REGULAR MEETING
AGENDA
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
OCTOBER 23, 2023
7:00 PM

ZOOM MEETING INFORMATION

Members of the public may access live audio and/or video at the following link:

https://us02web.zoom.us/j/87871077632
1 312 626 6799
Webinar ID: 878 7107 7632

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 October 9, 2023 City Council Joint Work Session Minutes**
2. **Approval of October 9, 2023 City Council Regular Meeting Minutes**

BILLS PAYABLE REPORT

For Information Only: **Invoices Paid Listing 10-5-23 to 10-18-23**

UNFINISHED BUSINESS

3. **Bill No. 6089- An Ordinance Authorizing a Change of Zoning from "RO" Research Office District to the Olia Village "PMD" Planned Mixed-Use Development District and Approving the Site Concept Plan and Phase One**

Site Development Plan for such development on the approximately 96 acre property located at 10300 Olive Boulevard. Final Reading and Passage.
Summary: Matt Pfund, of Jack Matthews Development, representing 10300 Olive, LLC, has submitted an application to amend the Official Zoning Map of the City of Creve Coeur to change the zoning of the property of approximately 96 acres located at 10300 Olive Boulevard, from "RO" Research Office to "PMD" Planned Mixed Use Development District, referred to as Olia Village. In accordance with Section 405.390 of the Zoning Code for Planned Zoning Districts, the applicant has submitted the Site Concept Plan and Phase One Site Development Plan for review and approval by the City. The proposed uses within the overall development include commercial buildings, restaurants, mixed-use buildings with ground floor retail/commercial uses and multi-family dwelling units on the upper floors within a “Main Street” type setting, hotels, apartments, office and research office buildings, as well as attached townhomes. The existing buildings formerly used by Bayer are shown to remain and will be repurposed for office and residential uses. A subdivision of the property is also proposed. The submitted Site Development Plan for Phase One consists of site clearing, grading, site utilities and roadway construction. Building construction and related site improvements will be submitted for review by the City at a later date in association with each of the outlined phases as provided in the Site Concept Plan. The Planning and Zoning Commission recommended approval with conditions at the October 2, 2023 meeting.

4. **Bill No. 6090- An Ordinance for the holding of a General Election in the City of Creve Coeur, Missouri, on the 2nd day of April, 2024, for the Election of A Mayor from the City At Large for a Full Three-Year Term, and the Election of One Council Member from Each of the Four Wards, Each for a Full Two-Year Term, and for the Conduct of Said Election by the Board of Elections of St. Louis County, Missouri, and for Other Matters Relating and Pertaining to such Election. Final Reading and Passage.**
Summary: Ordinance setting the 2024 City Council Election and prescribing the forms regarding nominations.

NEW BUSINESS

5. **Resolution No. 1683- A Resolution Authorizing the Execution of an**

Agreement between the City of Creve Coeur and Equitable for the City's Dental Insurance Plan Beginning January 1, 2024 and Ending December 31, 2024.
Summary: Staff and insurance broker CBIZ recommend approval of an agreement for dental coverage with Equitable Insurance, the incumbent provider. Equitable presented the lowest increase among all proposals with a 4.8% increase in premiums for the same level of coverage, effective January 1, 2024, for a period of one year.

6. **Resolution No. 1684- A Resolution Approving an Amended Task Order Agreement with PGAV Planners for Planning and Development Financing Services.**
Summary: Staff recommends approving an amended task order with PGAV Planners to increase the amount not to exceed from $25,000 to $60,000 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.

BUSINESS FROM MAYOR AND CITY COUNCIL

7. ***Council Liaison Reports***

BUSINESS FROM CITY ADMINISTRATOR

8. **Lake School House Building Recommendations**
Summary: The Parks and Historic Preservation Committee met with the City Council in a Work Session on August 28, 2023. Among the matters discussed included the future of Lake School House, including possible demolition. Staff has obtained additional information on demolition considerations and costs and will further report to City Council.

9. **Subdivision Trustee Meeting**
Summary: The City has hosted an annual meeting with subdivision trustees, most recently in January 2023. The meeting provides an opportunity for engagement between city staff and the community, one of the action items in the city's strategic plan. We plan to again host this meeting on Wednesday, January 17, 2024, and look forward to City Council input on matters which you feel would be useful to discuss with trustees. The 2023 meeting agenda and

meeting summary have been included in the packet for review.

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 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.

JOINT WORK SESSION MEETING
MINUTES
CITY OF CREVE COEUR
CITY COUNCIL AND CITY BOARDS, COMMITTEES, & COMMISSIONS
300 NORTH NEW BALLAS RD, MULTI-PURPOSE ROOM
OCTOBER 9, 2023
6:00 PM

CALL TO ORDER

A work session meeting of the City Council and the City Boards, Committees, and Commissions 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, October 9, 2023 at 6:00 PM in the Multi-Purpose Room.

ROLL CALL

In attendance:

Mayor Robert Hoffman
Council Member, Ward 1 Mark Manlin
Council Member, Ward 1 Heather Silverman
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

Also in attendance were fifty-three (53) appointed members of various boards, committees, commissions and task forces.

Staff Present: City Administrator Mark Perkins, City Attorney Carl Lumley, Public Information Officer and Management Analyst Melissa Bradford, and City Clerk Kellie Henke.

DISCUSSION ITEMS

1. Biennial Ethics Training for Elected and Appointed Officials

City Attorney Carl Lumley presented the City's Biennial Ethics Training for Elected and Appointed Officials (see Exhibit A).

ADJOURNMENT

The meeting adjourned at 6:26 PM.

DRAFT

JOINT WORK SESSION MEETING
MINUTES
CITY OF CREVE COEUR
CITY COUNCIL AND CITY BOARDS, COMMITTEES, & COMMISSIONS
300 NORTH NEW BALLAS RD, MULTI-PURPOSE ROOM
OCTOBER 9, 2023
6:00 PM

Submitted by:

Kellie Henke
City Clerk

Dr. Robert Hoffman
Mayor

DRAFT

Exhibit A

CURTIS, HEINZ, GARRETT & O'KEEFE P.C.

ETHICS TRAINING FOR CREVE COEUR ELECTED AND APPOINTED OFFICIALS

October 2023

Carl Lumley

Public Trust in Government Lower than Ever

- According to Pew Research Center, only two out of ten Americans trust the federal government to do what is right "most of the time" (only 2% say "just about always")
- This growing lack of trust inevitably flows to the state and local levels, but according to Deloitte research, trust is generally greater at the local level (albeit not ideal)

What Drives Trust in Public Institutions?

According to research by the Organization for Economic Co-operation and Development (OECD), these are the drivers:

- **Responsiveness**
- **Reliability**
- **Openness**
- **Integrity**
- **Fairness**

Without Ethics, No Public Trust or Confidence

To preserve trust and confidence:

- **Demonstrate integrity, accountability, responsibility**
- **Assure impartiality and fairness**
- **Assure due process and equal protection**
- **Comply with State statutes and local regulations**

Creve Coeur Gets the Best, Expects that to Continue

Members of the public expect all City officials and employees to continue to place compliance with laws, regulations, and ethical principles above private benefit.

Biennial Training Will (Hopefully) Help You

- Understand the rules - some are intuitive but others more complicated
- Recognize potential issues
- Avoid the appearance of impropriety
- Protect yourself and the City

Suggested Approach

Don't just comply with the letter of the law,

Instead, strive to avoid any action that would create the appearance of impropriety.

The Missouri Ethics Commission Agrees

The Missouri Ethics Commission regularly advises in its opinions that people carefully consider whether an appearance of impropriety exists:

> **"It is very hard to distinguish the difference between the appearance of an impropriety and, in fact, a technical violation in the eyes of the public."**

Don't Cut Too Fine a Line

- The light should always be yellow, until you are sure it is green or red

- Make that determination by:
  - informal discussions with peers
  - discussion with City Attorney or your personal attorney
  - seeking formal advice

- Ask "what should I do", not just "what do I have to do"

How Do You Get Formal Advice?

- Under City Code section 130.100, can submit signed written request for advice to the City Attorney
- You must provide full and fair disclosure of the circumstances
- You are entitled to prompt response
- Provides protection against second-guessing
- Creates a public record

The Consequences of an Ethical Violation

- At best, humiliation and loss of reputation
- At worst, loss of office, fines, incarceration
- If someone files a complaint against you, seek immediate legal advice

Remember, Recusal is Simple

Simple to recuse – just briefly explain reason, step down from dais/meeting table, "to avoid any potential conflict of interest"

After debate and vote – return to dais

When Considering Ethical Responsibilities, Know Who "You" Are

- Yourself, spouse and dependents
- Business or trust in which you are substantial participant or investor with 10%+ or $10,000.00+ interest, or you receive $5,000.00+ per year in compensation, or serve as officer, director.
- To avoid bad "appearances" use a broader sphere than that discussed in State statutes.

File the Required Annual Disclosure Reports.

- Applies to Mayor, Council, PZ Commissioners, Board of Adjustment, City Administrator, Finance Director, candidates for elected office
- Required disclosures should be filed with City Clerk and Missouri Ethics Commission.
- Generally due by May 1, but when newly appointed to office must be file within 30 days.
- Required even the year after you leave office.
- Ask the City Clerk for the required form. See Code 130.090

Comply with State statutes and the City's Code and Charter.

Statutory MINIMUM standards

- Sections 105.452 to 105.467, RSMo. (regarding conflicts of interest)
- Section 105.667, RSMo. (regarding pension rules)
- Missouri Constitution, Article 7, Section 6 (regarding anti-nepotism)
- Charter Sections 3.5, 14.1 and 14.2
- Code Chapter 130

Don't

- Accept a bribe.
- Use or disclose confidential information for private gain.
- Act to obtain special monetary benefit.
- Coerce or extort others.
- Sell political appointments.
- Mayor & Council – don't interfere with City administration

Don't

- Perform services for City for compensation beyond pay for official position. Note, Council cannot take a paid position for a year after term (Charter 3.5).
- Make or participate in any contract with the City in which you have a substantial interest (Charter 14.1)
- Engage in paid lobbying of State or City (including one year after term of office, except for public proceedings).
- Engage in paid work after term of office on specific matters you were involved in.

Don't

When parties to your zoning or regulatory actions are involved:

Exert influence for any gain, or

Engage in transaction over $500/transaction or $1500/year, unless lowest bid per public bidding process

Including for one year after term

Don't

Act in judicial or quasi-judicial capacity if your family member is a party to the proceedings. This includes administrative hearings held by the City Council and by Boards and Commissions

Don't

Realize gain from pension plan transactions (except as participant) – if appointing authority, board member, or involved employee

Forfeit office if accept anything of value for purpose of influencing pension plan investment and could forfeit plan benefits

Don't

- Use City property other than for City business.
- Obtain unapproved special benefits from the City.

Don't

- Engage in unlawful discrimination
- Engage in fraud in dealings with City
- Provide bribes to others in City related to employment opportunities

Charter 14.2

Don't

- Name or appoint a relative to public office or employment.
- Article 7, Section 6 of Missouri Constitution – forfeiture of office

Comply with Missouri Sunshine Law.

- Meetings of a quorum must be open to the public – whether or not city staff attends – unless properly closed
- Be sure the notice regarding the meeting complies with the notice requirements.
- Make public records accessible.
- Retain emails and text messages regarding City business.
- Avoid penalties

Comply with City Anti-Fraud and Corruption Policy

Examples of prohibited conduct:

- **Improperly dealing with financial transactions.**
- **Disclosing confidential information.**
- **Inappropriate destruction or alteration of records or other assets.**
- **Receiving or authorizing inappropriate payments.**
- **Violation of state, federal or local laws.**

Comply with City Anti-Fraud and Corruption Policy

Also Prohibited

- accepting anything with a material value of more than $50 (cumulative over a one-year period) from a contractor, vendor, person providing or seeking to provide services/materials to the City of Creve Coeur, or person with a pending matter before the City (including a matter concluded within the past 90 days or a matter expected to commence within 90 days)

Comply with City Donation Policy

"Donation" is a monetary contribution and/or equipment, in-kind goods or services, or business discounts, which a City department or the City has accepted and for which the donor has not received any goods or service in return.

- **Donations up to $1,500 may be approved by the City Administrator**
- **Donations of more than $1,500 must be approved by City Council.**

Comply with City Solicitations Policy

- City officials shall obtain approval prior to soliciting donations to the City.
  - City Administrator approval for donations up to $1,500
  - City Council approval for those above $1,500

Comply with City Solicitations Policy

- Do not offer any form of "special access" to self as a City official in exchange for donations.
- Do not solicit anything of value for a private purpose through the use of City stationary, City email address, etc.
- City officials must not directly solicit anything of value from City employees.
- Fundraising campaigns directed to all employees may be approved by the City Administrator.

Some additional "Don'ts"

- Don't violate Missouri Supreme Court rules of conduct for municipal court personnel.
- Court personnel must report ANY attempt to influence the handling of cases.

Some additional "Don'ts"

Don't commit misconduct in administration of justice

It is a class A misdemeanor (up to $2,000 fine, year in jail), if a "public servant":

- **Orders or suggests to an employee of a political subdivision that such employee shall issue a certain number of traffic citations on a daily, weekly, monthly, quarterly, yearly or other quota basis or that such employee shall increase the number of traffic citations that he or she is currently issuing.**

Some additional Don'ts

Don't obstruct government operations

It is a class B misdemeanor (up to $1,000 fine, six months in jail).

A person commits the offense of obstructing government operations if he or she purposely obstructs, impairs, hinders or perverts the performance of a governmental function by the use or threat of violence, force, or other physical interference or obstacle.

Don't: Spend city funds to advocate for votes.

- Cities cannot spend public monies to support or oppose candidates or ballot measures. (See Section 115.646 RSMo.)
- Informational materials must include disclaimer identifying "paid for by" with name and address (See Section 130.031, RSMo.)

Don't: Pressure city employees regarding elections.

- It is a felony to pressure or retaliate against city employees regarding election matters (See Section 130.028, RSMo.)

Avoid Being the Subject of Media Story

- Many of the statutory provisions refer to intentions, but do you want to give the media, opponents, or court opportunity to interpret your intentions?
- Remember, the appearance of impropriety is often worse than the action taken.

REGULAR MEETING
MINUTES
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
OCTOBER 9, 2023
7:00 PM

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, October 9, 2023 at 7:00 PM.

PLEDGE OF ALLEGIANCE

Mayor Hoffman led the Pledge of Allegiance.

Mayor Hoffman asked for a moment of silence for those affected by the recent events in the Middle East.

ROLL CALL

Mayor Robert Hoffman
Council Member, Ward 1 Mark Manlin
Council Member, Ward 1 Heather Silverman
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

Staff Present: City Administrator Mark Perkins, City Attorney Carl Lumley, Director of Community Development Jason Jaggi, City Planner Bethany Moore, Director of Finance Lori Obermoeller, Director of Public Works Jim Heines, Civil Engineer Dione Garson, 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

Council Member Greer made a motion, seconded by Council Member Silverman, to move item number 8, Resolution No. 1677, under New Business as item number 5A (renumbered as item 6 in these minutes).

DRAFT

RESULT: AMENDMENT APPROVED (UNANIMOUS)
MOVER: Council Member Ward 2 Greer
SECONDER: Council Member Ward 1 Silverman
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

RESULT: APPROVED AS AMENDED (UNANIMOUS)
MOVER: Council Member Ward 1 Silverman
SECONDER: Council Member Ward 3 Hoffman
AYES: Mark Manlin, Nicole Greer, David Hoffman, Daniel Tierney, Joseph Martinich, Tim Carney, Sari Neudorf, Heather Silverman

The vote on the motion being 8 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

CONSENT AGENDA

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 1 Silverman
SECONDER: Council Member Ward 3 Hoffman
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

1. **Approval of September 26, 2023 City Council Regular Meeting Minutes**

2. **Documents for Destruction**

BILLS PAYABLE REPORT

For Information Only: Invoices Paid Listing 9-21-23 to 10-4-23

REGULAR MEETING
MINUTES
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
OCTOBER 9, 2023
7:00 PM

UNFINISHED BUSINESS

3. **Bill No. 6087- An Ordinance Amending the Adopted 2024 Public Safety Fund Budget of the City of Creve Coeur by Authorizing an Additional Appropriation. Final Reading and Passage.**

City Clerk read Bill No. 6087 for the final time.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 2 Greer
SECONDER: Council Member Ward 1 Silverman
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 8 ayes and 0 nays, motion carried. Bill No. 6087 becomes Ordinance No. 5860.

4. **Bill No. 6088- An Ordinance Authorizing the City Administrator, on behalf of the City of Creve Coeur, Missouri to Purchase Six (6) Replacement Patrol Vehicles for use by the Police Department. Final Reading and Passage.**

City Clerk read Bill No. 6088 for the final time.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 1 Silverman
SECONDER: Council Member Ward 3 Hoffman
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

The vote on the motion being 8 ayes and 0 nays, motion carried. Bill No. 6088 becomes Ordinance No. 5861.

NEW BUSINESS

5. **Resolution No. 1677- A Resolution of the City Council of the City of Creve Coeur, Missouri, to Establish and Adopt a Stormwater Management Cost-Share Program for the City of Creve Coeur.**

City Clerk read Resolution No. 1677.

Civil Engineer Dione Garson provided a brief summary of the recommended Stormwater Management Cost-Share Program, based upon feedback received from the City Council, and requested financing of up to $60,000 for the program.

Council Member Martinich stated it is important to recognize that subdivisions could have cash flow issues due to the potentially high upfront costs and asked the City to consider alternative reimbursement options.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 1 Silverman
SECONDER: Council Member Ward 2 Carney
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

6. **Bill No. 6089- An Ordinance Authorizing a Change of Zoning from "RO" Research Office District to the Olia Village "PMD" Planned Mixed-Use Development District and Approving the Site Concept Plan and Phase One Site Development Plan for such development on the approximately 96-acre property located at 10300 Olive Boulevard. First Reading.**

City Clerk read Bill No. 6089 for the first time.

Director of Community Development Jason Jaggi provided an overview of the applications that have been filed for the Olia Village development, including Rezoning from "RO" Research Office to "PMD" Planned Mixed Use Development, a Site Concept Pan, a Site Development Plan- Phase One, and the Preliminary Plat (See Exhibit A). Mr. Jaggi stated that after three nights of public hearings, the Planning and Zoning Commission recommended rezoning and approval of the related items with conditions at the October 2, 2023 meeting. Mr. Jaggi provided an overview of the City's review process, including updating the Comprehensive Plan, amending the Planned Zoning District ordinance, and using consultants to conduct a traffic study, application review and residential market study.

Matt Pfund, of Jack Matthews Development, introduced the Olive Village Leadership Team and provided an overview of the proposed development and various components (See Exhibit B). Mr. Pfund provided an overview of existing site challenges, including existing water mains for the City of St. Louis, Pavilion Drive alignment, connection to the Lindbergh Cloverleaf, utility infrastructure, bordering neighborhoods and existing campus buildings. Mr. Pfund provided an overview of substantial opportunities,

including new amenities in the 39N District, development of a main street destination, minimizing any large pavement and surface parking areas, and increasing pedestrian trails and walkability.

Chris Stritzel, of Crawford, Murphy, & Tilly Inc., stated the development would consist of four subdistricts; main street, mixed use, office, and residential, and each subdistrict would have its own defined uses and regulations. Mr. Stritzel stated the parcel plan includes seventeen total lots (See Exhibit B). Mr. Stritzel stated the development would consist of five phases and phase one includes permits for grading and drainage, roadways and utilities, and Olive and Lindbergh Boulevard improvements. Mr. Stritzel provided an overview of modifications to the plan made throughout the Planning and Zoning process.

