICC-ES AC446 testing.
- C. Comply with MSS SP-58.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and equipment to receive seismic control devices for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Examine roughing-in for reinforcement and cast-in-place anchors to verify actual locations before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 APPLICATIONS

- A. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by an agency acceptable to authorities having jurisdiction.
- B. Hanger-Rod Stiffeners: Install where indicated or scheduled on Drawings to receive them and where required to prevent buckling of hanger rods caused by seismic forces.
- C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry static and seismic loads within specified loading limits.

3.03 INSTALLATION OF SEISMIC-RESTRAINT DEVICES

- A. Provide seismic restraint devices for systems and equipment where indicated in Equipment Schedules or Seismic and Wind-Load Controls Schedule, where indicated on Drawings, where the Specifications indicate they are to be installed on specific equipment and systems, and where required by applicable codes.
 - 1. Install equipment and devices to withstand the effects of earthquake motions.
- B. Coordinate location of embedded connection hardware with supported equipment attachment and mounting points and with requirements for concrete reinforcement and formwork specified in Section 03 30 00 "Cast-in-Place Concrete."
- C. Installation of seismic restraints must not cause any stresses, misalignment, or change of position of equipment or conduits.
- D. Equipment Restraints:
 - 1. Install resilient bolt isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch.
 - 2. Install seismic-restrain devices using methods approved by an agency acceptable to authorities having jurisdiction that provides required submittals for component.
- E. Raceway, Cable, Wireway, Cable Tray, and Busway Support and Hanger Restraints:
 - 1. Install resilient bolt isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch.
 - 2. Install seismic-restraint devices using methods approved by an agency acceptable to authorities having jurisdiction that provides required submittals for component.
 - 3. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch.
 - 4. Install seismic-restraint devices using methods approved by an agency acceptable to authorities having jurisdiction providing required submittals for component.
- F. Install cables so they do not bend across edges of adjacent equipment or building structure.
- G. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
- H. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
- I. Post-Installed Concrete Anchors:
 - 1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
 - 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.

3. Mechanical-Type Anchor Bolts: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors must be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Set anchors to manufacturer's recommended torque using a torque wrench.
5. Install zinc-coated steel anchors for interior and stainless steel anchors for exterior applications.

3.04 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

- A. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where connection is terminated to equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

3.05 FIELD QUALITY CONTROL

- A. Field tests must be witnessed by authorities having jurisdiction.
- B. Tests and Inspections:
 1. Perform tests and inspections
 2. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.
 3. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
 4. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
 5. Test no fewer than four of each type and size of installed anchors and fasteners selected by Architect.
 6. Test to 90 percent of rated proof load of device.
- C. Nonconforming Work:
 1. Seismic controls will be considered defective if they do not pass tests and inspections.
 2. Remove and replace malfunctioning units and retest as specified above.
- D. Prepare test and inspection reports.

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SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Identification of power and control cables.
 - 2. Identification for conductors.
 - 3. Underground-line warning tape.
 - 4. Warning labels and signs.
 - 5. Instruction signs.
 - 6. Equipment identification labels.
 - 7. Miscellaneous identification products.

1.03 ACTION SUBMITTALS

- A. Product Data: For each electrical identification product indicated.
- B. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

1.04 QUALITY ASSURANCE

- A. Comply with ANSI A13.1 and IEEE C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.05 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.01 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each cable size.
- B. Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.
- C. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil-thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-laminating,

protective shield over the legend. Labels sized to fit the cable diameter such that the clear shield overlaps the entire printed legend.

- D. Write-On Tags: Polyester tag, 0.010 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.
- E. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of cable it identifies and to stay in place by gripping action.
- F. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of cable it identifies and to stay in place by gripping action.

2.02 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.03 FLOOR MARKING TAPE

- A. 2-inch-wide, 5-mil pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.

2.04 UNDERGROUND-LINE WARNING TAPE

- A. Tape:
 - 1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - 2. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - 3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
- B. Color and Printing:
 - 1. Comply with ANSI Z535.1 through ANSI Z535.5.
 - 2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE,.
 - 3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE,.
 - 4. Pigmented polyolefin, bright-colored, continuous-printed on one side with the inscription of the utility, compounded for direct-burial service.
 - 5. Thickness: 4 mils.
 - 6. Weight: 18.5 lb/1000 sq. ft..
 - 7. 3-Inch Tensile According to ASTM D 882: 30 lbf, and 2500 psi.

2.05 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.
- C. Warning label and sign shall include, but are not limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.06 INSTRUCTION SIGNS

- A. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

- B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.07 EQUIPMENT IDENTIFICATION LABELS

- A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.08 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- F. Attach plastic raceway and cable labels that are not self-adhesive type with clear vinyl tape with adhesive appropriate to the location and substrate.
- G. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches overall.

3.02 IDENTIFICATION SCHEDULE

- A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
 - 1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.
 - a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
 - b. Colors for 208/120-V Circuits:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - c. Colors for 480/277-V Circuits:
 - 1) Phase A: Orange.
 - 2) Phase B: Brown.
 - 3) Phase C: Yellow.
 - d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- B. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive vinyl labels with the conductor or cable designation, origin, and destination.

- C. Control-Circuit Conductor Termination Identification: For identification at terminations provide self-adhesive vinyl labels with the conductor designation.
- D. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.
- E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
 - 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.
- F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
 - 1. Install underground-line warning tape for both direct-buried cables and cables in raceway.
- G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.
 - 1. Comply with 29 CFR 1910.145.
 - 2. Identify system voltage with black letters on an orange background.
 - 3. Apply to exterior of door, cover, or other access.
 - 4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
- I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
- J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch-high letters for emergency instructions at equipment used for power transfer.
- K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
 - 1. Labeling Instructions:
 - a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on 1-1/2-inch-high label; where two lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
 - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
 - d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.
 - 2. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be self-adhesive, engraved, laminated acrylic or melamine label.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Enclosed switches.
 - e. Enclosed circuit breakers.

- f. Contactors.
- g. Remote-controlled switches, dimmer modules, and control devices.
- h. Monitoring and control equipment.

END OF SECTION

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SECTION 26 09 23

LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Switchbox-mounted occupancy sensors.
 - 2. Conductors and Cables.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.
 - 2. Section 26 27 26 "Wiring Devices" for wall-box dimmers, non-networkable wall-switch occupancy sensors, and manual light switches.

1.02 ACTION SUBMITTALS

- A. Product Data:
 - 1. For each type of product.
 - 2. Interconnection diagrams showing field-installed wiring.
 - 3. Include diagrams for power, signal, and control wiring.
- B. Field quality-control reports.

1.03 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's warranties.

PART 2 - PRODUCTS

2.01 SWITCHBOX-MOUNTED OCCUPANCY SENSORS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings <Wattstopper> or comparable product by one of the following:
 - 1. Eaton.
 - 2. Hubbell Control Solutions; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - 3. Leviton Manufacturing Co., Inc.
 - 4. Sensor Switch, Inc.
- B. General Requirements for Sensors: Automatic-wall-switch occupancy sensor with manual on-off switch, suitable for mounting in a single gang switchbox.
 - 1. Listed and labeled in accordance with NFPA 70, by a qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Occupancy Sensor Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn lights off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
 - 3. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F.
 - 4. Switch Rating: Not less than 800 VA ballast or LED load at 120 V, 1200 VA ballast or LED load at 277 V, and 800 W incandescent.
- C. Wall-Switch Sensor:
 - 1. Standard Range: 180-degree field of view, field adjustable from 180 to 40 degrees; with a minimum coverage area of 900 sq. ft..
 - 2. Sensing Technology: Dual technology - PIR and ultrasonic.
 - 3. Switch Type: SP, manual "on," automatic "off."
 - 4. Capable of controlling load in three-way application.
 - 5. Voltage: Dual voltage - 120 and 277 V.

6. Ambient-Light Override: Concealed, field-adjustable, light-level sensor from 10 to 150 fc. The switch prevents the lights from turning on when the light level is higher than the set point of the sensor.
7. Concealed, field-adjustable, "off" time-delay selector at up to 30 minutes.
8. Concealed, "off" time-delay selector at 30 seconds and 5, 10, and 20 minutes.
9. Adaptive Technology: Self-adjusting circuitry detects and memorizes usage patterns of the space and helps eliminate false "off" switching.
10. Color: White.
11. Faceplate: Color matched to switch.

2.02 CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."
- B. Classes 2 and 3 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 18 AWG. Comply with requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."
- C. Class 1 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 18 AWG. Comply with requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.01 INSTALLATION OF SENSORS

- A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression systems, and partition assemblies.
- B. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's instructions.