Mr. Stritzel discussed the project elements, including a pocket park and internal roadways. Mr. Stritzel stated some of the right-of-way would be dedicated to the infrastructure and any sidewalks beyond that would eventually be set in an easement that would be maintained by the development. Mr. Stritzel also discussed pedestrian mobility, retaining walls, streams and wetlands, stream bank buffer protection, and buffers and setbacks. Mr. Stritzel stated stormwater discharge is controlled by the Metropolitan St. Louis Sewer District (MSD) and a preliminary conceptual review was submitted to MSD and upon review, the site is required to use the undeveloped or “back to grass” existing site condition for all disturbed areas and a flood study will need to be submitted to show the Deer Creek watershed release rate for routed detention facilities is a “zero increase” watershed.

Mr. Stritzel discussed the upgrades to Olive Boulevard and stated the Missouri Department of Transportation (MoDOT) approved the traffic impact study on September 26, 2023. Mr. Stritzel also discussed improvements that would be made to Lindbergh Boulevard.

Kristie Bailey, of Fireside Financial, acknowledged the amount of work done for this project over the past year and stated the team is looking forward to the future development.

Mr. Jaggi recognized the amount of work put into the project by City Planner Bethany Moore and the work done by PGAV Planners, including creating development standards, determining acceptable uses, and an overview of the site plan.

Mr. Jaggi discussed the Planned Zoning Districts Ordinance, including allowable uses, eligibility and public benefit, Planned Mixed-Use Development design criteria, review

criteria for all types of Planned Developments, and Site Concept Plan Components (See Exhibit A). Mr. Jaggi reiterated that the development would consist of four subdistricts, and each subdistrict would have its own defined uses and development standards. Mr. Jaggi referenced the anticipated structure summary information table and anticipated parking summary found within the presentation and stated they are broken down by each lot. Mr. Jaggi discussed the concept landscape plan and provided an overview of the landscaping that would remain, as well as the extensive new planting of trees. Mr. Jaggi briefly mentioned the street, pedestrian and phasing plan as previously presented by Mr. Stritzel.

Kyle Evans, of TREKK Design Group, LLC, discussed the results of the traffic study, including trip generation and adjustments, existing intersection operational analysis, trip distribution and assignment, no-build intersection operational analysis, and recommendations (See Exhibit C).

Mayor Hoffman clarified that consideration for the future redesign of Lindbergh Boulevard and Old Olive would be included in the build analysis related to the traffic study, but the no-build analysis includes how the intersection operates currently.

Mr. Jaggi discussed the proposed development standards and regulations in lieu of traditional zoning code requirements, including sub-district category standards, dimensional regulations, bulk regulations, parking and loading regulations, landscape and tree requirements, signage, lighting, architectural requirements, roads, miscellaneous, and public art.

Mr. Jaggi discussed the proposed uses that are arranged by the four sub-districts and stated the proposed uses are based on the City's NAICS Land Use Table. The uses listed are shown as permitted by-right; not conditional uses.

Mr. Jaggi provided an overview of the Planning and Zoning Commission conditions of approval including increasing the residential buffer yard to be a minimum width of 50-feet from the property line, additional details regarding the Tree Conservation Plan, and completion of an analysis demonstrating projected revenues would sufficiently cover the cost of providing municipal expenditures.

Council Member Manlin confirmed with Mr. Jaggi that the developer has submitted a preliminary review of the Stormwater Plan to MSD and a formal review is close to submission. Mr. Jaggi stated the site concept plan would be amended to meet any MSD requirements.

Council Member Manlin asked for an update regarding a development incentive request. To which Mr. Jaggi stated the developer has submitted their financial model to City staff and PGAV Planners for review. Mr. Perkins stated the request is in the review process and would be discussed with the Council at an upcoming Work Session.

Council Member Silverman confirmed with Mr. Jaggi that the permitted uses in the Planned Mixed-Use Development are a component of the ordinance and any modifications would require approval.

Council Member Silverman asked why the lighting requirements do not apply to Lot 1 as it is adjacent to a residential area. Mr. Jaggi stated the back of the building on Lot 1 faces the residential area and there would be no parking or other activities requiring lighting.

Council Member Silverman confirmed with Mr. Jaggi that the City Council could place additional restrictions on drive-thru restaurants within the development if they wanted. Mr. Jaggi stated any drive-thru requests submitted by the developer would be compared to the current drive-thru ordinance, but could have separate regulations.

Council Member Silverman asked who would be responsible for any unforeseen stormwater problems after development is completed. To which, Mr. Jaggi stated the applicant has conducted stormwater studies, mitigation impacts, and US Army Corps of Engineer approval, and will be subject to MSD standards. Mr. Jaggi stated the indentures to be created for this project would assign detention maintenance to the applicant and not the City.

Council Member Hoffman thanked everyone for attending the meeting and asked what is the tallest proposed building on the site. Mr. Jaggi stated there would be a ninety-six-foot building located on Lots 4 & 6. Council Member Hoffman asked how many stories would be above ground and below ground. To which, Mr. Jaggi stated it varies between six to eight stories above ground. Mr. Jaggi pointed out the grade changes between the commercial buildings and parking garage located on main street as you move to the south. Mr. Jaggi stated the parking garages will be approximately the same height as the commercial buildings, however they may appear taller on the southern end due to the grade change.

Mr. Jaggi stated EV charging stations would be considered during the Site Development Plan stage for individual lots.

Council Member Hoffman asked for the timeline regarding resident notification. To which, Mr. Jaggi stated the public notice regarding the project was posted on Thursday, August 16, 2023 and public notices were also mailed to all surrounding property owners within 300 ft of development that same day. Mr. Jaggi stated the property was posted with two public hearing signs, additional articles regarding the project were referenced in the City's newsletter, and notices were also sent to the surrounding subdivision trustees.

Council member Tierney asked who would be responsible for maintaining the common ground after the development is complete. To which, Mr. Jaggi stated all property owners within the development would be responsible.

Council Member Tierney confirmed the park, paths, and walking trails would be available for public use, but privately maintained by the developer and future property owners. Mr. Pfund confirmed the nature trail that was along the upper northern half of the development was removed to preserve more trees.

Council Member Carney confirmed the current proposal shows the maximum site coverage for the entire PMD.

Council Member Neudorf commented on the amount of parking garages located within the development.

Council Member Martinich asked for clarification regarding the proposed buffers and confirmed Lots 1, 10, and 17 would consist of all new buildings and the setback and building line requirements for adjacent residential areas would have a fifty (50) foot buffer with a minimum setback of twenty-five (25) feet; a total seventy-five (75) feet.

Council Member Martinich confirmed compensatory mitigation would be required to ensure minimal adverse stormwater runoff, and asked for the impervious area percentage. Mr. Jaggi stated the maximum allowable site coverage is seventy (70) percent per the proposed ordinance. Mr. Jaggi noted that site coverage and impervious area are calculated differently. Council Member Martinich recommended lowering the maximum site coverage and asked staff to propose a maximum threshold at the next Council meeting.

Council Member Martinich asked what the expected traffic volume would be compared to 2019. Mr. Evans stated the total volume remains the same but peak times seem to have leveled out throughout the day. Mr. Evans stated the delay at Old Olive and Lindbergh Boulevard would improve once the intersection is signalized.

Mayor Hoffman opened the floor to comments from the general public.

Tomislav Zigo, resident of 9 Spoede Woods, gave a presentation (See Exhibit D; Links to videos: https://vimeo.com/869939998?share=copy and https://vimeo.com/user208560860/crevecoeurneighbors?share=copy) and shared his concerns regarding the green buffer between the development and the residential area, stormwater management, tree preservation, retaining wall height, and noise and light pollution.

David Singer, resident of 6 Spoede Woods, spoke in opposition to reducing the current buffer area, and shared his concerns about decreasing property values due to the development. Mr. Singer stated residents were not considered or consulted during the development process.

Danielle Singer, resident of 6 Spoede Woods, provided a handout to the Mayor and City Council (See Exhibit E) and discussed resident requests, including maintaining the existing buffer area, tree preservation, reducing the scale of buildings, and proper stormwater management.

Yiling Mi, resident of 11 Spoede Woods, spoke in opposition to reducing the current buffer area, shared her concerns regarding noise and light pollution, and tree preservation.

Lidai Wang, resident of 13 Spoede Woods, spoke in opposition to adding retaining walls along residential property, and the difference in sky exposure due to the different grades.

Martha Smith, resident of 26 Spoede Woods, read sections three and four of the prior central business district final plan regarding residential protection.

Steven Melnick, resident of 16 Spoede Woods, via Zoom, gave a presentation (See Exhibit F) regarding the proximity of commercial developments having a negative impact upon nearby residential properties and losing residential protection with the proposed rezoning.

Monica Moore-Zigo, resident of 9 Spoede Woods, via zoom, stated economic development should take into consideration attracting and maintaining Creve Coeur residents.

Council Member Manlin asked what challenges and limitations exist that prevent increasing the buffer area. Mr. Pfund discussed numerous modifications made to the development plan during the Planning and Zoning review that benefit the residential areas adjacent to the development.

Mayor Hoffman stated the City Clerk will coordinate onsite visits for those Council Members interested in visiting the homes impacted by the development.

City Council took a ten-minute recess at 9:32 pm and resumed the meeting at 9:42 pm.

7. **Bill No. 6090- An Ordinance for the holding of a General Election in the City of Creve Coeur, Missouri, on the 2nd day of April, 2024, for the Election of A Mayor from the City At Large for a Full Three-Year Term, and the Election of One Council Member from Each of the Four Wards, Each for a Full Two-Year Term, and for the Conduct of Said Election by the Board of Elections of St. Louis County, Missouri, and for Other Matters Relating and Pertaining to such Election. First Reading.**

City Clerk read Bill No. 6090 for the first time.

8. **Resolution No. 1678- A Resolution of the City Council of the City of Creve Coeur, Missouri, authorizing the execution of a contract with STF LLC d/b/a Traffic Control Company for the 2023 Roadway Striping Project for the not-to-exceed amount of $75,290.00.**

City Clerk read Resolution No. 1678.

Director of Public Works Jim Heines provided an overview of the recommended contract with STF LLC for the 2023 Roadway Striping Project and stated the unit prices bid for the proposed project have remained almost exactly the same as the prices from 2022.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 2 Greer
SECONDER: Council Member Ward 1 Silverman
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

9. **Resolution No. 1679- A Resolution of the City Council of the City of Creve Coeur, Missouri, Authorizing Execution of an Agreement with Altec Industries, Inc. for the Purchase of a New Diesel-Powered Ford F550 Truck Equipped with a 40-Fott Altec Boom for an Estimated Amount of $167,980.00.**

City Clerk read Resolution No. 1679.

Director of Public Works Jim Heines provided an overview of the recommended agreement with Altec Industries, Inc. Mr. Heines stated the estimated delivery date is late 2025 and a firm price would be established twelve months prior to delivery. Mr. Heines stated the City Administrator can approve a change order up to ten percent of the estimated cost if required, but any change orders beyond this would be returned to the City Council for review and approval.

Council Member Tierney confirmed the order can be canceled once the final cost is determined.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 2 Greer
SECONDER: Council Member Ward 1 Silverman
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

10. **Resolution No. 1680- A Resolution of the City Council of the City of Creve Coeur, Missouri, Authorizing Execution of an Agreement with Matthew E. Kurtz Nursery and Topsoil Co. LLC. to Haul Off Wood Chips and Leaf Debris Collected during the Fall 2023 through Summer 2026 Leaf and Limb Collection Programs.**

City Clerk read Resolution No. 1680.

Director of Public Works Jim Heines provided an overview of the recommended agreement and stated bid totals were based upon estimated quantities and a budget adjustment would likely be required to cover the final cost of the debris haul-off. Mr. Heines stated the current contractor did not submit a bid for the upcoming contract.

Council Member Carney confirmed wood chips would not be made available to the residents.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 1 Silverman
SECONDER: Council Member Ward 2 Greer
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

11. **Resolution No. 1681- A Resolution of the City Council of the City of Creve Coeur, Missouri Authorizing Execution of an Agreement with Total Roofing St. Louis for the Replacement of the Shingled Roof on the Salt Dome Located at the Maintenance Facility for an Amount of $33,600.00.**

City Clerk read Resolution No. 1681.

Director of Public Works Jim Heines provided an overview of the recommended agreement and stated staff included a $3,000.00 contingency for any found damaged wood that requires replacement.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 2 Greer
SECONDER: Council Member Ward 3 Hoffman
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

12. **Resolution No. 1682- A Resolution Authorizing the City of Creve Coeur to Purchase Eleven APX6000 Radios and Related Accessories from Motorola Solutions for the total amount of $63,826.18.**

City Clerk read Resolution No. 1682.

Chief of Police Jeffrey Hartman provided an overview of the purchase and stated Motorola Solutions is the sole-source vendor for all agencies in St. Louis County. Chief Hartman stated the cost includes the radio with programming, the battery, a remote speaker microphone, and a charger.

Council Member Carney asked how long the warranty is for the radios. Chief Hartman confirmed eight years and stated the eleven new radios would be issued to replace a portion of the current radios and the replaced radios would serve as backup for any of

the aging radios in use that may experience problems.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 1 Silverman
SECONDER: Council Member Ward 3 Hoffman
AYES: Mark Manlin, Nicole Greer, David Hoffman, Daniel Tierney, Joseph Martinich, Tim Carney, Sari Neudorf, Heather Silverman

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

BUSINESS FROM MAYOR AND CITY COUNCIL

13. Council Liaison Reports

No Council Liaison reports.

BUSINESS FROM CITY ADMINISTRATOR

14. Required Auditor Documents to City Council for FY2023 Audit

Director of Finance Lori Obermoeller provided an overview of the required documents to be communicated to the Mayor and City Council both prior to the start of the FY2023 audit and during the final phases of the audit. Ms. Obermoeller stated applied risk assessment procedures are required to identify significant areas noted as subject to audit risk and have considered such risks in past audits. The required documents have also been reviewed by the Audit Committee.

15. 1st Quarter Financial Report as of September 30, 2023

Director of Finance Lori Obermoeller provided an overview of the First Quarter FY 2024 Financial Analysis. Ms. Obermoeller stated the General Fund revenues are down from the previous year mainly due to the ARPA Funds received in FY2023 and expenditures are down, but all are within budgeted expectations. Ms. Obermoeller stated the Municipal Enterprise Funds are currently at a surplus and the Capital Fund is within budget.

REGULAR MEETING
MINUTES
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
OCTOBER 9, 2023
7:00 PM

ADJOURNMENT

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 1 Silverman
SECONDER: Council Member Ward 1 Manlin
AYES: Manlin, Greer, Hoffman, Tierney, Martinich, Carney, Neudorf, Silverman

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

The meeting adjourned at 10:01 pm.

Submitted by:

Kellie Henke
City Clerk

Dr. Robert Hoffman
Mayor

DRAFT

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT REZONING OCTOBER 9, 2023 CITY COUNCIL MEETING

Jason Jaggi, AICP Director of Community Development

REQUEST—FORMER BAYER WEST CAMPUS
10300 OLIVE BOULEVARD

- **Three applications have been filed:**
  - **Rezoning from "RO" Research Office to "PMD" Planned Mixed Use District**
    - Site Concept Plan for entire project
    - Mixed-Use Development on 96 acres—Olia Village
    - Constructed in 5 phases
  - **Site Development Plan—Phase 1 of the Project**
    - Site clearing, tree removal and new landscaping, retaining wall, grading, utilities, roadway construction
  - **Preliminary Plat—Creates 17 new lots and establishes common ground, streets and easements *(Approved by P&Z 10-2-23)***

REZONING

- **Planned Zoning Districts (Section 405.390 of the Zoning Ordinance)**
  - **Provides a procedure to allow development that does not meet the traditional standards of the zoning code due to:**
    - **Project size, phasing, configuration, site conditions, or design features**
  - **City Council must find that it meets the standards outlined in Sec. 405.390.**
  - **Final approval by ordinance by the City Council upon receipt of a recommendation by Planning and Zoning Commission (positive recommendation received with conditions)**
  - **The site concept plan and planned district ordinance (with submitted development standards and permitted uses) will govern most aspects of the development**

CITY'S REVIEW PROCESS

- **Updated the Comprehensive Plan Specific to this Property (Adopted by P&Z June 5, 2023)**
- **Amended the Planned Zoning District ordinance, Section 405.390 (Approved by City Council 7-10-23)**
- **Consultants have assisted the City staff with this review:**
  - **Traffic Study: Kyle Evans, PE, PTOE, Trekk Design Group (formerly with Lochmueller Group)**
  - **Application Review and Residential Market Study: PGAV Planners (Andy Struckhoff AICP, Lindsey Evans LEED-AP, Catherine Hamacher, AICP)**

Creve Coeur 2030 Comprehensive Plan

39 North Master Plan

39°N

Comprehensive Plan Amendment

Former Bayer West Site

City of Creve Coeur, Missouri
Department of Community Development

TREKK DESIGN GROUP, LLC

PGAV PLANNERS

LOCHMUELLER GROUP

TONIGHT'S REVIEW

- **Development Team Presentation**
  - **Overview of the proposed development and various components**
- **Staff Presentation**
- **Receive public comments**
- **City Council comments**

Development Team Presentation

STAFF PRESENTATION OVERVIEW

- **Review Planned Zoning District Requirements (Section 405.390)**
- **Site Concept Plan Highlights**
- **Traffic Study Summary—Trekk Design Group**
- **Proposed Development Standards, including allowable uses**
- **Phase One Site Development Plan Highlights**
- **Planning and Zoning Commission recommendations**

Zoning Ordinance Section 405.390 Planned Zoning Districts

PLANNED ZONING DISTRICTS ORDINANCE REVIEW

- **Three Types of Planned Districts—Planned Mixed Use Development (PMD)**
- **PMD: Allows for broad range of uses = commercial, residential, office, lodging, services within a coordinated development**

PLANNED ZONING DISTRICTS ORDINANCE REVIEW

- **Section 405.390 of the Zoning Ordinance:**
  - **Eligibility**
  - **Public Benefit**
  - **Planned Mixed-Use Development Design Criteria**
  - **Review Criteria (applies to all Planned Developments)**
  - **Site Development Plans (P&Z and City Council approval required, separate submittals)**

PLANNED ZONING DISTRICTS ORDINANCE REVIEW

- **Eligibility and Public Benefit**
  - **Eligibility**
    - Minimum project size of 3 acres
    - Cannot be approved under the provisions of another zoning district
    - Existing zoning district is eligible for the type of planned development proposed
    - Substantially complies with Sec. 405.390 and consistent with Comprehensive Plan

PLANNED ZONING DISTRICTS ORDINANCE REVIEW

- **Eligibility and Public Benefit**
  - **Public Benefit (can include but not limited to)**
    - Public or quasi-public parking
    - On-street and off-street pedestrian facilities linking surrounding uses
    - Consolidation or elimination of OH utility wires
    - Inclusion of landscaped gardens, plazas and parks for public use
    - Street connections and dedication of land for additional street right-of-way
    - Fountains, statuary, public art
    - Architectural distinction and use of high quality building materials

PLANNED ZONING DISTRICTS ORDINANCE REVIEW

- **<u>Design Criteria</u>-Planned Mixed-Use Development**
  - **13 standards must be met**
    - Sky Exposure Plane requirement next to single family residential
    - Buffer yards next to single family residential (35-feet minimum; **increased to 50-feet min. by P&Z**)
    - Mixture of housing types to meet market demand and encourage diversification
    - Incorporates shared parking facilities
    - Provides for appropriate public and private utilities and infrastructure and places them underground
    - Incorporates pocket parks, small plazas, and public art
    - Locates buildings in relation to the streetscapes and pedestrian amenities
    - Provides for safe vehicular mobility while accommodating safe pedestrian mobility
    - High quality architecture, design and materials
    - Provides for appropriate greenspace
    - Functionally and aesthetically integrates stormwater runoff

PLANNED ZONING DISTRICTS REVIEW

- **<u>Review Criteria</u> for all types of Planned Developments**
  - **14 standards must be met:**
    - Development carries out the intent and purpose of the Zoning Ordinance and Comprehensive Plan
    - Streets and access are suitable and anticipated traffic won't overload adjacent streets
    - Internal circulation system is safe for vehicles and pedestrians
    - Utilities are adequate
    - Appropriate buffering to protect adjacent land uses
    - Architecture and building materials are consistent with the intended character and compatible with the surrounding area
    - Landscaping is appropriate and consistent with City code

PLANNED ZONING DISTRICTS REVIEW

- **Review Criteria for all types of Planned Developments**
  - **14 standards must be met (Con't):**
    - Preserves any significant environmental and architectural features
    - Operating and delivery hours are compatible with the adjacent land uses
    - Complies with other applicable codes and ordinances
    - Layout of development takes into account future subdivision of the development
    - Provides sufficient public benefit to the City
    - Direct impacts to public services and public improvements are not unacceptable taking into account the projected revenues to the City

Site Concept Plan

SITE CONCEPT PLAN

- **Site Concept Plan Components**
  - Provides the location and size of existing buildings or structures
  - Shows the **footprint of each proposed building** or structure
  - **Height and stories** of all proposed buildings and structures
  - Provides **proposed uses** of property
  - Proposed **setbacks and buffer yards** from perimeter of the property
  - **Site coverage** of all buildings drives and parking areas
  - Location of existing and proposed **utility easements and stormwater and sanitary facilities**
  - General **architectural guidelines** (materials, finishes and color palette) and design and materials for retaining walls and streetlights
  - Project **timeline**
  - Proposed outline of **restrictive covenants**
  - Project narrative related to Planned Zoning District requirements
  - **Traffic Impact Study**

Site Concept Plan Overview-

4 Subdistricts:

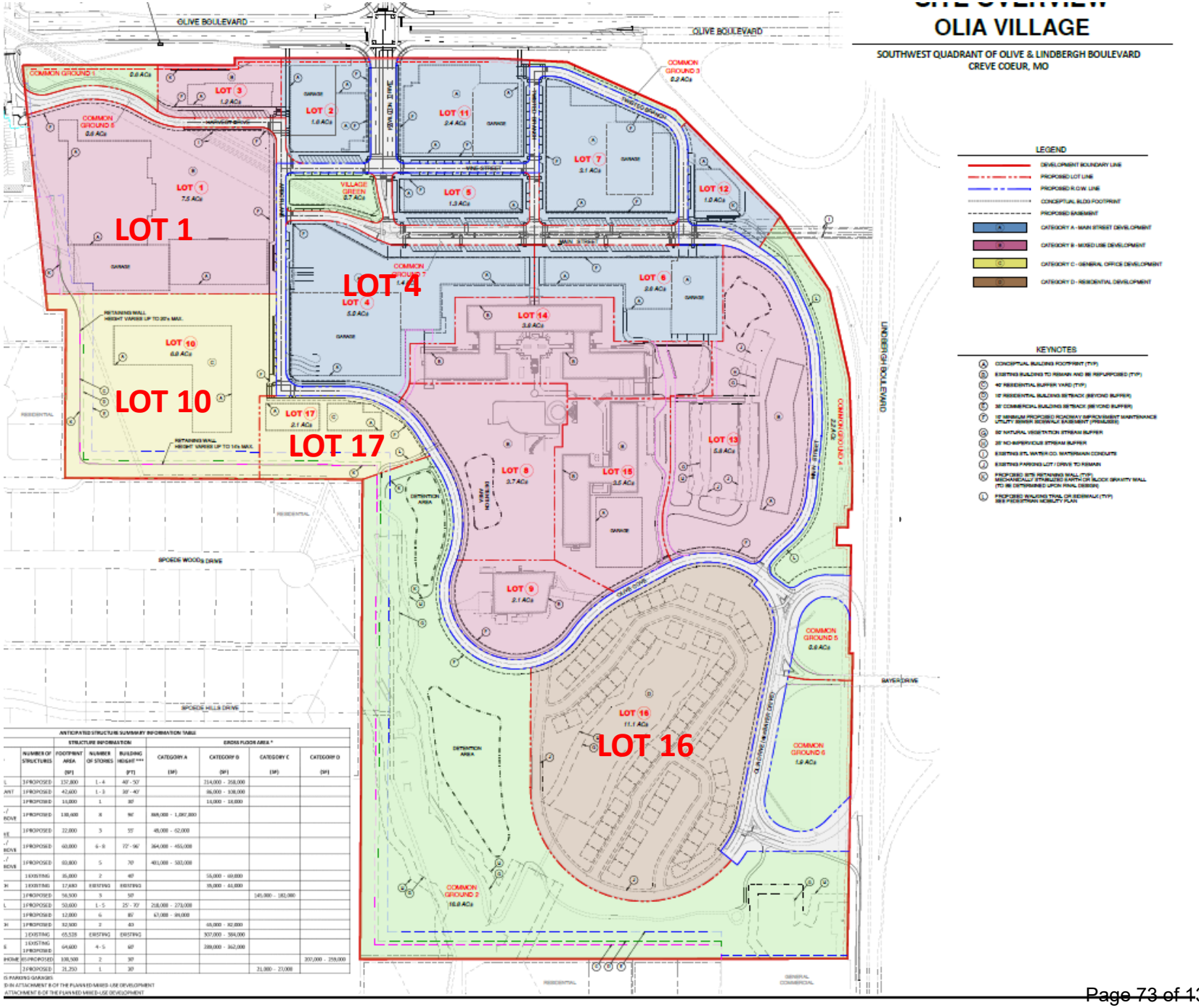
A-Main Street

B-Mixed-Use

C-Office

D-Residential

Common Ground/Park



ANTICIPATED STRUCTURE SUMMARY INFORMATION TABLE

LOT				STRUCTURE INFORMATION			GROSS FLOOR AREA *			
LOT NUMBER	LOT AREA (ACRE)	GENERAL USE DESCRIPTION **	NUMBER OF STRUCTURES	FOOTPRINT AREA (SF)	NUMBER OF STORIES	BUILDING HEIGHT *** (FT)	CATEGORY A (SF)	CATEGORY B (SF)	CATEGORY C (SF)	CATEGORY D (SF)
#1	7.54	PARKING / RETAIL	3 PROPOSED	137,800	1 - 4	40' - 50'		214,000 - 268,000		
#2	1.61	PARKING / RESTAURANT	1 PROPOSED	42,600	1 - 3	30' - 40'		86,000 - 108,000		
#3	1.20	RETAIL	1 PROPOSED	14,000	1	30'		14,000 - 18,000		
#4	5.02	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	130,600	8	96'	869,000 - 1,087,000			
#5	1.27	RETAIL / WITH OFFICE ABOVE	1 PROPOSED	22,000	3	55'	49,000 - 62,000			
#6	2.60	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	60,000	6 - 8	72' - 96'	364,000 - 455,000			
#7	3.11	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	83,800	5	70'	401,000 - 502,000			
#8	3.66	RETAIL	1 EXISTING	35,000	2	40'		55,000 - 69,000		
#9	2.09	OFFICE / RESEARCH	1 EXISTING	17,630	EXISTING	EXISTING		35,000 - 44,000		
#10	6.69	OFFICE	1 PROPOSED	56,500	3	50'			145,000 - 182,000	
#11	2.46	PARKING / HOTEL	1 PROPOSED	50,600	1 - 5	25' - 70'	218,000 - 273,000			
#12	1.01	HOTEL	1 PROPOSED	12,000	6	85'	67,000 - 84,000			
#13	5.82	OFFICE / RESEARCH	1 PROPOSED	32,500	2	40		65,000 - 82,000		
#14	3.85	RESIDENTIAL	1 EXISTING	65,528	EXISTING	EXISTING		307,000 - 384,000		
#15	3.48	PARKING / OFFICE	1 EXISTING 1 PROPOSED	64,600	4 - 5	60'		289,000 - 362,000		
#16	11.14	SINGLE-FAMILY/TOWNHOME	65 PROPOSED	100,500	2	30'				207,000 - 259,000
#17	2.11	OFFICE	2 PROPOSED	21,250	1	30'			21,000 - 27,000	

ANTICIPATED PARKING SUMMARY

LOT	GENERAL USE DESCRIPTION	ANTICIPATED GENERAL RETAIL FLOOR AREA (SF)	ANTICIPATED GENERAL OFFICE FLOOR AREA (SF)	INTERIOR STORAGE (SF)	ANTICIPATED RESTAURANT FLOOR AREA				HOTELS AND ACCOMODATIONS		ANTICIPATED NUMBER OF MULTI-FAMILY RESIDENTIAL UNITS		ANTICIPATED NUMBER OF SINGLE-FAMILY RESIDENTIAL UNITS		TOTAL REQUIRED PARKING ** (STALLS)	TOTAL PROVIDED PARKING *** (STALLS)	PROVIDED OFF-STREET PARKING (STALLS)	PROVIDED ON-STREET PARKING (STALLS)	PROVIDED STRUCTURED PARKING (STALLS)
					INTERIOR		EXTERIOR												
					(SF)	(SEATS)	(SF)	(SEATS)	(SF)	(UNITS)	(SF)	(UNITS)	(SF)	(UNITS)					
CATEGORY A, B, & C																			
#1	RETAIL	120,000													408	551	270	3	278
#2	RESTAURANT / RETAIL / OFFICE	6,700	6,700		11,300	380 ±	750	50 ±							207	212		16	196
#3	RESTAURANT / RETAIL	11,500			2,500	85 ±	300	20 ±							77	20		20	
#4	RETAIL / RESIDENTIAL / MULTI-FAMILY		66,000		8,000	270 ±	450	30 ±			334,000	290 ±			700	1,916		35	1,881
#5	RETAIL / RESTAURANT / OFFICE	6,800	28,000		14,300	480 ±	450	30 ±							297	41		41	
#6	RETAIL / RESTAURANT / MULTI-FAMILY	45,000			2,200	75 ±	450	30 ±			175,000	170 ±			439	425		30	395
#7	RETAIL / RESTAURANT / MULTI-FAMILY	25,000			5,000	170 ±	450	30 ±			242,000	220 ±			472	432		42	390
#8	RETAIL	55,600													190	0			
#9	OFFICE / RESEARCH		35,500												100	0			
#10	OFFICE		145,500												409	391	384	7	
#11	HOTEL & ACCOMODATIONS				7,600	255 ±	750	50 ±	81,500	130 ±					257	411		21	390
#12	HOTEL & ACCOMODATIONS								67,000	130 ±					144	5		5	
#13	OFFICE / RESEARCH		65,000												183	222	162		60
#14	STORAGE / MULTI-FAMILY			90,900							216,800	190 ±			306	0			
#15	OFFICE		160,000												449	390			390
#17	OFFICE		21,250												60	42	42		
--	VILLAGE GREEN															16		16	
														TOTAL CATEGORY A, B, & C :	**4,697**	**5,074**	**858**	**236**	**3,980**
														SHARED-USE PARKING EXCESS ** :**	**377**				
CATEGORY D																			
#16	SINGLE-FAMILY / TOWNHOME												207,000	130	260	260	130	130	
														TOTAL CATEGORY D :	**260**	**260**			

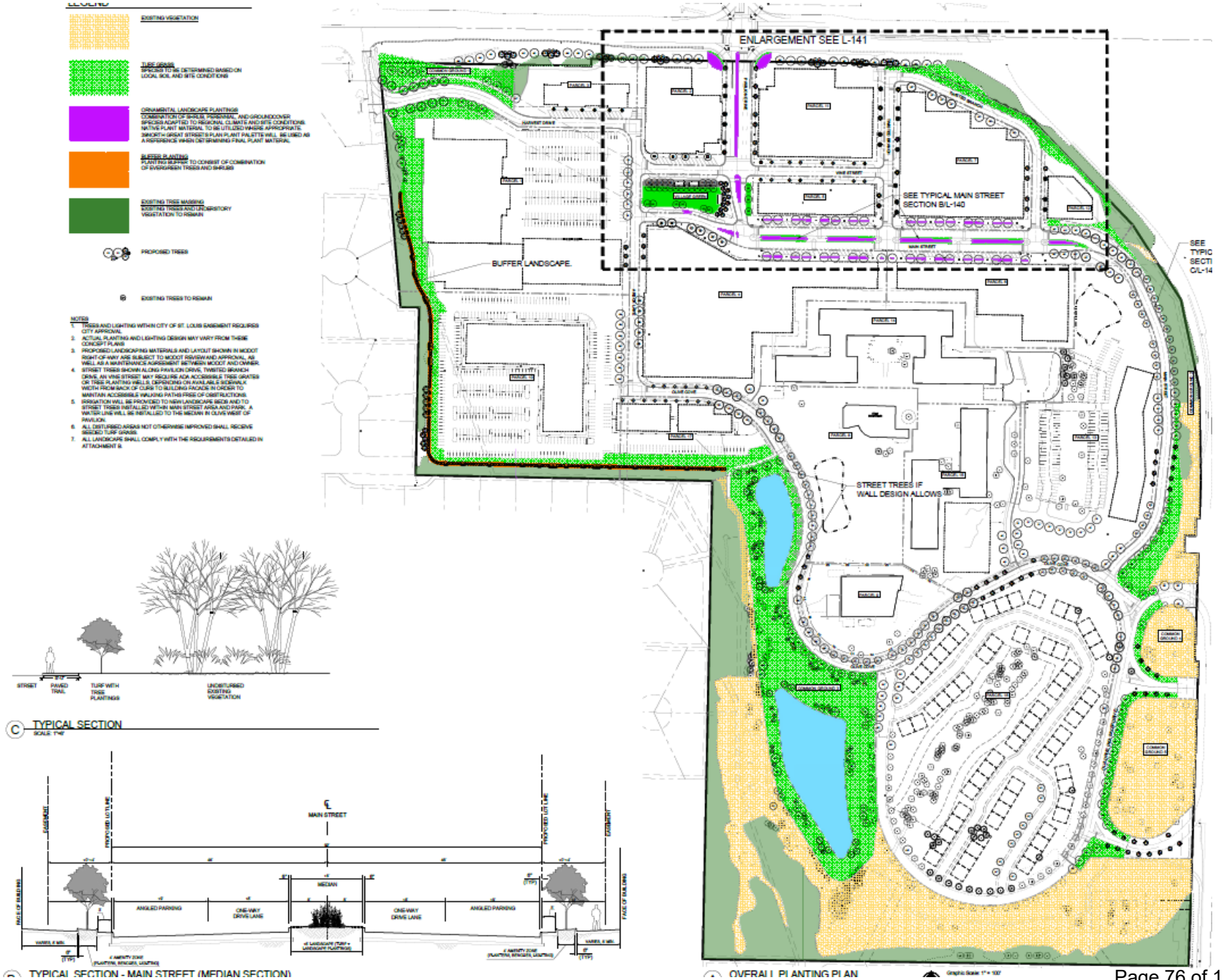
* THE ANTICIPATED NON-PARKING STRUCTURE GROSS FLOOR AREA IS BASED UPON THE **LESSER AREA** SHOWN ON THE ANTICIPATED STRUCTURE SUMMARY INFORMATION TABLE AND IS SUBJECT TO CHANGE.

** THE PROPOSED DEVELOPMENT ORDINANCE ALLOWS FOR A 15% REDUCTION IN OVERALL REQUIRED PARKING DUE TO SHARED-USED PARKING IN CATEGORY A, B, & C.

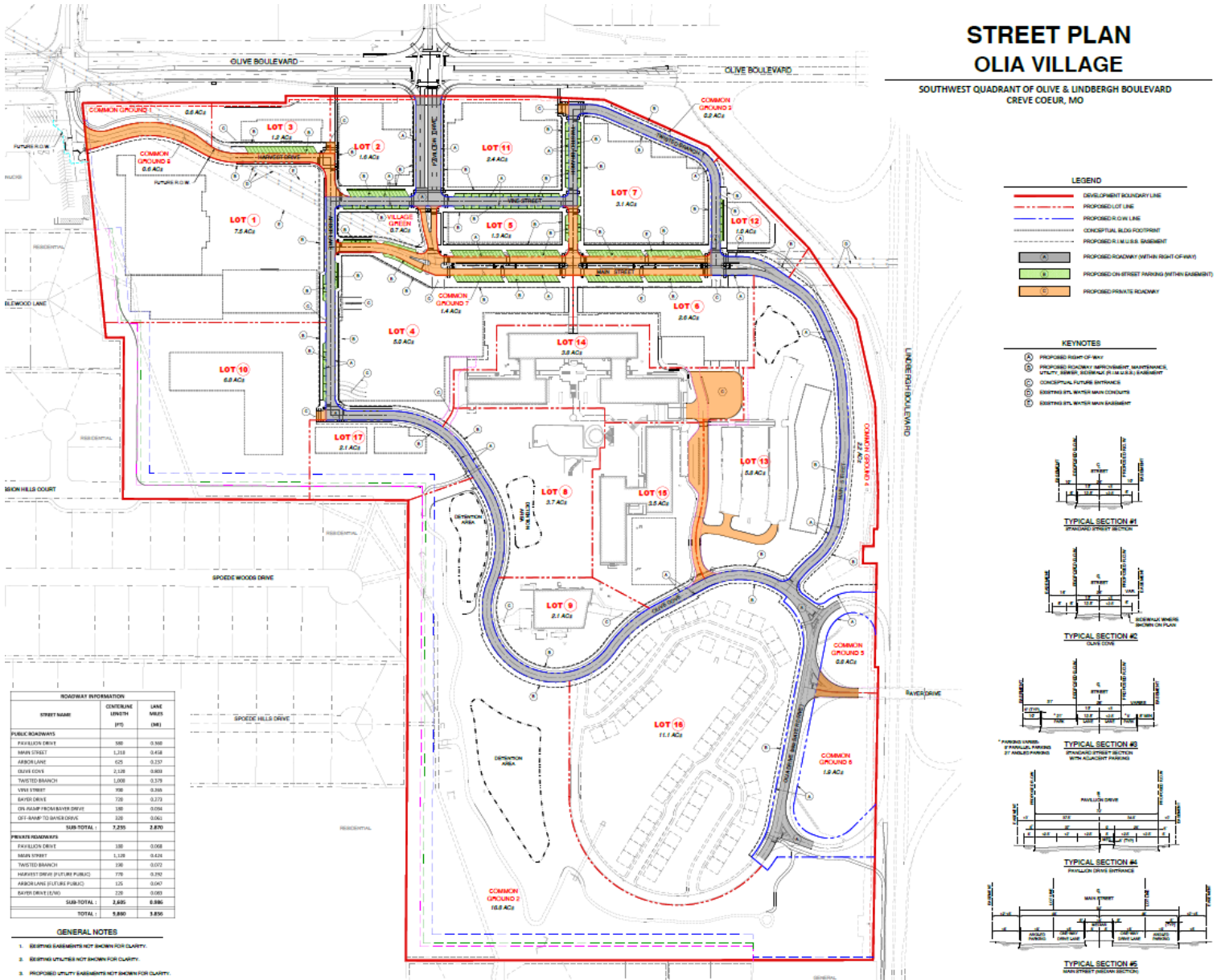
*** TOTAL PROVIDED PARKING COUNT DOES NOT ACCOUNT FOR REQUIRED ADA PARKING, TRASH ENCLOSURES OR LOADING SPACES.
EXACT PARKING COUNTS AND LOCATION TO BE DETERMINED BASED UPON SITE DEVELOPMENT PLAN FOR THE SPECIFIC LOT.