3.02 INSTALLATION OF WIRING

- A. Wiring Method: Comply with Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size is 1/2 inch.
- B. Wiring within Enclosures: Separate power-limited and nonpower-limited conductors in accordance with conductor manufacturer's instructions.
- C. Size conductors in accordance with lighting control device manufacturer's instructions unless otherwise indicated.
- D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, device, and outlet boxes; terminal cabinets; and equipment enclosures.

3.03 IDENTIFICATION

- A. Identify components and power and control wiring in accordance with Section 26 05 53 "Identification for Electrical Systems."
- B. Label time switches and contactors with a unique designation.

3.04 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Nonconforming Work:

1. Lighting control devices will be considered defective if they do not pass tests and inspections.
 2. Remove and replace defective units and retest.
- C. Prepare test and inspection reports.

3.05 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting lighting control devices to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.
1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.

END OF SECTION 26 09 23

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SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Power panelboards.
 - 2. Disconnecting and overcurrent protective devices.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.

1.02 DEFINITIONS

- A. GFEP: Ground-fault equipment protection.
- B. VPR: Voltage protection rating.

1.03 ACTION SUBMITTALS

- A. Product Data:
 - 1. Power panelboards.
 - 2. Disconnecting and overcurrent protective devices.
 - 3. Include materials, switching and overcurrent protective devices, SPDs, accessories, and components indicated.
 - 4. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details.
 - 2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
 - 3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
 - 4. Detail bus configuration, current, and voltage ratings.
 - 5. Short-circuit current rating of panelboards and overcurrent protective devices.
 - 6. Include evidence of listing, by qualified electrical testing laboratory recognized by authorities having jurisdiction, for series rating of installed devices.
 - 7. Include evidence of listing, by qualified electrical testing laboratory recognized by authorities having jurisdiction, for SPD as installed in panelboard.
 - 8. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
- C. Field Quality-Control Submittals:
 - 1. Field quality-control reports.

1.04 INFORMATIONAL SUBMITTALS

- A. Panelboard Schedules: For installation in panelboards.
- B. Manufacturers' Published Instructions: Record copy of official installation instructions issued to Installer by manufacturer for the following:
 - 1. Recommended procedures for installing panelboards.
 - 2. Recommended torque settings for bolted connections on panelboards.
 - 3. Recommended temperature range for energizing panelboards.
- C. Sample warranties.

1.05 CLOSEOUT SUBMITTALS

- A. Warranty documentation.

PART 2 - PRODUCTS

2.01 PANELBOARDS AND LOAD CENTERS COMMON REQUIREMENTS

- A. Fabricate and test panelboards in accordance with IEEE 344 to withstand seismic forces defined in Section 26 05 48.16 "Seismic Controls for Electrical Systems."
- B. Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70, by qualified electrical testing agency recognized by authorities having jurisdiction, and marked for intended location and application.
- C. Comply with NEMA PB 1.
- D. Comply with NFPA 70.
- E. Enclosures: Surface-mounted, dead-front cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: UL 50E, Type 1.
 - 2. Height: 7 ft maximum.
 - 3. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Trims must cover live parts and may have no exposed hardware.
 - 4. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims must cover live parts and may have no exposed hardware.
- F. Incoming Mains:
 - 1. Location: Top, Bottom, or Convertible between top and bottom.
- G. Phase, Neutral, and Ground Buses:
 - 1. Material: Tin-plated aluminum.
- H. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 1. Material: Tin-plated aluminum.
 - 2. Main and Neutral Lugs: Mechanical type, with lug on neutral bar for each pole in panelboard.
 - 3. Ground Lugs and Bus-Configured Terminators: Mechanical type, with lug on bar for each pole in panelboard.
 - 4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
 - 5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
- I. Quality-Control Label: Panelboards or load centers must be labeled, by qualified electrical testing laboratory recognized by authorities having jurisdiction, for use as service equipment with one or more main service disconnecting and overcurrent protective devices. Panelboards or load centers must have meter enclosures, wiring, connections, and other provisions for utility metering. Coordinate with utility company for exact requirements.
- J. Future Devices: Panelboards or load centers must have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- K. Panelboard Short-Circuit Current Rating:
 - 1. Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by qualified electrical testing laboratory recognized by authorities having jurisdiction. Include label or manual with size and type of allowable upstream and branch devices listed and labeled, by qualified electrical testing laboratory recognized by authorities having jurisdiction, for series-connected short-circuit rating.

2. Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed, by qualified electrical testing laboratory recognized by authorities having jurisdiction, for 100 percent interrupting capacity.
- L. Surge Suppression: Factory installed as integral part of indicated panelboards, complying with UL 1449 SPD Type 2.

2.02 POWER PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. [ABB, Electrification Business.](#)
 2. [Eaton.](#)
 3. [Siemens Industry, Inc., Energy Management Division.](#)
 4. [Square D; Schneider Electric USA.](#)
- B. Listing Criteria: NEMA PB 1, distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
 1. For doors more than 36 inch high, provide two latches, keyed alike.
- D. Mains: Fused switch or Lugs only.
- E. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers Plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.
- F. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers Plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.
- G. Branch Overcurrent Protective Devices: Fused switches.

2.03 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. [ABB, Electrification Business.](#)
 2. [Eaton.](#)
 3. [Siemens Industry, Inc., Energy Management Division.](#)
 4. [Square D; Schneider Electric USA.](#)
- B. MCCB: Comply with UL 489, with series-connected rating to meet available fault currents.
 1. Thermal-Magnetic Circuit Breakers:
 - a. Inverse time-current element for low-level overloads.
 - b. Instantaneous magnetic trip element for short circuits.
 - c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
 3. Electronic Trip Circuit Breakers:
 - a. RMS sensing.
 - b. Field-replaceable rating plug or electronic trip.
 - c. Digital display of settings, trip targets, and indicated metering displays.
 - d. Multi-button keypad to access programmable functions and monitored data.
 - e. Ten-event, trip-history log. Each trip event must be recorded with type, phase, and magnitude of fault that caused trip.
 - f. Integral test jack for connection to portable test set or laptop computer.
 - g. Field-Adjustable Settings:
 - 1) Instantaneous trip.
 - 2) Long- and short-time pickup levels.
 - 3) Long and short time adjustments.
 - 4) Ground-fault pickup level, time delay, and I squared T response.

4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
5. GFCI Circuit Breakers: Single- and double-pole configurations with Class A ground-fault protection (6 mA trip).
6. GFEP Circuit Breakers: Class B ground-fault protection (30 mA trip).
7. Subfeed Circuit Breakers: Vertically mounted.
8. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Breaker handle indicates tripped status.
 - c. UL listed for reverse connection without restrictive line or load ratings.
 - d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
 - e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and HID lighting circuits.
 - f. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
 - g. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
 - h. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.
- C. Fused Switch: NEMA KS 1, Type HD; clips to accommodate specified fuses; lockable handle.
 1. Fuses and Spare-Fuse Cabinet: Comply with requirements specified in Section 26 28 13 "Fuses."

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with manufacturer's published instructions.
- B. Reference Standards:
 1. Panelboards: Unless more stringent requirements are specified in Contract Documents or manufacturers' published instructions, comply with NECA 407.
 2. Consult Architect for resolution of conflicting requirements.
- C. Special Techniques:
 1. Comply with mounting and anchoring requirements specified in Section 26 05 48.16 "Seismic Controls for Electrical Systems."
 2. Mount top of trim 7.5 ft above finished floor unless otherwise indicated.
 3. Mount panelboard cabinet plumb and rigid without distortion of box.
 4. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
 5. Install overcurrent protective devices and controllers not already factory installed.
 - a. Set field-adjustable, circuit-breaker trip ranges.
 6. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.
 7. Install filler plates in unused spaces.
 8. Stub four 1 inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in future. Stub four 1 inch empty conduits into raised floor space or below slab not on grade.

3.02 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 26 05 53 "Identification for Electrical Systems."
- B. Panelboard Nameplates: Label each panelboard with nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

- C. Device Nameplates: Label each branch circuit device in power panelboards with nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."
- D. Install warning signs complying with requirements in Section 26 05 53 "Identification for Electrical Systems" identifying source of remote circuit.
- E. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles must be located on interior of panelboard door.
- F. Breaker Labels: Faceplate must list current rating, UL and IEC certification standards, and AIC rating.
- G. Circuit Directory:
 - 1. Provide directory card inside panelboard door, mounted in transparent card holder or metal frame with transparent protective cover.
 - a. Circuit directory must identify specific purpose with detail sufficient to distinguish it from other circuits.
 - 2. Provide computer-generated circuit directory mounted inside panelboard door with transparent plastic protective cover.
 - a. Circuit directory must identify specific purpose with detail sufficient to distinguish it from other circuits.
 - 3. Create directory to indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.