**** SHARED PARKING AGREEMENTS WILL OCCUR BETWEEN PARCELS.

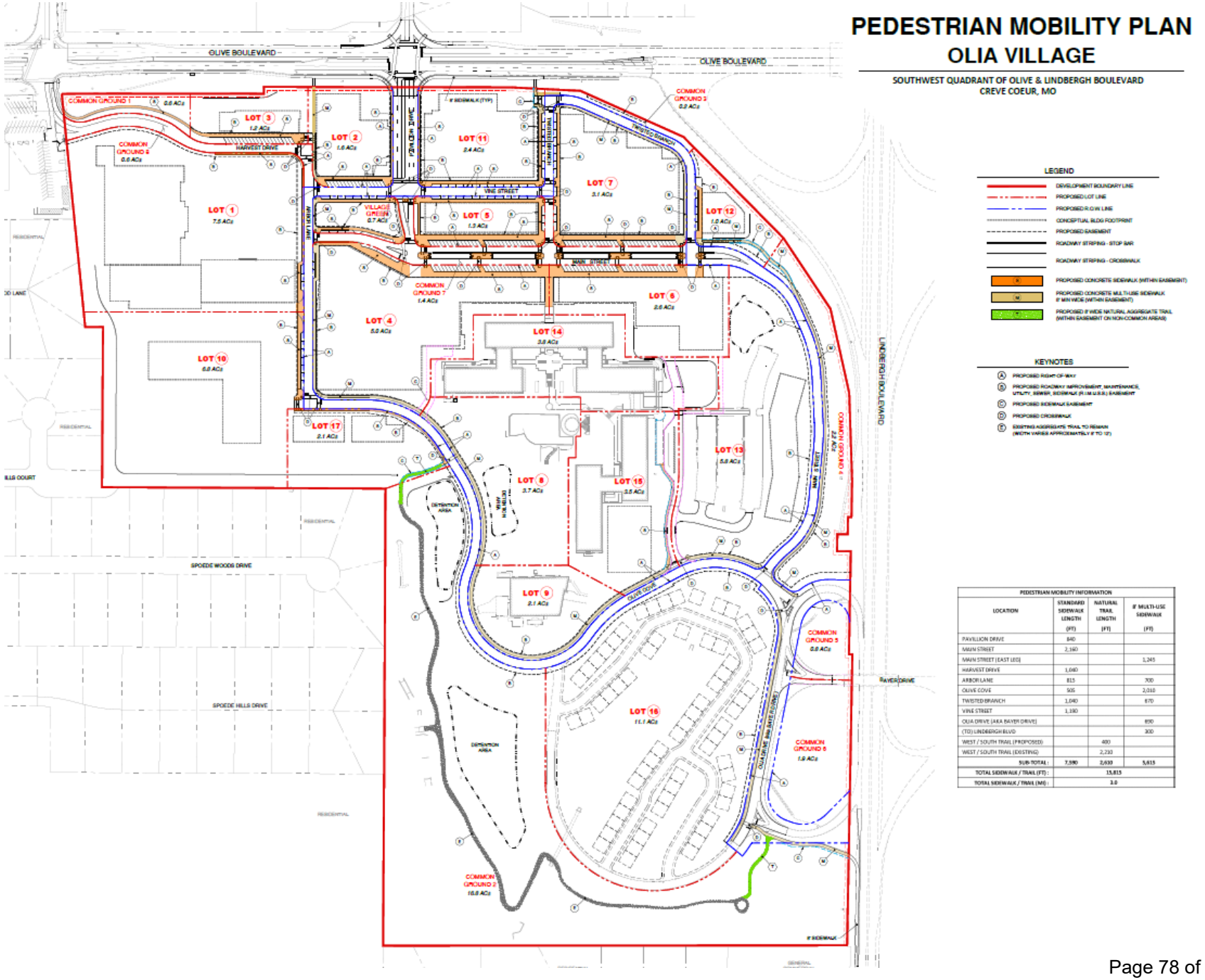
Concept Landscape Plan



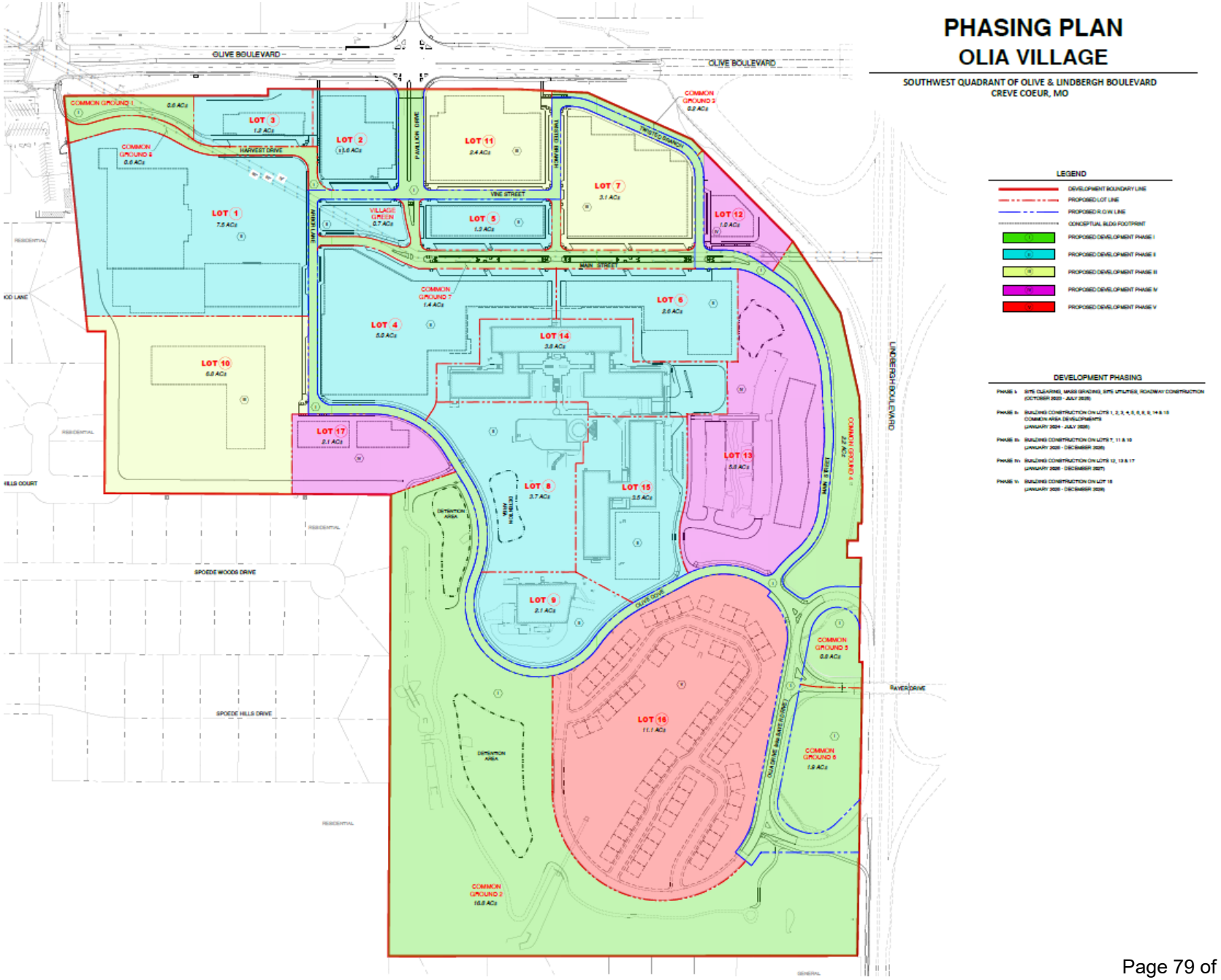
Street Plan


STREET PLAN
OLIA VILLAGE
SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO
OLIVE BOULEVARD
LINDBERGH BOULEVARD
SPOEDE WOODS DRIVE
SPOEDE HILLS DRIVE
LEGEND
KEYNOTES
TYPICAL SECTION #1
TYPICAL SECTION #2
TYPICAL SECTION #3
TYPICAL SECTION #4
TYPICAL SECTION #5
GENERAL NOTES

Pedestrian Plan



Phasing Plan



Traffic Study Presentation

Proposed Development Standards

DEVELOPMENT STANDARDS

- **Regulations in lieu of traditional zoning code requirements**
- **Highlights**
  - **B. Sub-District Category Standards**
  - Category C—General Office Development
    - Lots 10 and 17—height is limited to 3 stories or 50-feet
  - Category D—Residential Development
    - Attached single family (townhomes)—height limited to 3-stories or 40-feet
    - Detached single family (detached villas or single family homes)—height is limited to 2 ½ stories or 35-feet in height

DEVELOPMENT STANDARDS

- **C. Dimensional Regulations**
- Maximum site coverage
  - Determined by entire PMD District, excluding R-O-W dedicated for public use
- **D. Bulk Regulations**
  - No minimum setbacks for lots within the subdivision (does not apply to external lot lines and buffer yards)
  - Residential District—Minimum setback requirements for townhouses
    - Front 5 feet
    - Side 0-7.5 feet
    - Rear 5-feet
    - Between buildings-15 feet

DEVELOPMENT STANDARDS

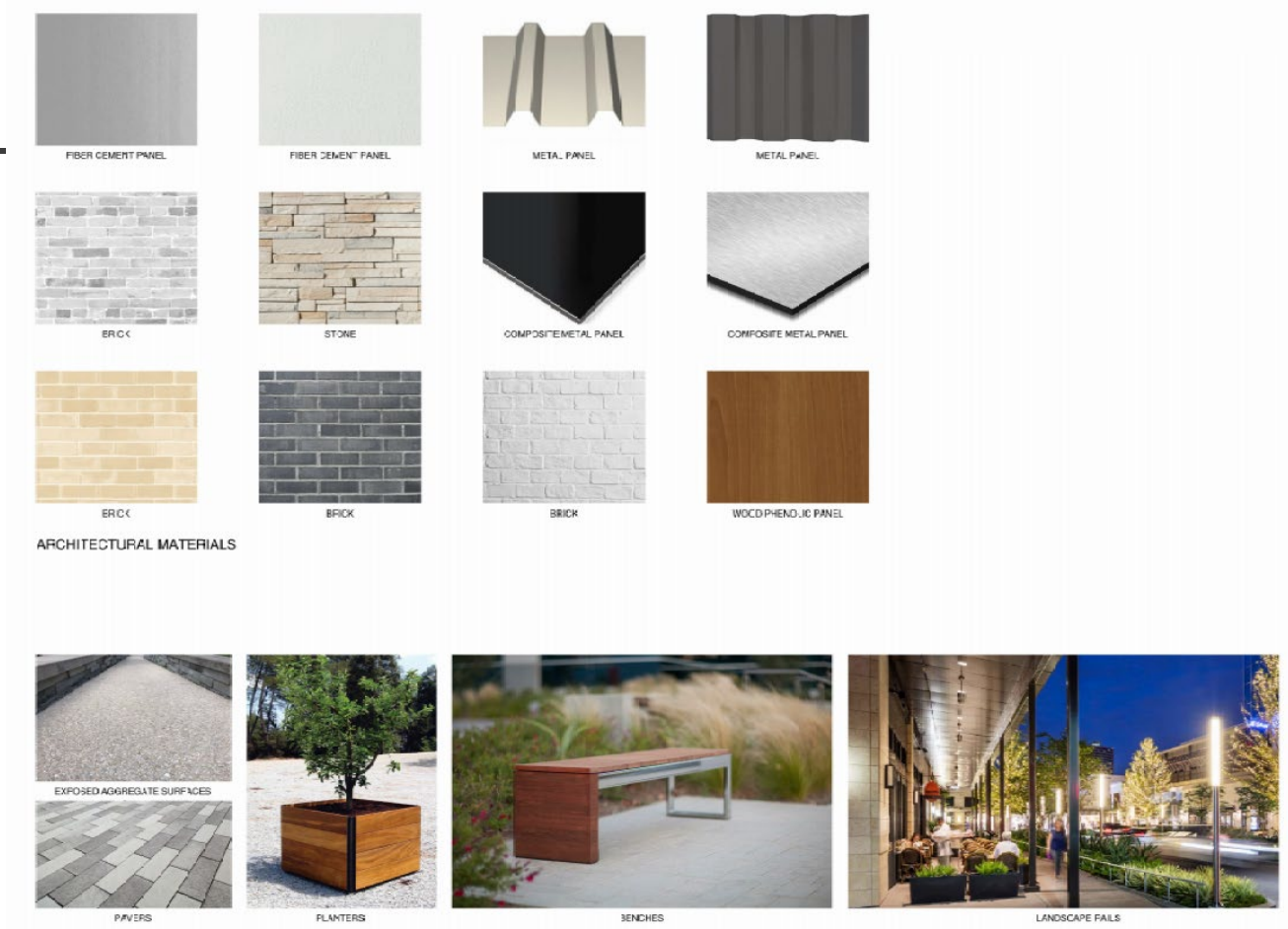
- **D. Bulk Regulations**
  - External setbacks when adjacent to existing single family: 50-feet buffer yard, additional 25-feet setback for commercial structures (75-feet min. setback from property line)
  - Residential District—Minimum setback requirements for townhouses
- **E. Parking and Loading Regulations**
  - Calculated based on the sum of uses per phase for entire development
  - 15% reduction to account for shared parking—does not apply to Residential Development (Lot 16)
  - To be verified based on specific uses at Site Development Plan stage

DEVELOPMENT STANDARDS

- **F. Landscape and Tree Requirements**
  - Landscaping standards for parking lots
  - Landscaped medians require irrigation
  - Existing parking lots to remain enhanced with landscaping
  - Irrigation requirements for landscaped areas
  - Detailed landscape plan for each phase reviewed at Site Development Plan stage
- **G. Signage**
  - Master Sign Plan package submitted at a later date for P&Z and City Council approval
- **H. Lighting**
  - Restriction on Lots 10 and 17: maximum pole height-16 feet, full cut-off, occupancy sensors

DEVELOPMENT STANDARDS

- **I. Architectural Requirements**
  - **Colors:** White, off-white, light grey, wood-grain or beige. Accents: Dark gray, black, bronze
  - **Materials:** Masonry and glass preferred as primary; Metal, cementitious siding, EIFS secondary materials
- **K. Roads**
  - All streets to be dedicated to City are concrete meeting City specifications



DEVELOPMENT STANDARDS

- **M. Miscellaneous**
  - Retaining walls—follow maximum height shown on plans
  - EV Charging Stations—considered during the site development plan stage
  - New architectural bus shelter to be provided on Olive and submitted at a future date
- **O. Public Art**
  - Separate public art package required to be submitted to Arts Committee and P&Z with Council approval of agreements based on approved design.

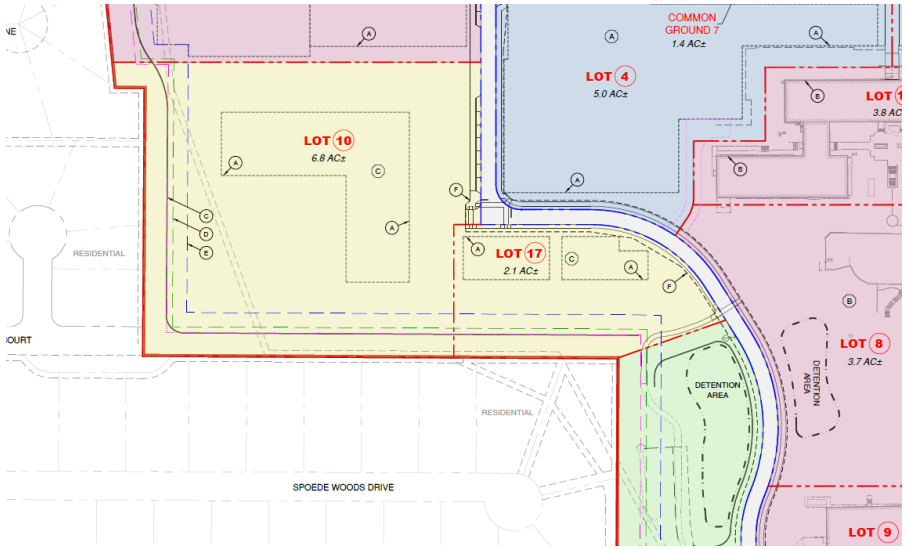
Proposed Allowable Uses

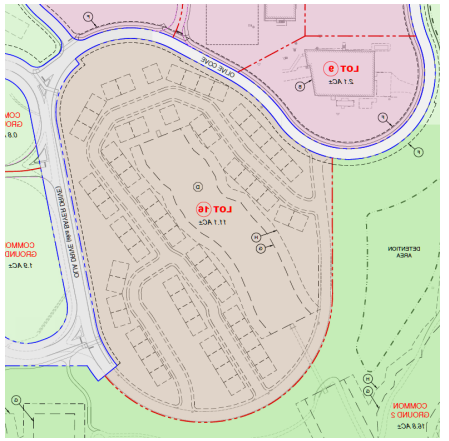
PROPOSED USES

- **Framework**
  - **Arranged by 4 sub-districts: A-Main Street, B-Mixed-Use, C-Office, D-Residential**
  - **Based on City's NAICS Land Use Table**
  - **Uses listed are permitted by-right. No conditional uses**
- **A-Main Street**
  - Allows wide variety of retail, office, restaurant lodging, service uses
  - Office uses that do not generate walk-in traffic not permitted street facing ground floor
  - Marijuana Dispensaries permitted
  - Drive-through restaurants not permitted
- **B-Mixed Use**
  - Least Restrictive—allows broad variety of retail, office, restaurant lodging, service uses
  - Drive-through restaurants permitted

PROPOSED USES

- **C-Office (Lots 10 & 17)**
  - Restricted uses. Limited to broad range of office and medical office uses only
- **D-Residential (Lot 16)**
  - Attached single family residential (duplexes and townhouses)
  - Single family residential (detached)
  - No other uses permitted





Site Development Plan Phase One

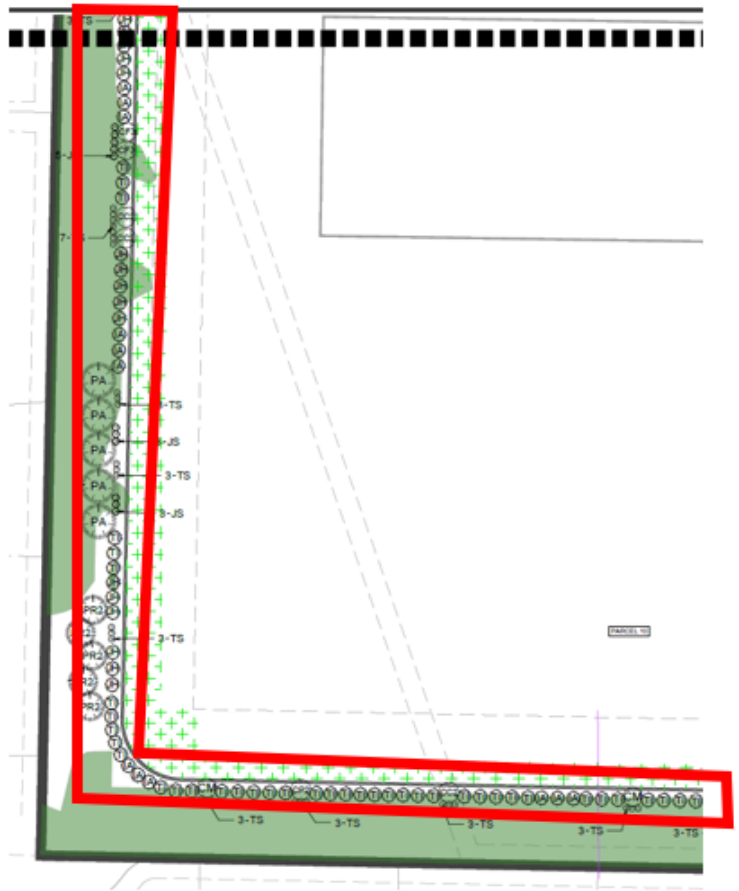
SITE DEVELOPMENT PLAN PHASE ONE

- **Site Preparation Activities for Future Development**
  - Clearing, tree removal
  - Mass grading
  - Utility work
  - Retaining wall construction
  - Tree planting
  - Streets and lighting installation

P&Z Recommendations

RESIDENTIAL BUFFER YARD

- Significant landscaping proposed within residential buffer yard in front of the retaining wall.
- Dense row of evergreen trees mixed with the remaining existing trees to provide screening.
- ***P&Z Conditions of Approval:***
  - ***Increase buffer yard to 50-feet***
  - ***Require additional plantings, if necessary, based on "as-built" conditions in association with the site improvement permit final landscaping inspection.***



TREE CONSERVATION PLAN

- The Tree Conservation Plan has been updated showing no more than 50% of all existing trees greater than 6-inches in diameter and tree masses will be removed.