3.03 FIELD QUALITY CONTROL

- A. Acceptance Testing Preparation:
 - 1. Test continuity of each circuit.
- B. Nonconforming Work:
 - 1. Panelboards will be considered defective if they do not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- C. Collect, assemble, and submit test and inspection reports, including certified report that identifies panelboards included and that describes scanning results, with comparisons of two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 26 24 16

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SECTION 26 28 16

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Fusible switches.
 - 2. Non-fusible switches.
 - 3. Enclosures.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.

1.02 DEFINITIONS

- A. GFEP: Ground-fault circuit-interrupter for equipment protection.
- B. GFLS: Ground-fault circuit-interrupter for life safety.

1.03 ACTION SUBMITTALS

- A. Product Data:
 - 1. For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
 - 2. Enclosure types and details for types other than UL 50E, Type 1.
 - 3. Current and voltage ratings.
 - 4. Short-circuit current ratings (interrupting and withstand, as appropriate).
 - 5. Include evidence of qualified electrical testing laboratory listing for series rating of installed devices.
 - 6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
 - 7. Include plans, elevations, sections, details, and attachments to other work.
 - 8. Include wiring diagrams for power, signal, and control wiring.
- B. Field Quality-Control Submittals:
 - 1. Field quality-control reports.

1.04 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.05 CLOSEOUT SUBMITTALS

- A. Warranty documentation.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- B. Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

2.02 FUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. [ABB, Electrification Business.](#)
 2. [Eaton.](#)
 3. [Siemens Industry, Inc., Energy Management Division.](#)
 4. [Square D; Schneider Electric USA.](#)
- B. Type HD, Heavy Duty:
1. Single Double throw.
 2. Three pole.
 3. 240 600 V(ac).
 4. 1200 A and smaller.
 5. UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate specified or indicated fuses.
 6. Lockable handle with capability to accept three padlocks and interlocked with cover in closed position.
- C. Accessories:
1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
 3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
 4. Service-Rated Switches: Labeled for use as service equipment.

2.03 NONFUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. [ABB, Electrification Business.](#)
 2. [Eaton.](#)
 3. [Siemens Industry, Inc., Energy Management Division.](#)
 4. [Square D; Schneider Electric USA.](#)
- B. Type HD, Heavy Duty, Three Pole, Single Throw, 240 600 V(ac), 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- C. Type HD, Heavy Duty, Six Pole, Single Throw, [240] [600] V(ac), 200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- D. Accessories:
1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
 3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.

2.04 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: UL 489, NEMA KS 1, UL 50E, and UL 50, to comply with environmental conditions at installed location.
- B. Enclosure Finish: Enclosure must be finished with gray baked enamel paint, electrodeposited on cleaned, phosphatized steel (UL 50E Type 1) gray baked enamel paint, electrodeposited on cleaned, phosphatized galvanized steel (UL 50E Types 3R, 12).

- C. Conduit Entry: UL 50E Types 4, 4X, and 12 enclosures may not contain knockouts. UL 50E Types 7 and 9 enclosures must be provided with threaded conduit openings in both end walls.
- D. UL 50E Type 7/9 enclosures must be furnished with breather and drain kit to allow their use in outdoor and wet location applications.

PART 3 - EXECUTION

3.01 SELECTION OF ENCLOSURES

- A. Indoor, Dry and Clean Locations: UL 50E, Type 1.
- B. Outdoor Locations: UL 50E, Type 3R.

3.02 INSTALLATION

- A. Comply with manufacturer's published instructions.
- B. Special Techniques:
 - 1. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
 - 2. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
 - 3. Comply with mounting and anchoring requirements specified in Section 26 05 48.16 "Seismic Controls for Electrical Systems."
 - 4. Temporary Lifting Provisions: Remove temporary lifting of eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
 - 5. Install fuses in fusible devices.

3.03 IDENTIFICATION

- A. Comply with requirements in Section 26 05 53 "Identification for Electrical Systems."
 - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
 - 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.04 FIELD QUALITY CONTROL

- A. Tests and Inspections for Switches:
 - 1. Visual and Mechanical Inspection:
 - a. Inspect physical and mechanical condition.
 - b. Inspect anchorage, alignment, grounding, and clearances.
 - c. Verify that unit is clean.
 - d. Verify blade alignment, blade penetration, travel stops, and mechanical operation.
 - e. Verify that fuse sizes and types match the Specifications and Drawings.
 - f. Verify that each fuse has adequate mechanical support and contact integrity.
 - g. Inspect bolted electrical connections for high resistance using one of the following methods:
 - 1) Use low-resistance ohmmeter.
 - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of lowest value.
 - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
 - a) Bolt-torque levels must be in accordance with manufacturer's published data. In absence of manufacturer's published data, use NETA ATS Table 100.12.
 - h. Verify that operation and sequencing of interlocking systems is as described in the Specifications and shown on Drawings.