- ***Condition of P&Z approval: applicant to provide more details for the tree conservation plan to show their methodology and supporting calculations for staff review prior to final consideration and vote by the City Council.***

REVIEW CRITERIA #14

Planned Zoning District Review Criteria #14: Projected Revenues and Municipal Service Costs

Condition of P&Z Approval: Compliance with Review Criteria #14 of the Planned Zoning District Ordinance is met with the revenue analysis demonstrating revenues in excess of anticipated municipal expenditures prior to final consideration and vote by the City Council on the rezoning application.

Olia Village
City's Projected Costs
as of September 28, 2023

	Personnel 1st Year	Maintenance 1st Year	Capital Expend. Over 20 years	20-Year Costs with 3% Inflation
Public Works Department				
1 Maintenance Worker	$76,696			$2,060,850
Construction Management for 1st Year Only		$260,000		$260,000
Annual Street Maint		$31,500		$846,417
Capital Improvements - 20 Year Costs			$2,316,606	$2,316,606
Total Public Works Department	$76,696	$291,500	$2,316,606	$5,483,873
Community Development Department				
1 Inspector (3 years)	$96,550			$298,426
Total Planning Department	$96,550	$0	$0	$298,426
Police Department				
2 Police Officers	$220,904			$5,935,773
1 Vehicle every 3 yrs (includes equip. & change-over)			$496,528	$496,528
Annual Vehicle Maintenance		$7,136		$191,747
Total Police Department	$220,904	$7,136	$496,528	$6,624,048
Grand Total by Category	**$394,150**	**$298,636**	**$2,813,134**	**$12,406,347**

Conclusion

Exhibit B

OLIA VILLAGE

THE HEART OF CREVE COEUR

CITY COUNCIL 10.09.2023

FIRESIDE FINANCIAL

Michael Bailey

Kristie Bailey

Fireside Financial is a dynamic private equity real estate firm that invests in high quality, sustainable, value-add and development properties, focusing on multifamily, self-storage, industrial, office space and mixed-use assets. The Fireside Financial management team has over 60+ years of combined experience buying and selling real estate and meeting the needs of our investment partners.

Learn more at:
firesidefinancial.com

JACK MATTHEWS DEVELOPMENT

Matthew Pfund

Jack Matthews Development is a real estate development firm with decades of experience in ground up and adaptive reuse projects. Matt is regularly asked by community leaders in the region to comment on and assist with their revitalization efforts. The company is known for creating value through win-win concepts and the ability to find consensus in challenging developments.

Learn more at:
jackmatthewsdevelopment.com

L3 Commercial Real Estate

Rick Spector

L3 Corporation is a leading retail commercial brokerage firm specializing in tenant representation, landlord representation and property acquisition and disposition. Since its inception in 1998, L3's dealmakers have completed transactions totaling over 37,000,000+ square feet spanning over 100 cities throughout the United States and Canada.

Learn more at:
l3corp.net

gray

Tobias Heddinghaus

Gray Design Group is one of the leading multi-disciplined architectural, interior, planning, branding and graphic design firms in the Midwest. With over 40 years of experience and thousands of successful projects, Gray continues to deliver exceptional, vibrant designs throughout the United States and abroad.

Learn more at:
graydesigngroup.com

Armstrong Teasdale

Robert Klahr

Jaimie Mansfield

Armstrong Teasdale has a rich history with more than 120 years of experience counseling clients through their most complex legal challenges. We strive to operate as a team with boldness, creativity, transparency and passion for providing our clients with the highest level of service, efficiency and value. Over the past century, the firm has grown tremendously and now boasts more than 700 lawyers and staff members in 16 offices internationally.

Learn more at:
armstrongteasdale.com

CMT

Chris Stritzel

Todd Ehlen

Crawford, Murphy & Tilly, Inc. (CMT) founded in 1946, is a nationally ranked professional company providing planning, engineering and construction services to both the public and private sector. CMT and our 400+ employees provide leadership in civil infrastructure by leveraging shared knowledge, staff longevity, and unique insights. For over 76 years, our employee-owned corporation has sustained a trademark level of service and commitment to clients that translate into long-term relationships and enhanced value to our clients' projects.

Learn more at:
cmtengr.com

SWT DESIGN

Bonnie Roy

Wes Haid

SWT Design, Inc. is an integrated site design firm. We plan and design outdoor environments that bring people together. Since 1995, we've turned the possibilities of urban and natural spaces into living realities, adding meaning and purpose to micro details and macro views. We mediate and connect all points of view, distilling a singular creative vision that's best for the landscape and the people who experience it. We design environments that balance the needs of cities, the evolution of nature and a perspective for all generations. In 2012, our headquarters became the first design firm in the world to have its own campus certified under the Sustainable SITES rating system.

Learn more at:
swtdesign.com

Steadfast city

Douglas Rasmussen

Steadfast City is built upon a driving philosophy—*develop better*. Our purpose is rooted in elevating businesses that create jobs, real estate developers who rebuild neighborhoods, cities that need revitalization, organizations that effectuate positive change, and people who benefit from all of these working together. We are economic development, community development and non-profit consultants. We support businesses and real estate developers as they secure economic incentives. We also help communities and community development organizations take advantage of opportunities related to developing/redeveloping real estate, market feasibility and community planning.

Learn more at:
steadfastcity.com

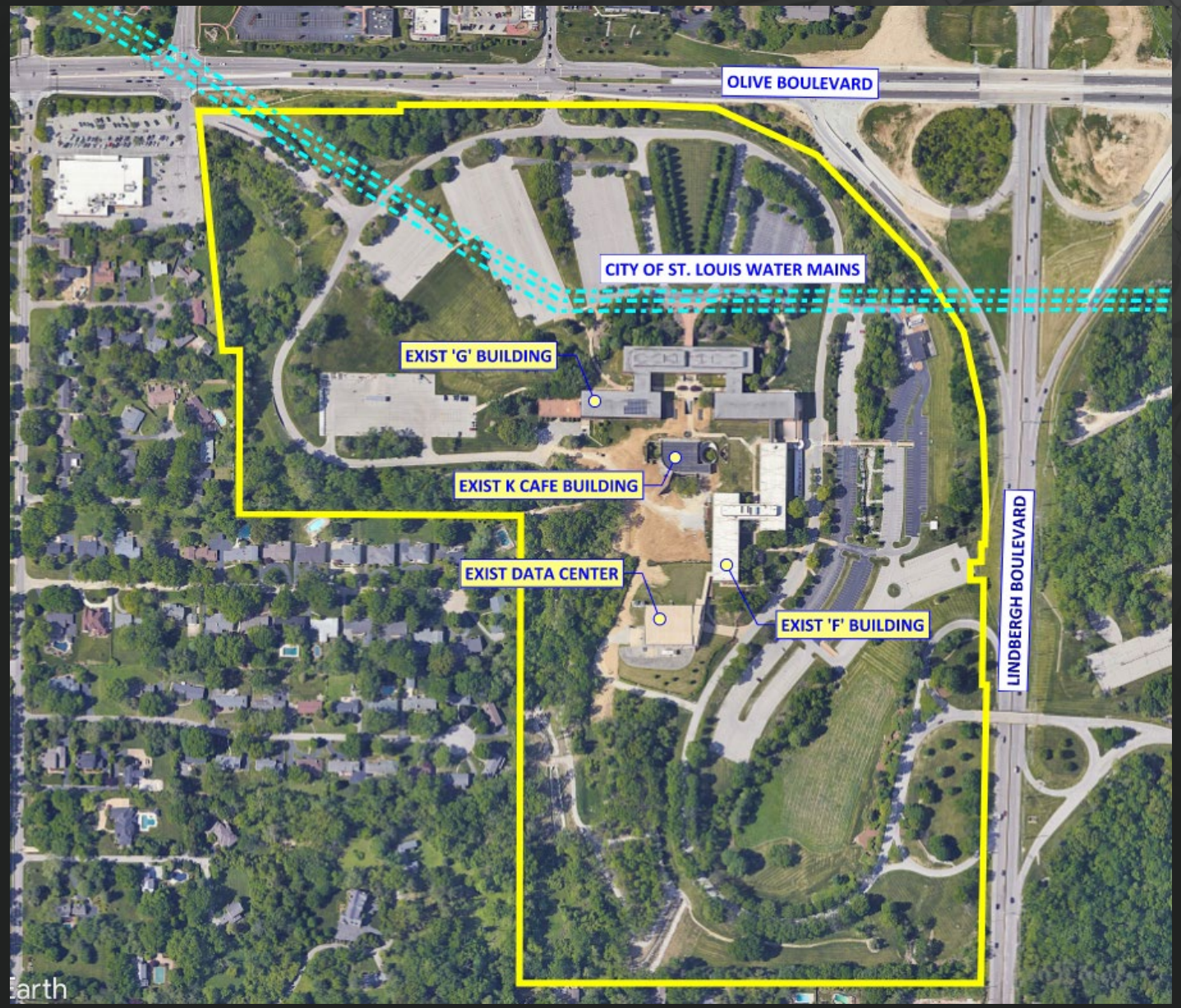
Glantz

Barry Glantz

Barry Glantz, the former owner and operator of the award-winning residential architectural design firm Glantz & Associates Architects. Mr. Glantz served on the Creve Coeur City Council from 1992 to 2000, serving as council president from 1996 to 1997 and was appointed to the Creve Coeur Planning and Zoning Commission from 2001 to 2011. In April 2012, Mr. Glantz was elected mayor of the City of Creve Coeur until term limits led to his retirement in 2021. Mr. Glantz currently serves on the Advisory Board at Enterprise Bank and is vice chair of the St. Louis County Building Commission.

CHALLENGES AND OPPORTUNITIES

- CITY OF ST LOUIS WATER CONDUITS
- PAVILION DRIVE ALIGNMENT
- LINDBERGH CLOVERLEAF
- REUSE EXISTING CAMPUS BUILDINGS
- ALL NEW UTILITY INFRASTRUCTURE
- STEPPING DOWN DENSITIES & USES ALONG RESIDENTIAL AREAS
- TOPOGRAPHY



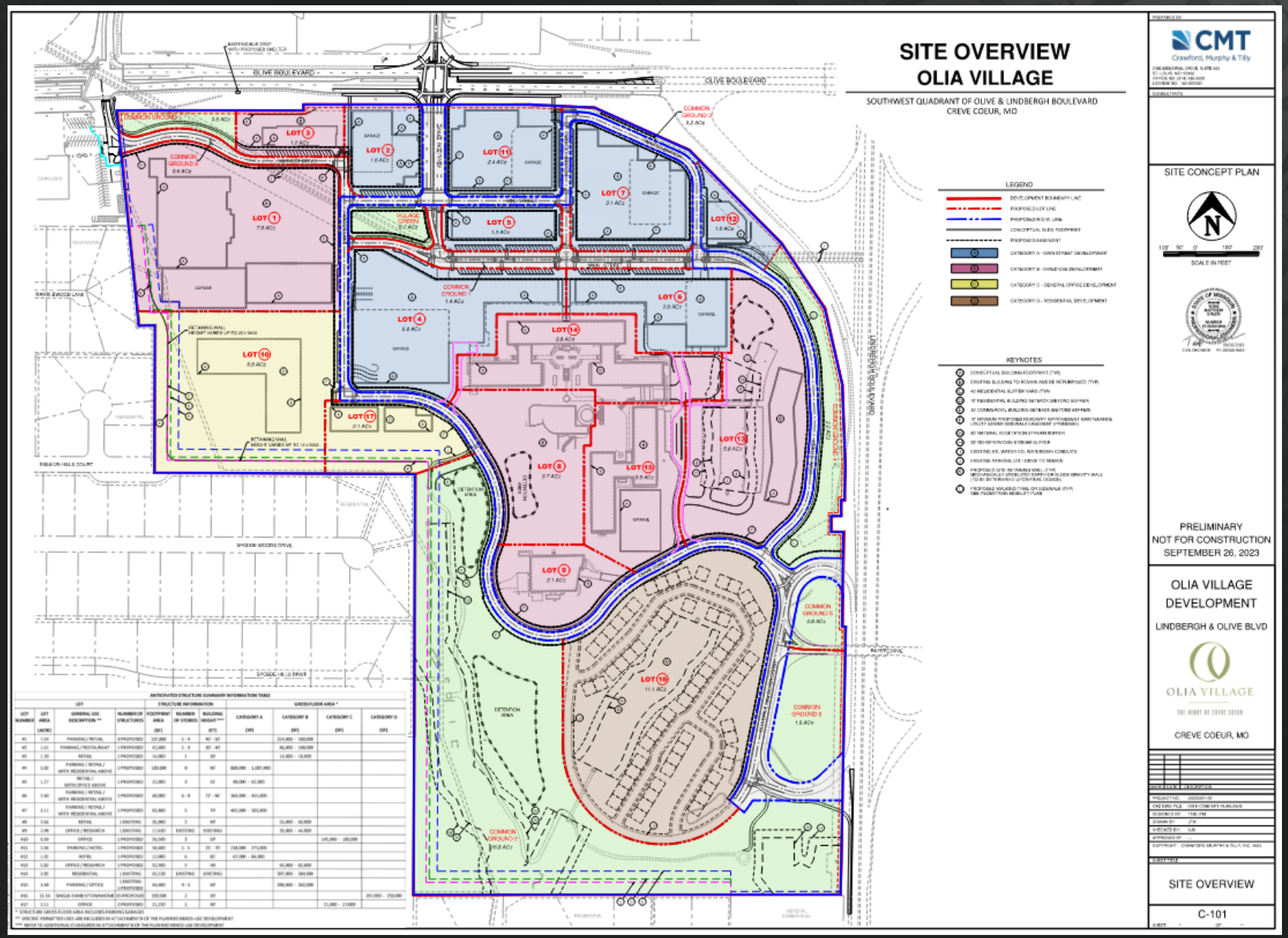
SUBSTANTIAL OPPORTUNITY

- NEW AMENTIES INTO THE 39N DISTRICT
- UPSCALE LIVE-WORK-PLAY DESTINATION
- WALKABLE, URBAN, MIXED-USE MAIN STREET
- MINIMIZED PAVEMENT AREAS (78% STRUCTURED WITH 39% BELOW GRADE)
- MILES OF PEDESTRIAN PATHS TO WALK & BIKE

IMPORTANT DEVELOPMENT THAT ALIGNS WITH EVERY GOAL IN '23-'25 CREVE COEUR STRATEGIC PLAN

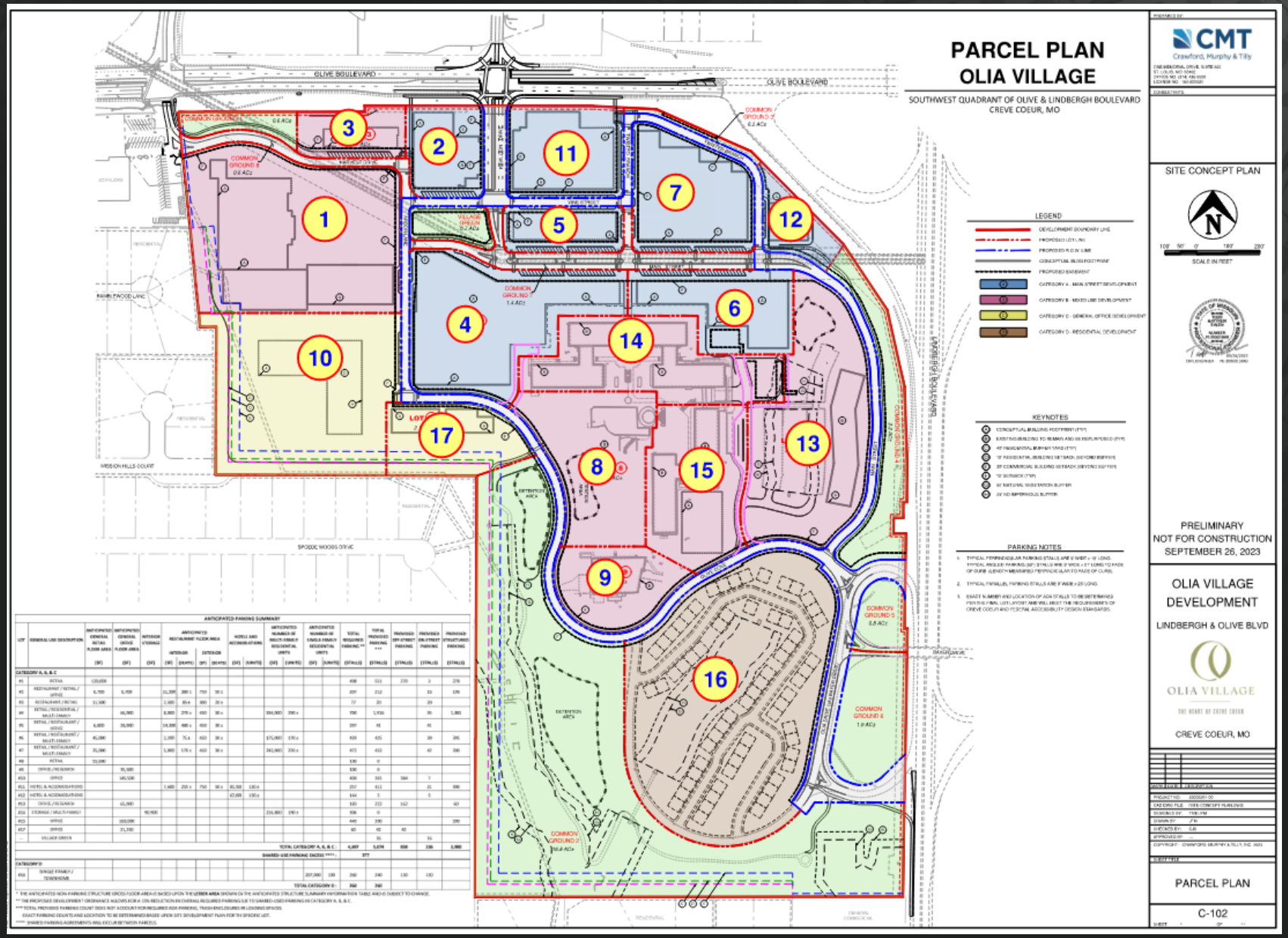
VARYING DENSITY

- HIGHEST DENSITY NORTH
- LOW DENSITY SOUTH
- RESPECTFUL USES WEST
- SUBDISTRICTS & CATEGORIES
  - MAIN STREET
  - MIXED-USE
  - GENERAL OFFICE
  - RESIDENTIAL
  - COMMON GROUND / OPEN SPACE
- DEFINED USES & REGULATIONS