- i. Verify correct phase barrier installation.
 - j. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.
 - B. Nonconforming Work:
 - 1. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
 - C. Collect, assemble, and submit test and inspection reports.
 - 1. Test procedures used.
 - 2. Include identification of each enclosed switch and circuit breaker tested and describe test results.
 - 3. List deficiencies detected, remedial action taken, and observations after remedial action.
- 3.05 ADJUSTING**
- A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.

END OF SECTION 26 28 16

SECTION 26 51 19

LED INTERIOR LIGHTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes performance and installation information for interior lighting. Refer to LIGHTING FIXTURE SCHEDULE on drawings for fixture information.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
 - 2. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

1.03 INFORMATIONAL SUBMITTALS

- A. Sample warranty.

1.04 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.05 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
- B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products, and complying with the applicable IES testing standards.
- C. Provide luminaires from a single manufacturer for each luminaire type.
- D. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

1.06 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
- B. Seismic Performance: Luminaires and lamps shall be labeled vibration and shock resistant.
 - 1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified and the luminaire will be fully operational during and after the seismic event."
- C. Ambient Temperature: 41 to 104 deg F.
 - 1. Relative Humidity: Zero to 95 percent.
- D. Altitude: Sea level to 1000 feet.

2.02 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

- B. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.
 - 1. Label shall include the following lamp characteristics:
 - a. "USE ONLY" and include specific lamp type.
 - b. Lamp diameter, shape, size, wattage, and coating.
 - c. CCT and CRI.
- C. Recessed luminaires shall comply with NEMA LE 4.
- D. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.
- E. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

2.03 MATERIALS

- A. Metal Parts:
 - 1. Free of burrs and sharp corners and edges.
 - 2. Sheet metal components shall be steel unless otherwise indicated.
 - 3. Form and support to prevent warping and sagging.
- B. Steel:
 - 1. ASTM A36/A36M for carbon structural steel.
 - 2. ASTM A568/A568M for sheet steel.
- C. Stainless Steel:
 - 1. 1. Manufacturer's standard grade.
 - 2. 2. Manufacturer's standard type, ASTM A240/240M.
- D. Galvanized Steel: ASTM A653/A653M.
- E. Aluminum: ASTM B209.

2.04 METAL FINISHES

- A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.05 LUMINAIRE SUPPORT

- A. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.
- C. Wires: ASTM A641/A641M, Class 3, soft temper, zinc-coated steel, 12 gage.
- D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.
- E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Install lamps in each luminaire.
- D. Supports:
 - 1. Sized and rated for luminaire weight.
 - 2. Able to maintain luminaire position after cleaning and relamping.
 - 3. Provide support for luminaire without causing deflection of ceiling or wall.

4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.
- E. Comply with requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

3.02 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.03 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
- B. Luminaire will be considered defective if it does not pass operation tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 26 51 19

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SECTION 26 52 13

EMERGENCY AND EXIT LIGHTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Emergency lighting.
 - 2. Exit signs.
 - 3. Materials.
 - 4. Luminaire support components.
- B. Related Requirements:
 - 1. Section 26 00 10 "Supplemental Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.

1.02 ACTION SUBMITTALS

- A. Product Data:
 - 1. For each type of emergency lighting unit, exit sign, and emergency lighting support.
 - a. Include data on features, accessories, and finishes.
 - b. Include physical description of unit and dimensions.
 - c. Battery and charger for light units.
 - d. Include life, output of luminaire (lumens, CCT, and CRI), and energy-efficiency data.
 - e. Include photometric data and adjustment factors based on laboratory tests by, or under supervision of, qualified luminaire photometric testing laboratory, for each luminaire type.
- B. Product Schedule:
 - 1. For emergency lighting units. Use same designations indicated on Drawings.
 - 2. For exit signs. Use same designations indicated on Drawings.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING

- A. Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70 and UL 924, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
- B. Comply with NFPA 101.
- C. Comply with NEMA LE 4 for recessed luminaires.
- D. Comply with UL 1598 for fluorescent luminaires.
- E. Lamp Base: Comply with ANSI C81.61.
- F. Bulb Shape: Complying with ANSI C79.1.