SUBDIVISION LAYOUT

- 17 TOTAL LOTS
  - 7 – MAIN STREET
  - 7 – MIXED USE
  - 2 – GENERAL OFFICE
  - 1 – RESIDENTIAL
- 96 TOTAL ACRES
  - 65 ACRES DEVELOPED
  - 31 ACRES LARGELY UNDISTURBED

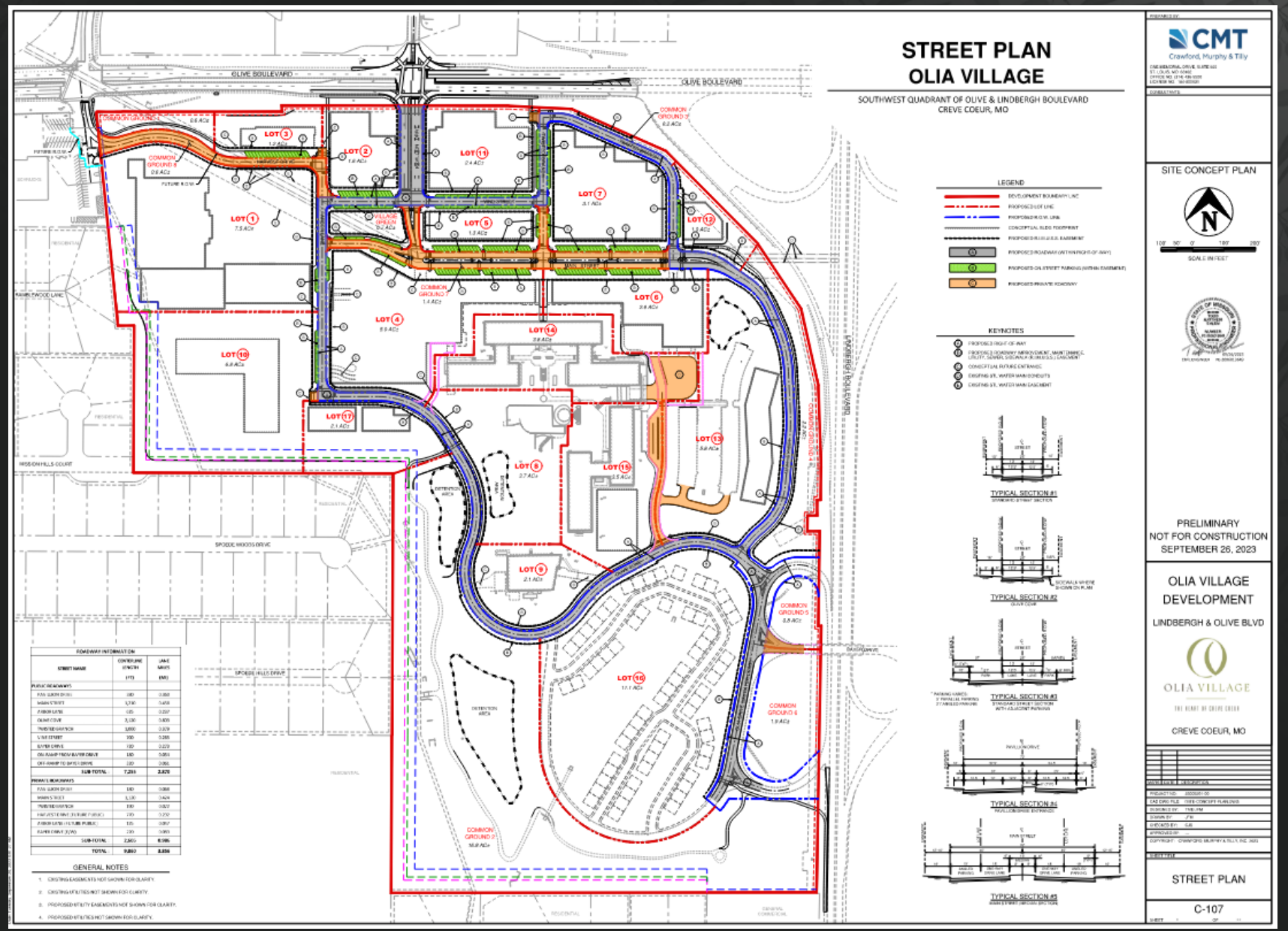


VILLAGE GREEN

- POCKET PARK PROVIDES URBAN OPEN SPACE
- PUBLIC ART & SHADE STRUCTURES
- EXTENSION OF NEARBY OUTDOOR DINING
- FLEXIBLE DESIGN FOR OUTDOOR EVENTS
- PUBLIC RESTROOMS IN ADJACENT RESTAURANTS & APARTMENT LOBBY

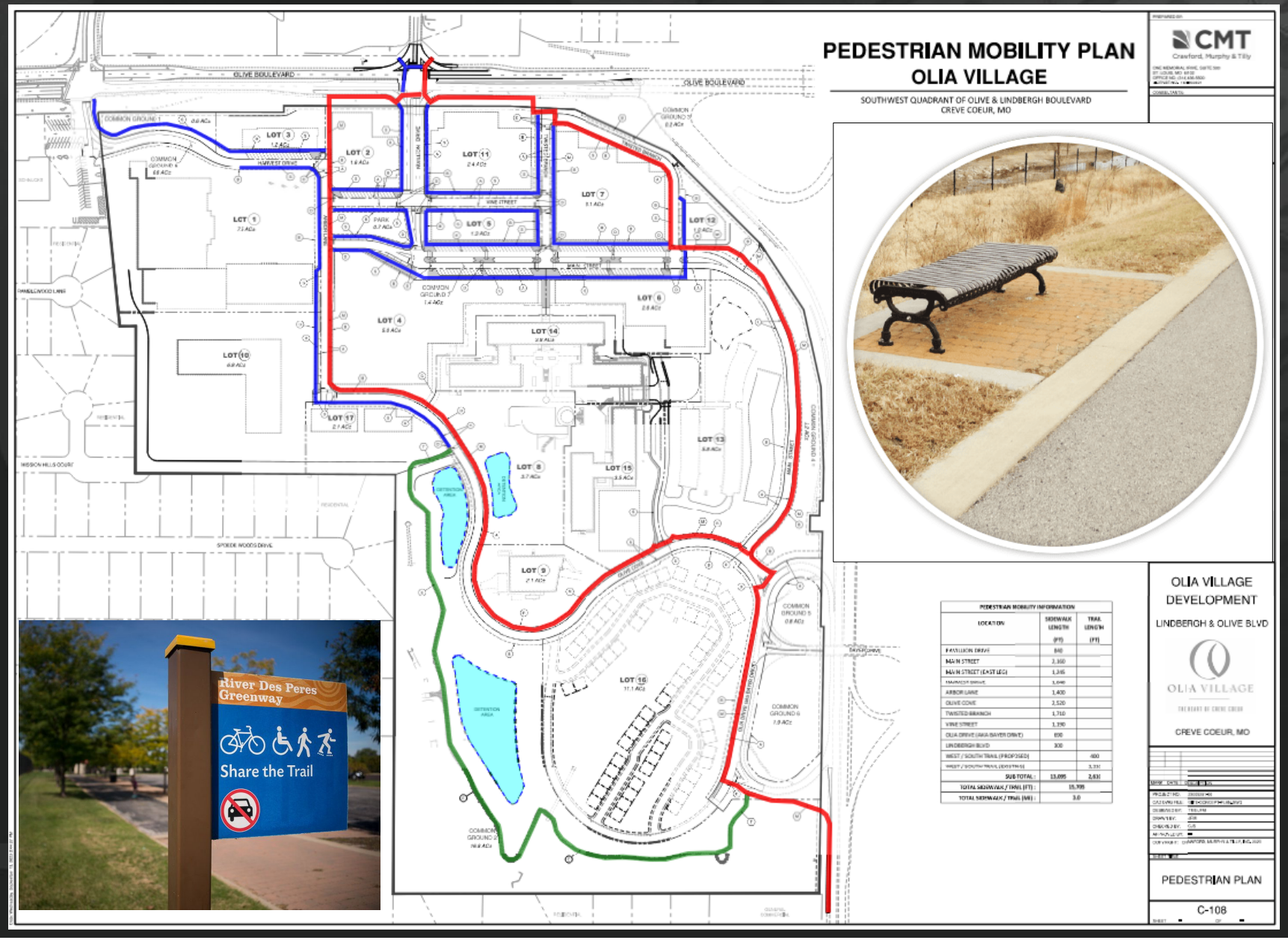
INTERNAL ROADWAYS

- PUBLIC ROADS:
  - CONCRETE PAVEMENT
  - CURB & GUTTER
  - RIGHT OF WAY
- PUBLIC USE EASEMENTS
  - SIDEWALKS
  - ON-STREET PARKING
  - STREET LIGHTING
- PRIVATE STREETS
  - MAIN STREET
  - LINDBERGH OVERPASS
- PRIVATE MAINTENANCE
  - SIDEWALKS
  - STREET LIGHTING
  - LANDSCAPING



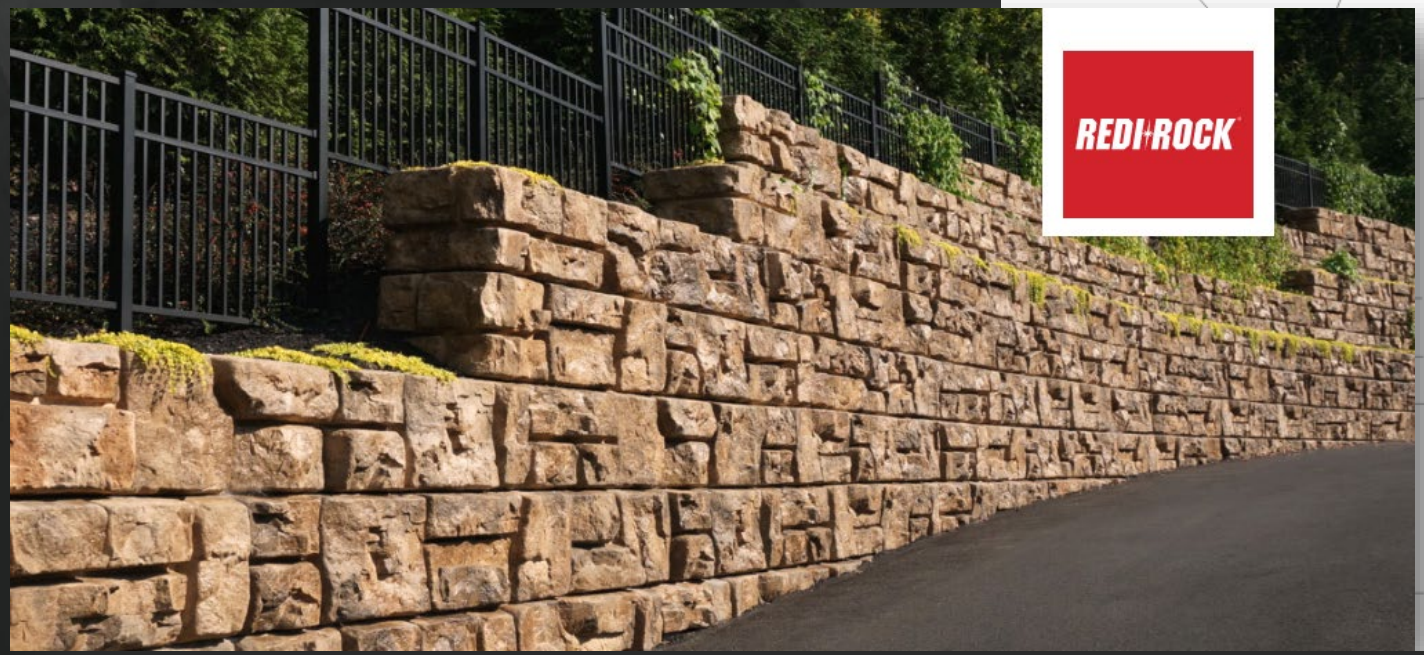
PEDESTRIAN MOBILITY

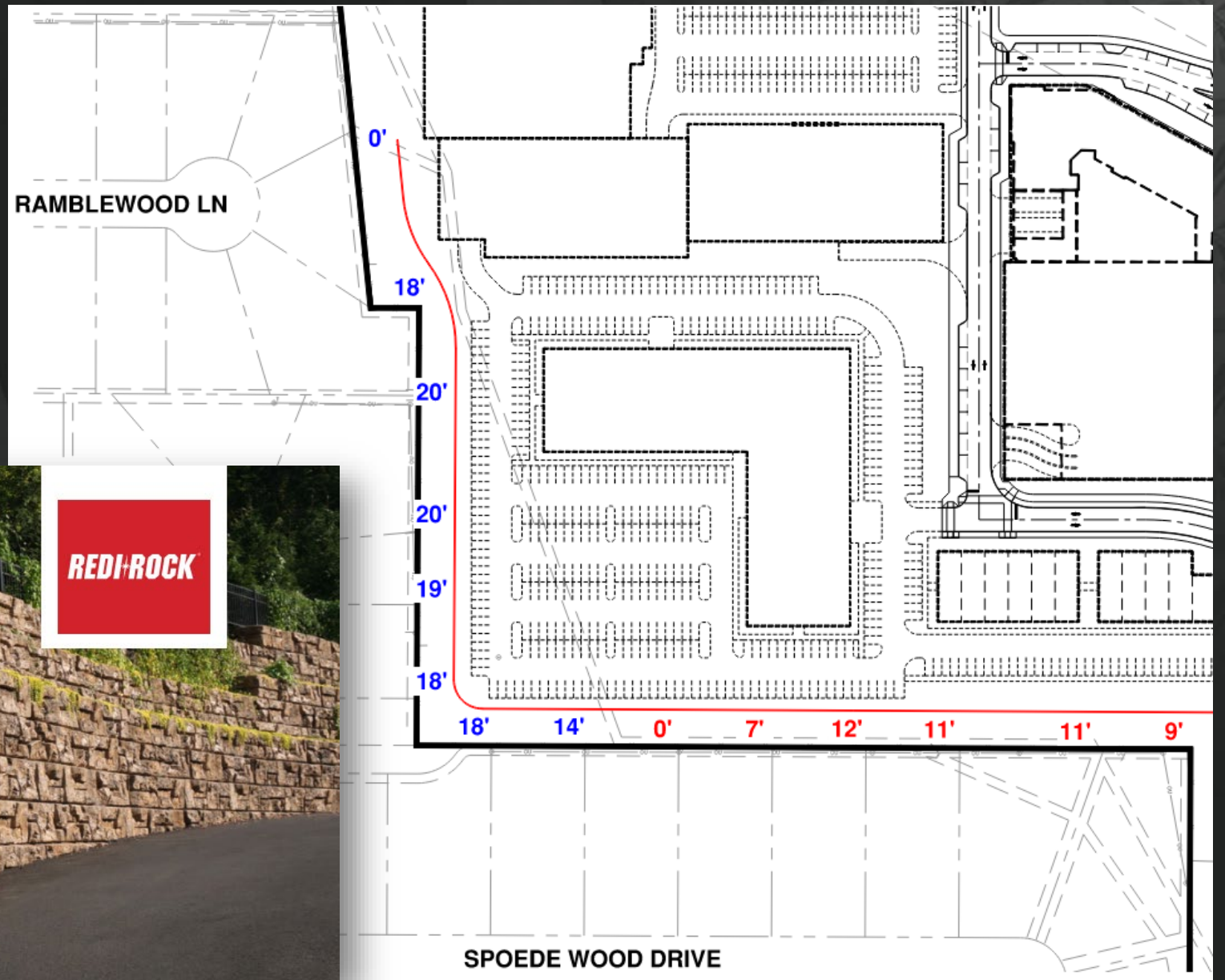
- SHARED USE PATH
  - MIN 8' WIDE CONCRETE
  - INCLUDED 2 PATHS PER CITY STAFF REQUEST
- NATURE TRAIL
  - NATURAL & UNDISTURBED
  - MIN 8' WIDE GRAVEL
- INTERNAL SIDEWALKS
  - MIN 8' CLEAR MAIN ST
  - MIN 7' ALONG STOREFRONT
  - MIN 6' ELSEWHERE

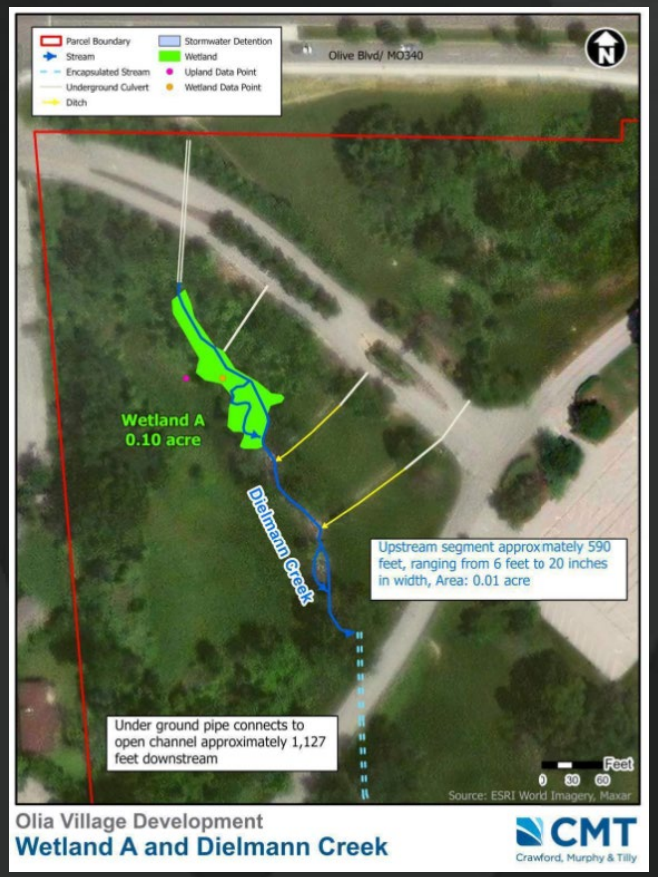


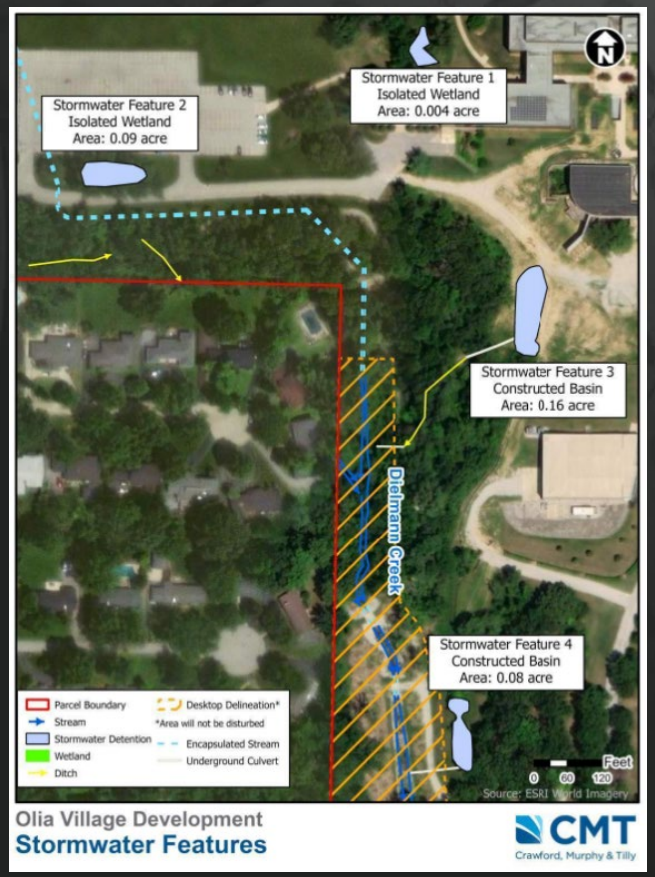
RETAINING WALLS

- RETAINING WALL HEIGHT
  - 20' MAX HEIGHT
  - 14' MAX HEIGHT WHEN FACING RESIDENTIAL NEIGHBORHOOD



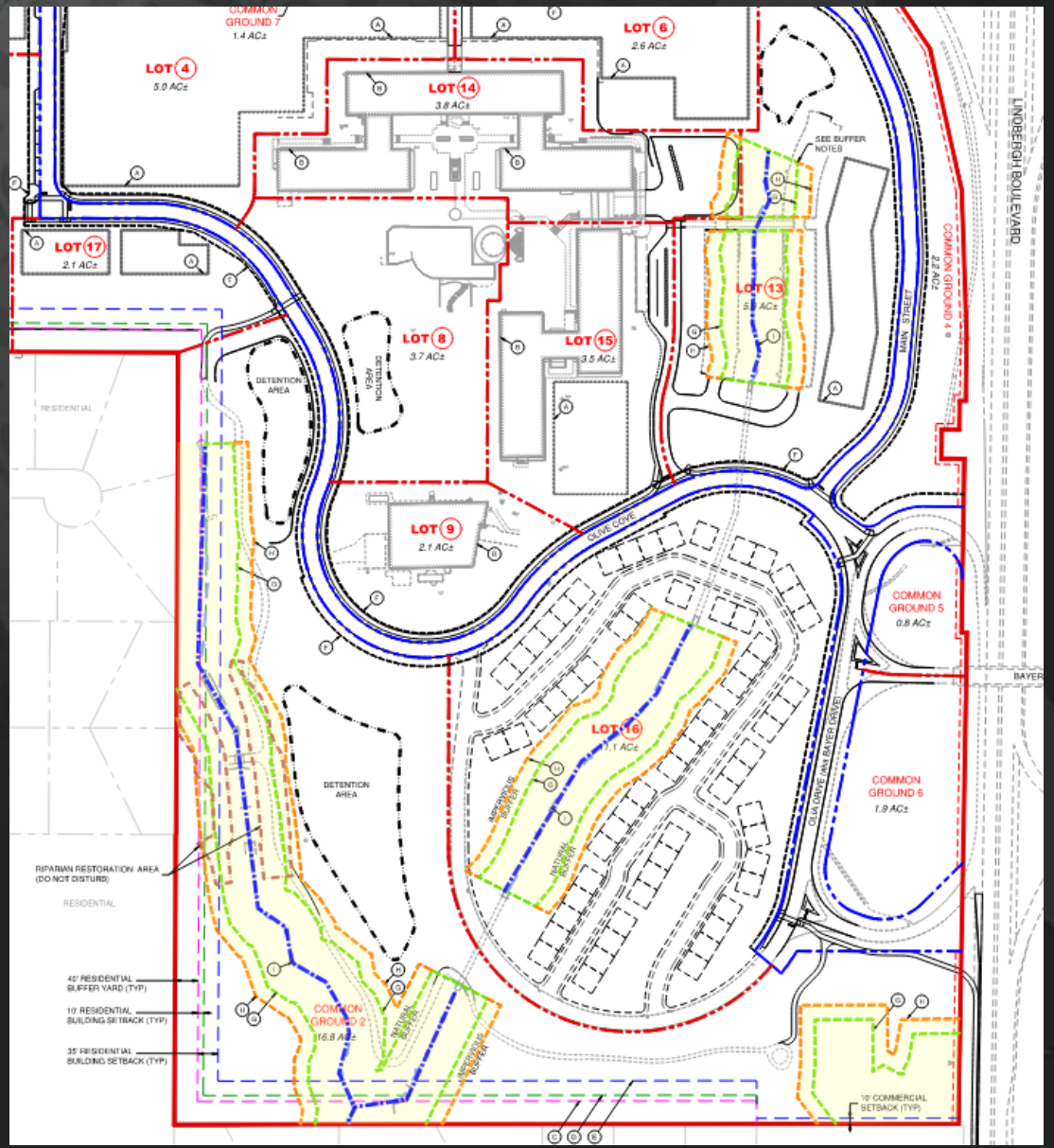






STREAMS & WETLANDS

- ON-SITE DELINEATION OF STREAMS & WETLANDS
- 915' OF STREAM PIPING & 0.1-ACRES OF WETLAND MITIGATION
- USACOE APPROVAL – SEPTEMBER 29, 2023

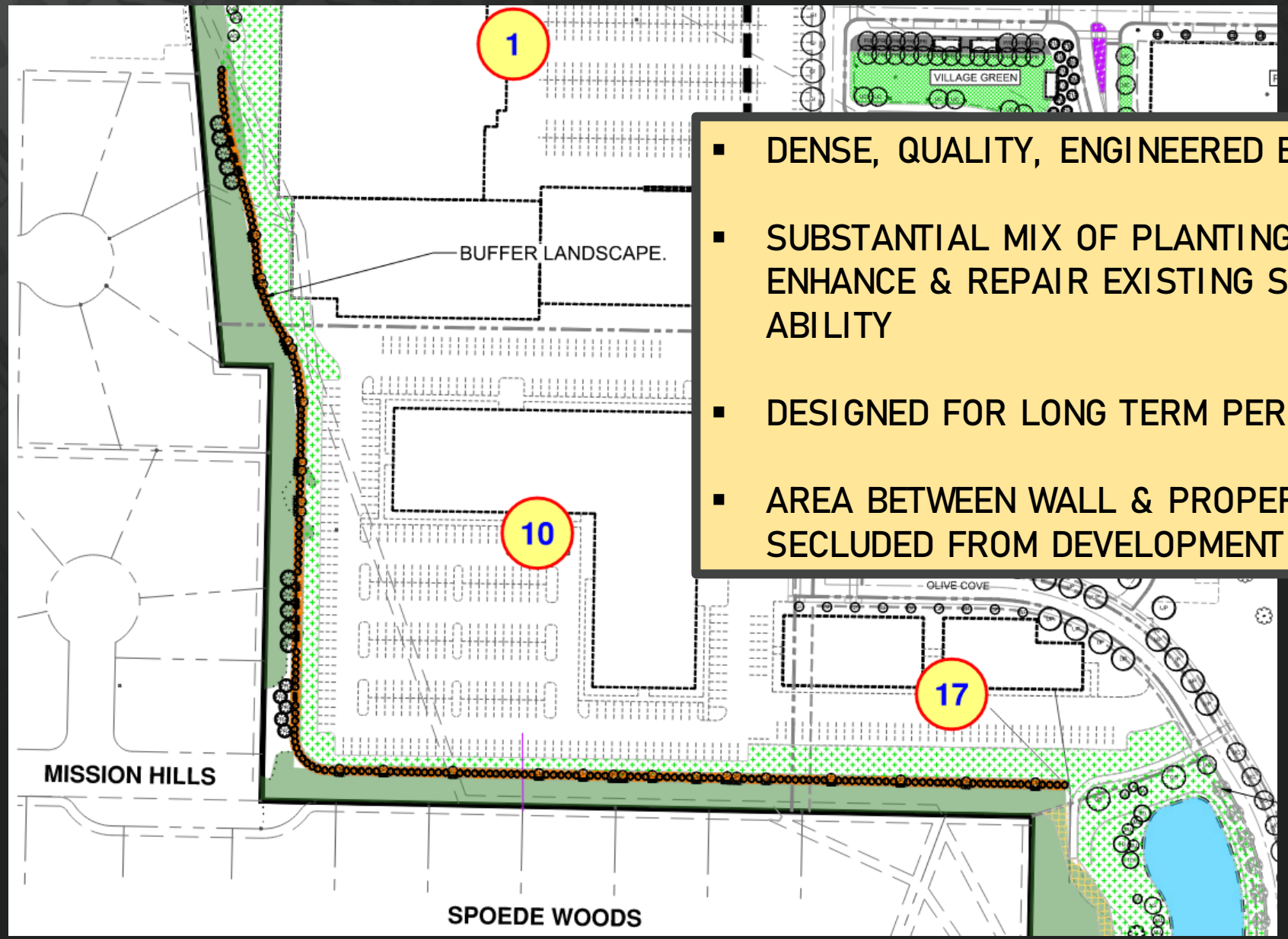


STREAM BANK BUFFER PROTECTION

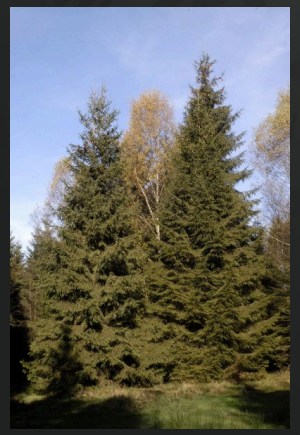
- PER SECTION 430.050.A.1
  - 50' UNDISTURBED NATURAL VEGETATIVE BUFFER
  - 25' ADDITIONAL IMPERVIOUS COVER SETBACK

BUFFERS & SETBACKS

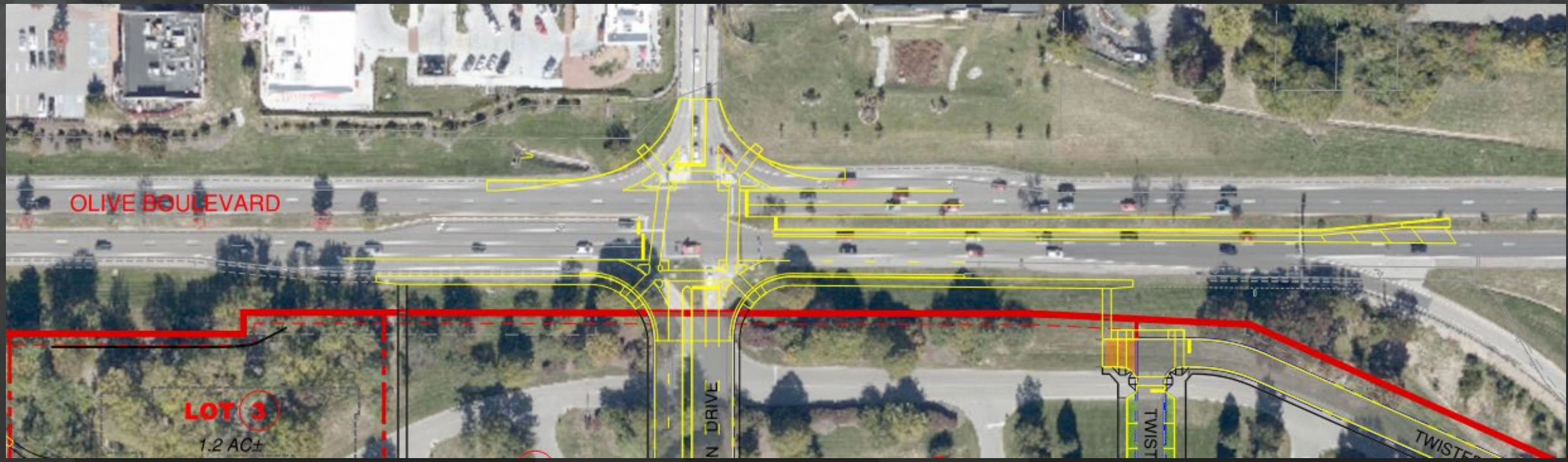
- 35' BUFFER REQ'D, 40' BUFFER PROPOSED
- P&Z RECOMMENDED 50' BUFFER ADJACENT TO SINGLE-FAMILY RESIDENTIAL
- TO BE CONSISTENT WITH CURRENT RO ZONING BUFFER REQUIREMENTS
- ADDITIONAL 25' COMMERCIAL BUILDING SETBACK ADJACENT TO BUFFER (75' TOTAL)



- DENSE, QUALITY, ENGINEERED BUFFER
- SUBSTANTIAL MIX OF PLANTINGS TO ENHANCE & REPAIR EXISTING SCREENING ABILITY
- DESIGNED FOR LONG TERM PERFORMANCE
- AREA BETWEEN WALL & PROPERTY LINE SECLUDED FROM DEVELOPMENT

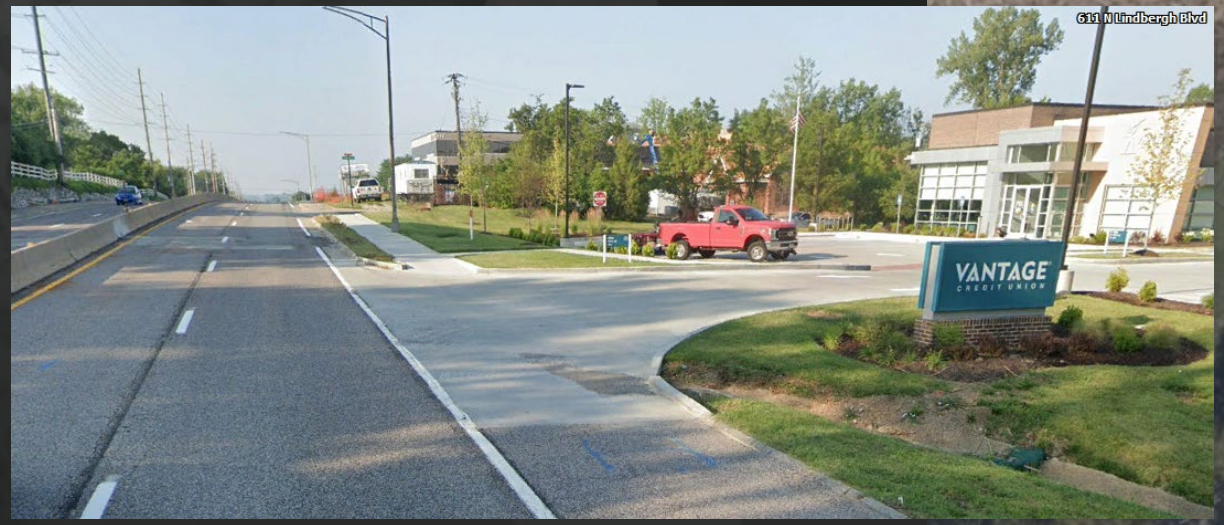


PROJECT ELEMENTS



OLIVE BOULEVARD UPGRADES

- SINGLE 500' LONG LEFT TURN LANE
- PEDESTRIAN CROSSINGS AT ALL 4 QUADRANTS INCLUDING SHARED-USE PATH
- NEW MODERNIZED TRAFFIC SIGNALS
- MODOT APPROVAL OF TRAFFIC IMPACT STUDY – SEPTEMBER 26, 2023