2.02 EXIT SIGNS

- A. General Characteristics: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.

2.03 MATERIALS

- A. Metal Parts:
 - 1. Free of burrs and sharp corners and edges.
 - 2. Sheet metal components must be steel unless otherwise indicated.

3. Form and support to prevent warping and sagging.

2.04 METAL FINISHES

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast.

2.05 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- B. Install lamps in each luminaire.
- C. Supports:
 1. Sized and rated for luminaire and emergency power unit weight.
 2. Able to maintain luminaire position when testing emergency power unit.
 3. Provide support for luminaire and emergency power unit without causing deflection of ceiling or wall.
 4. Luminaire-mounting devices must be capable of supporting a horizontal force of 100 percent of luminaire and emergency power unit weight and vertical force of 400 percent of luminaire weight.
- D. Wall-Mounted Luminaire Support:
 1. Attached to outlet box.
 2. Do not attach luminaires directly to gypsum board.
- E. Suspended Luminaire Support:
 1. Pendants and Rods: Where longer than 48 inch, brace to limit swinging.
 2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
 3. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.
- F. Ceiling Grid Mounted Luminaires:
 1. Secure to outlet box, if provided.
 2. Secure emergency power unit using approved fasteners in a minimum of four locations, spaced near corners of emergency power unit.

3.02 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.03 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 1. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
- B. Nonconforming Work:
 1. Luminaire will be considered defective if it does not pass operation tests and inspections.
 2. Remove and replace defective units and retest.

3.04 PROTECTION

- A. Remove and replace luminaires and exit signs that are damaged or caused to be unfit for use by construction activities.

END OF SECTION 26 52 13

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SECTION 26 56 19

LED EXTERIOR LIGHTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Exterior solid-state luminaires that are designed for and exclusively use LED lamp technology.
 - 2. Luminaire supports.
- B. Related Requirements:
 - 1. Section 26 09 23 "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.

1.02 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color rendering index.
- C. Fixture: See "Luminaire."
- D. IP: International Protection or Ingress Protection Rating.
- E. Lumen: Measured output of lamp and luminaire, or both.
- F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of luminaire.
- B. Shop Drawings: For nonstandard or custom luminaires.
 - 1. Include plans, elevations, sections, and mounting and attachment details.
 - 2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include diagrams for power, signal, and control wiring.

1.04 INFORMATIONAL SUBMITTALS

- A. Sample warranty.

1.05 FIELD CONDITIONS

- A. Mark locations of exterior luminaires for approval by Architect prior to the start of luminaire installation.

1.06 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 2 year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Seismic Performance: Luminaires and lamps shall be labeled vibration and shock resistant.

1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified."

2.02 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Luminaires shall be listed and labeled for indicated class and division of hazard by an NRTL.
- C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
- D. UL Compliance: Comply with UL 1598 and listed for wet location.
- E. Lamp base complying with ANSI C81.61 or IEC 60061-1.
- F. CRI of minimum 70. CCT of 4000 K.
- G. L70 lamp life of 50,000 hours minimum.
- H. Lamps dimmable from 100 percent to 0 percent of maximum light output.
- I. Nominal Operating Voltage: 277 V ac.
- J. Lamp Rating: Lamp marked for outdoor use.
- K. Source Limitations:
 1. Obtain luminaires from single source from a single manufacturer.
 2. For luminaires, obtain each color, grade, finish, type, and variety of luminaire from single source with resources to provide products of consistent quality in appearance and physical properties.

2.03 LUMINAIRE TYPES: Refer to drawings.

2.04 MATERIALS

- A. Metal Parts: Free of burrs and sharp corners and edges.
- B. Sheet Metal Components: Epoxy-coated steel. Form and support to prevent warping and sagging.
- C. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.
- D. Diffusers and Globes:
 1. Acrylic Diffusers: 100 percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
 2. Glass: Annealed crystal glass unless otherwise indicated.
 3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.
- E. Lens and Refractor Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
- F. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:
 1. White Surfaces: 85 percent.
 2. Specular Surfaces: 83 percent.
 3. Diffusing Specular Surfaces: 75 percent.
- G. Housings:
 1. Rigidly formed, weather- and light-tight enclosure that will not warp, sag, or deform in use.
 2. Provide filter/breather for enclosed luminaires.

2.05 FINISHES

- A. Variations in Finishes: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- B. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.
- C. Factory-Applied Finish for Steel luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1 or SSPC-SP 8.
 - 2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.

2.06 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

- A. Comply with NECA 1.
- B. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- C. Install lamps in each luminaire.
- D. Fasten luminaire to structural support.
- E. Supports:
 - 1. Sized and rated for luminaire weight.
 - 2. Able to maintain luminaire position after cleaning and relamping.
 - 3. Support luminaires without causing deflection of finished surface.
 - 4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.
- F. Wall-Mounted Luminaire Support:
 - 1. Attached to structural members in walls, Attached to a minimum 1/8 inch backing plate attached to wall structural members.
- G. Wiring Method: Install cables in raceways. Conceal raceways and cables.
- H. Install luminaires level, plumb, and square with finished grade unless otherwise indicated.
- I. Coordinate layout and installation of luminaires with other construction.
- J. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.
- K. Comply with requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables" and Section 26 05 33 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.

3.02 INSTALLATION OF INDIVIDUAL GROUND-MOUNTED LUMINAIRES

- A. Aim as indicated on Drawings.

- B. Install on concrete base with top 4 inches above finished grade or surface at luminaire location. Cast conduit into base, and finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Section 03 30 00 "Cast-in-Place Concrete."

3.03 CORROSION PREVENTION

- A. Steel Conduits: Comply with Section 26 05 33 "Raceways and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch-thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.04 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.05 FIELD QUALITY CONTROL

- A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.
- B. Perform the following tests and inspections:
 - 1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 - 2. Verify operation of photoelectric controls.
- C. Luminaire will be considered defective if it does not pass tests and inspections.

END OF SECTION 26 56 19



Memorandum

To: City Council

From: Mayor Hoffman, Nominating Committee Chair

Date: 06/21/2023

Re: Recommendations for annual appointments and reappointments to boards, committees and commissions

The Nominating Committee met on Wednesday, June 7, 2023 at 12:30 PM, Monday, June 12, 2023 at 4:00 PM and Wednesday June 21, 2023 at 8:45 AM and recommend the following appointments and reappointments.

Arts

- Lisa Hilton– reappoint for 3 yr (exp 6/30/2026)
- Linda Kusmer– reappoint for 3 yr (exp 6/30/2026)

Building Code Board of Appeals

- Farhad Jadahli – reappoint for 3 yr (exp 6/30/2026)
- Victor Don Perrin– reappoint for 3 yr (exp 6/30/2026)

Economic Development

- Warren Davis- reappoint for 3 yr (exp 6/30/2026)
- Lon Zimmerman – reappoint for 3 yr (exp 6/30/2026)

Energy and Environment

- Joseph Gaied- appoint for 3 yr (exp 6/30/2026)
- Saranya Konala – reappoint for 3 yr (exp 6/30/2026)
- Karen Kuratnick- removal from committee

Finance

- Betty Kagan- reappoint for 3 yr (exp 6/30/2026)
- Paul Gallant- reappoint for 3yr (exp 6/30/2026)
- Stephen Keyser- appoint for 3 yr (exp 6/30/2026)
- David Sentnor- appoint for 3 yr (exp 6/30/2026)

Horticulture, Ecology, and Beautification

- Paulette Pierson – reappoint for 3 yr (exp 6/30/2026)

Parks and Historic Preservation

- Nanci Allen – reappoint for 3 yr (exp 6/30/2026)
- Richard Darrow - reappoint for 3 yr (exp 6/30/2026)
- Joseph Harrison - reappoint for 3 yr (exp 6/30/2026)

Personnel Appeals

- Ronald Compton - appoint for 3 yr (exp 6/30/2026)
- Kirk Williams - reappoint for 3 yr (exp 6/30/2026)

Planning and Zoning

- AJ Wang – reappoint for 3 yr (exp 06/30/2026)
- Larry Potashnick- reappoint for 3yr (exp 6/30/2026)

Police and Safety

- Lloyd Nolan – reappoint for 3yr (exp 6/30/2026)
- Al Schopp – reappoint for 3yr (exp 6/30/2026)
- William Spieler- reappoint for 3yr (exp 6/30/2026)

Storm Water

- Patrick Brown- reappoint for 3 yr (exp 6/30/2026)