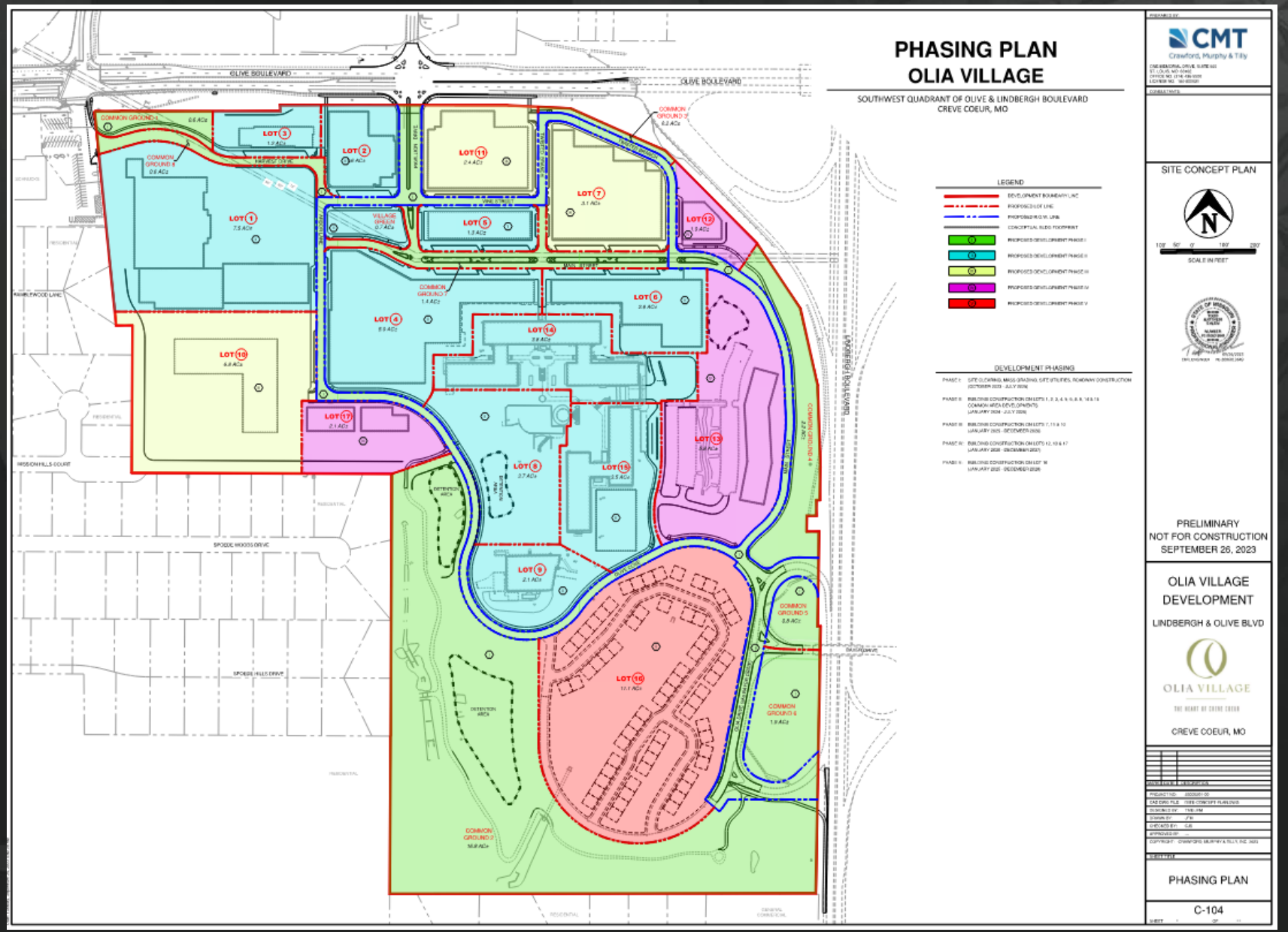


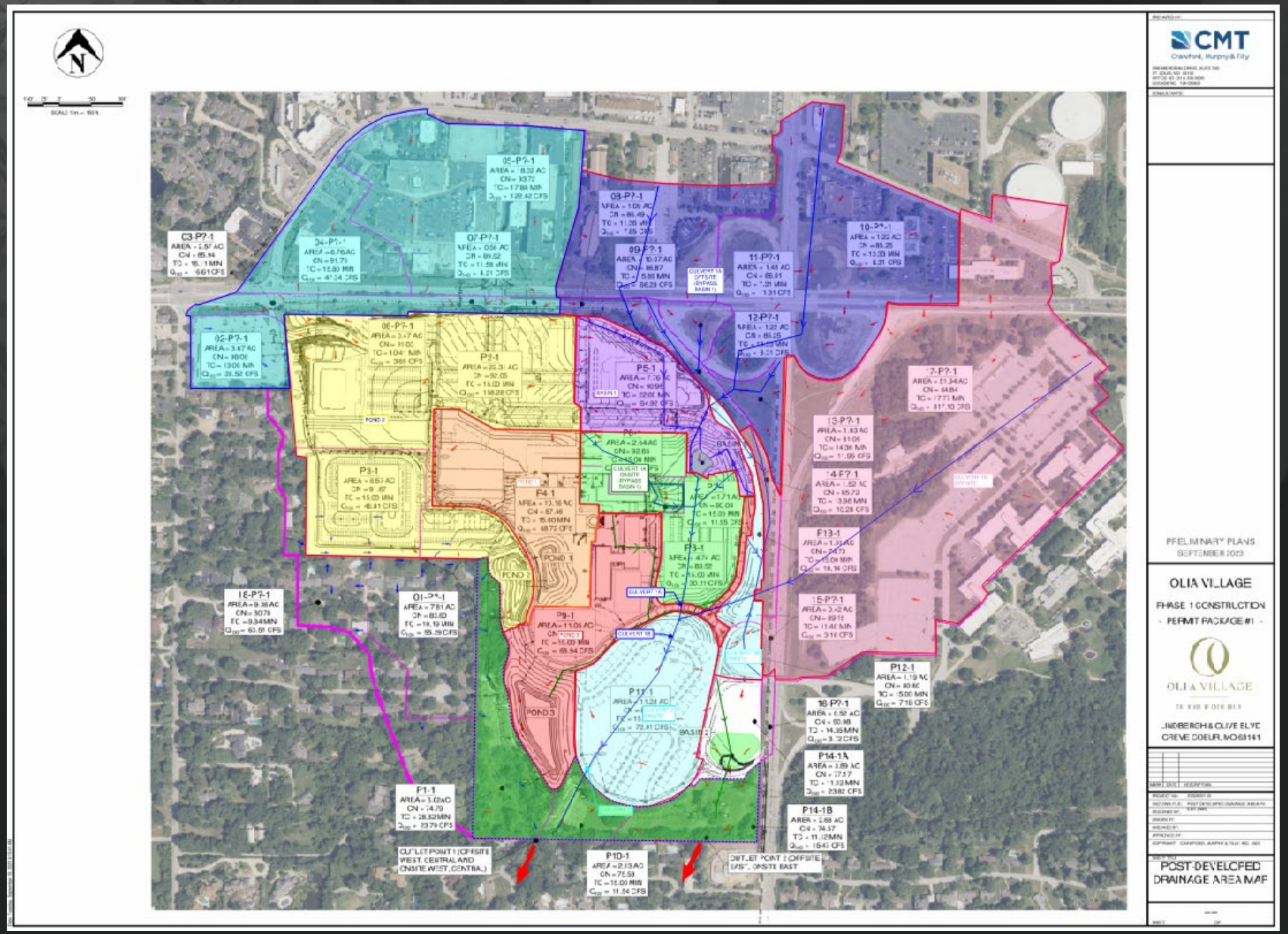
LINDBERGH BOULEVARD IMPROVEMENTS

- PROVIDE SHARED-USE PATH TO SOUTH FOR CONNECTIVITY TO EXISTING WALKS
- UPGRADE LINDBERGH SHOULDER FROM OLIA VILLAGE TO VANTAGE CREDIT

PHASED APPROACH

- PHASE 1: FALL '23 – JULY '25
  - 3 PERMIT PACKAGES:
    - ✓ GRADING & DRAINAGE
    - ✓ ROADWAYS & UTILITIES
    - ✓ OLIVE & LINDEBERGH
- PHASE 2:
  - JAN '24 – JULY '26
- PHASE 3:
  - JAN '25 – DEC '26
- PHASE 4:
  - JAN '26 – DEC '27
- PHASE 5:
  - JAN '25 – DEC '28



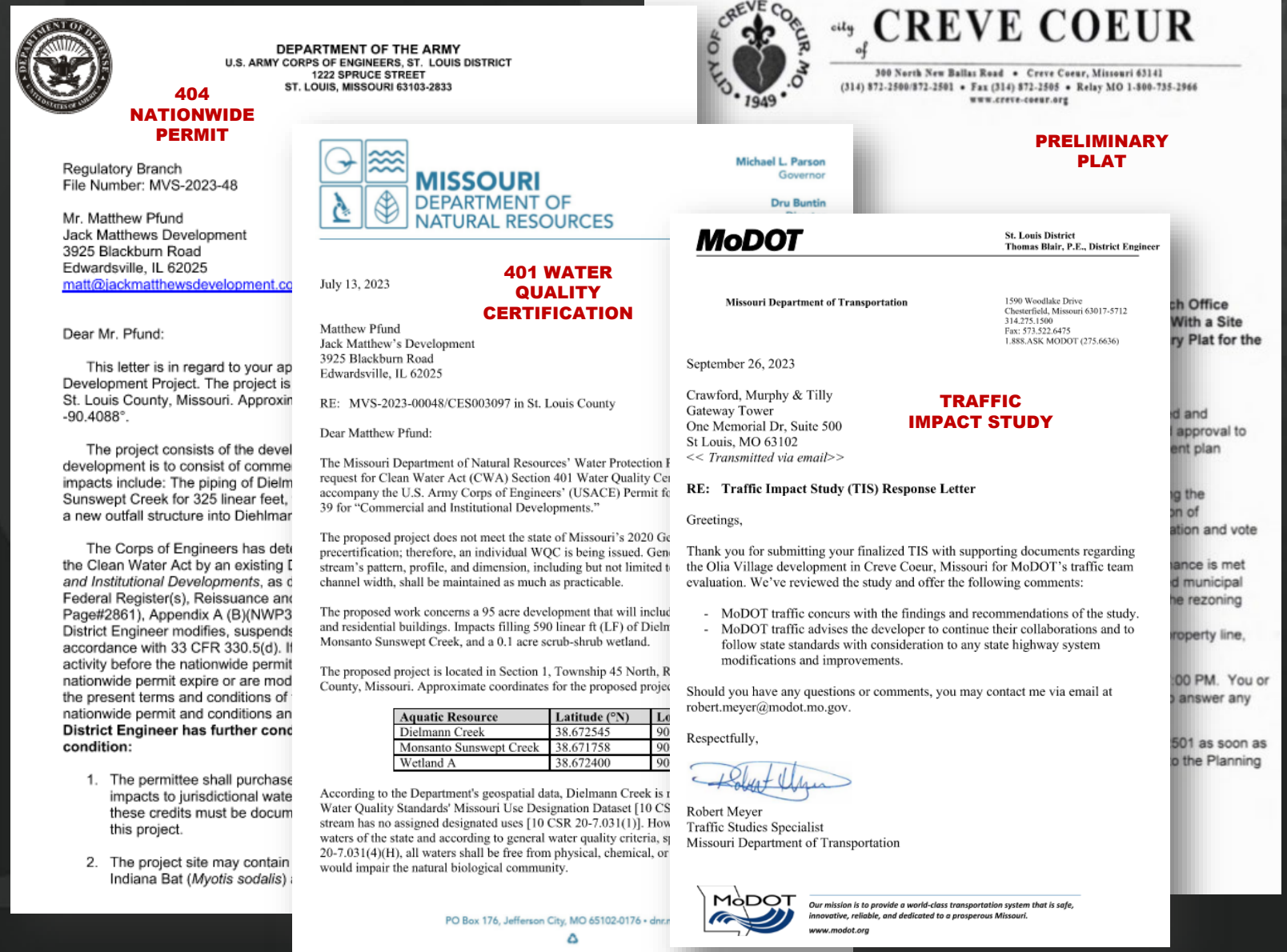


STORMWATER MITIGATION

- STORMWATER DISCHARGES CONTROLLED BY MSD
- MSD REGULATIONS = "BACK TO GRASS"
- REQUIRES FLOOD STUDY TO SHOW "ZERO INCREASE" WILL BE DEER CREEK WATERSHED
- TOTAL WATERSHED SIZE:
  - ON-SITE = +/- 95.8 ACRES
  - OFF-SITE = +/- 141.6 ACRES
  - OFFSITE = 60% OF TOTAL FLOW
- OLIA ONLY PEAK FLOW:
  - CURRENT = +/- 410 CFS
  - ALLOWABLE = +/- 355 CFS
  - PROPOSED = +/- 340 CFS
  - +/- 17% REDUCTION

APPROVALS IN PLACE

- MoDOT TRAFFIC IMPACT STUDY
- USACOE 404 NATIONWIDE PERMIT
- MoDNR 401 WATER QUALITY CERTIFICATION
- CITY OF CREVE COUER PRELIMINARY PLAT



404 NATIONWIDE PERMIT

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-2833

Regulatory Branch
File Number: MVS-2023-48

Mr. Matthew Pfund
Jack Matthews Development
3925 Blackburn Road
Edwardsville, IL 62025
matt@jackmatthewsdevelopment.co

Dear Mr. Pfund:

This letter is in regard to your ap
Development Project. The project is
St. Louis County, Missouri. Approxin
-90.4088°.

The project consists of the devel
development is to consist of comme
impacts include: The piping of Dielm
Sunswept Creek for 325 linear feet,
a new outfall structure into Diehlmar

The Corps of Engineers has dete
the Clean Water Act by an existing D
and Institutional Developments, as c
Federal Register(s), Reissuance and
Page#2861), Appendix A (B)(NWP3
District Engineer modifies, suspends
accordance with 33 CFR 330.5(d). I
activity before the nationwide permit
nationwide permit expire or are mod
the present terms and conditions of
nationwide permit and conditions an
**District Engineer has further cond
condition:**

1. The permittee shall purchase
impacts to jurisdictional wate
these credits must be docum
this project.

2. The project site may contain
Indiana Bat (*Myotis sodalis*)

401 WATER QUALITY CERTIFICATION

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin

July 13, 2023

Matthew Pfund
Jack Matthew's Development
3925 Blackburn Road
Edwardsville, IL 62025

RE: MVS-2023-00048/CES003097 in St. Louis County

Dear Matthew Pfund:

The Missouri Department of Natural Resources' Water Protection
request for Clean Water Act (CWA) Section 401 Water Quality Ce
accompany the U.S. Army Corps of Engineers' (USACE) Permit fo
39 for "Commercial and Institutional Developments."

The proposed project does not meet the state of Missouri's 2020 Ge
precertification; therefore, an individual WQC is being issued. Gen
stream's pattern, profile, and dimension, including but not limited t
channel width, shall be maintained as much as practicable.

The proposed work concerns a 95 acre development that will includ
and residential buildings. Impacts filling 590 linear ft (LF) of Dielm
Monsanto Sunswept Creek, and a 0.1 acre scrub-shrub wetland.

The proposed project is located in Section 1, Township 45 North, R
County, Missouri. Approximate coordinates for the proposed projec

Aquatic Resource	Latitude (°N)	Lo
Dielmann Creek	38.672545	90
Monsanto Sunswept Creek	38.671758	90
Wetland A	38.672400	90

According to the Department's geospatial data, Dielmann Creek is
Water Quality Standards' Missouri Use Designation Dataset [10 CS
stream has no assigned designated uses [10 CSR 20-7.031(1)]. How
waters of the state and according to general water quality criteria, s
20-7.031(4)(H), all waters shall be free from physical, chemical, or
would impair the natural biological community.

PO Box 176, Jefferson City, MO 65102-0176 • dnr.

PRELIMINARY PLAT

city of CREVE COEUR

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

ch Office
With a Site
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d municipal
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:00 PM. You or
o answer any

501 as soon as
o the Planning

TRAFFIC IMPACT STUDY

MoDOT

St. Louis District
Thomas Blair, P.E., District Engineer

Missouri Department of Transportation

1590 Woodlake Drive
Chesterfield, Missouri 63017-5712
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September 26, 2023

Crawford, Murphy & Tilly
Gateway Tower
One Memorial Dr, Suite 500
St Louis, MO 63102
<< Transmitted via email>>

RE: Traffic Impact Study (TIS) Response Letter

Greetings,

Thank you for submitting your finalized TIS with supporting documents regarding the Olia Village development in Creve Coeur, Missouri for MoDOT's traffic team evaluation. We've reviewed the study and offer the following comments:

- MoDOT traffic concurs with the findings and recommendations of the study.
- MoDOT traffic advises the developer to continue their collaborations and to follow state standards with consideration to any state highway system modifications and improvements.

Should you have any questions or comments, you may contact me via email at robert.meyer@modot.mo.gov.

Respectfully,

Robert Meyer
Traffic Studies Specialist
Missouri Department of Transportation

MoDOT

Our mission is to provide a world-class transportation system that is safe, innovative, reliable, and dedicated to a prosperous Missouri.
www.modot.org

MODIFICATIONS TO DATE

1. ELIMINATED NATURE TRAIL BEHIND LOTS 1, 10 & 17
2. STRAIGHTENED WALL & INCREASED BUFFER TO 40' (PMD ORDINANCE = MIN 35')
3. PROVIDED QUALITY LANDSCAPE SCREEN ALONG LOTS 1, 10 & 17
4. FURTHER RESTRICTED USES IN THE OFFICE DISTRICT
5. PROVIDED ADDITIONAL LIGHTING RESTRICTIONS TO LOTS 10 & 17
    1. OCCUPANCY SENSORS
    2. FULL CUT-OFF FIXTURES
    3. REDUCED MAX HEIGHT OF LIGHT POLES TO 16'
6. CHANGED LOT 10 USE FROM SENIOR LIVING TO GENERAL OFFICE
7. CHANGED LOT 17 USE FROM GREENHOUSES TO GENERAL OFFICE
8. INCLUDED IRRIGATION ON LOTS 10 & 17 TO ASSIST WITH BEAUTIFICATION & SUSTAINABLE TREE GROWTH
9. REDUCED MAX WALL HEIGHTS FROM 24' TO 20'
10. PROVIDED 2ND SHARED-USE PATH
11. PROVIDED SHARED-USE CONNECTION TO NORTH OF OLIVE
12. COMMITTED TO EV CHARGING STATIONS
13. PROVIDED SHARED-USE CONNECTION ON LINDBERGH TO VANTAGE CREDIT UNION
14. INCLUDED ARCHITECTURAL BUS SHELTER ALONG OLIVE
15. ACCEPTED OWNERSHIP OF MAIN STREET & LINDBERGH OVERPASS AS PRIVATE STREETS
16. INCREASED SIDEWALK WIDTHS ALONG MAIN STREET & STOREFRONTS
17. ACCEPTED MAINTENACE OF SIDEWALKS & STREET LIGHTING
18. PROVIDED WATER MAIN EXTENSION TO EXISTING OLIVE BOULEVARD MEDIAN

OLIA VILLAGE

THE HEART OF CREVE COEUR

QUESTIONS

Exhibit C

September 5, 2023

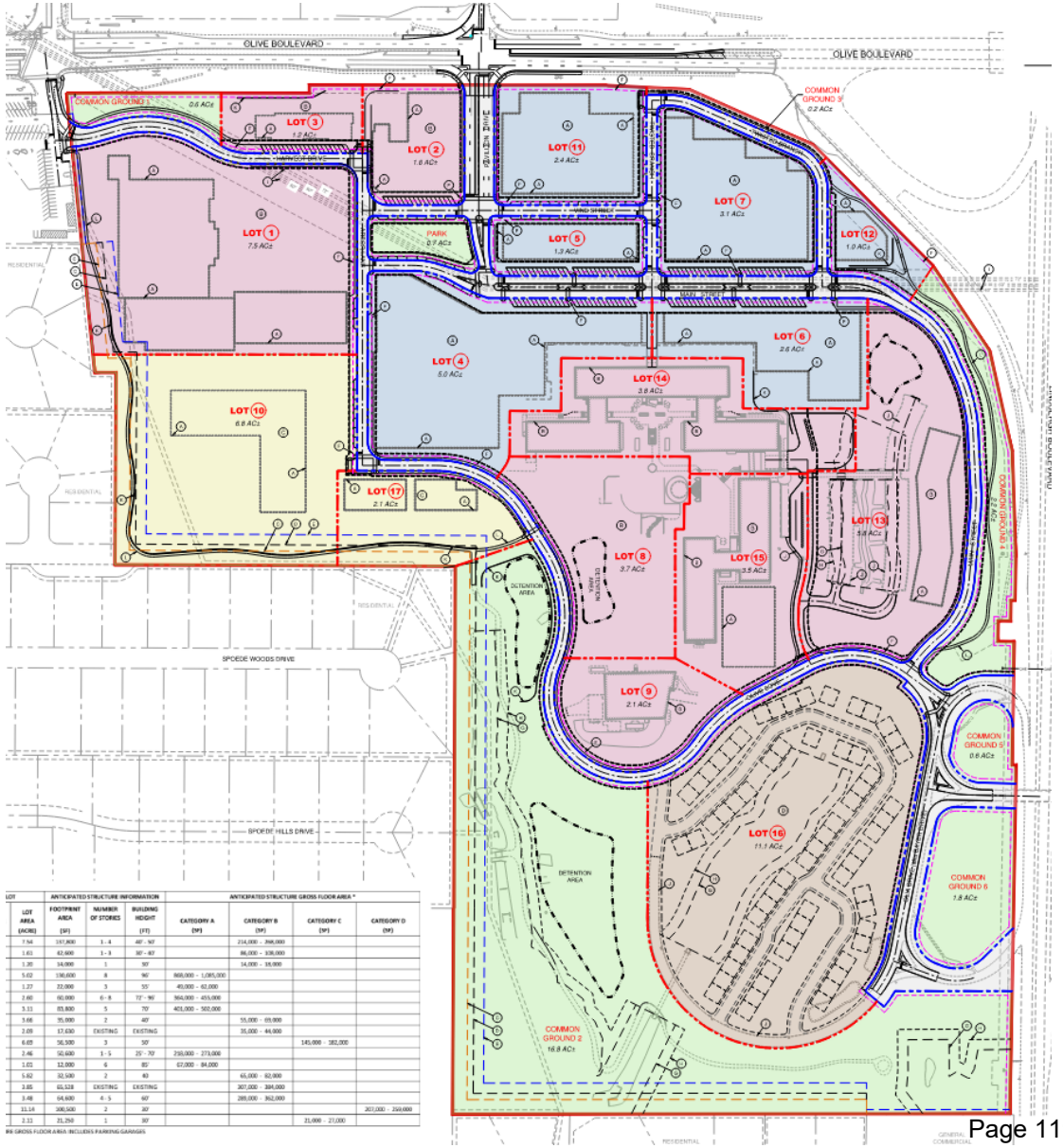
Olia Village TIS Review

For the City of Creve Coeur

TREKK DESIGN GROUP, LLC

Project Overview

- Redevelopment of approximately 96 acres in the southwest quadrant of Olive and Lindbergh Interchange
- Development to be completed in 5 Phases that will include:
  - Approximately 260,000SF of office buildings
  - Over 220,000 SF of retail and commercial space
  - Over 1300 units of residential and lodging space
  - A small data center



Trip Generation and Adjustments

- Site Trip Generation – Overall Entering and Exiting vehicle trips based on estimated data within the ITE Trip Generation Manual.
  1. Proposed Site will generate 1,290 Entering and 1,090 Exiting (2,380 Total) trips during the AM Peak Hour.
  2. Proposed Site will generate 1,668 Entering and 1,593 Exiting (3,261 Total) trips during the PM Peak Hour.
- Internal Capture Adjustment – Based on NCHRP 684, which details the anticipated reduction in trips between associated origin/destination types, i.e. Residential to Office in the morning, Office to Residential, Office to Commercial, Commercial to Residential, etc. in the afternoon/evening. Based on analysis, this reduced overall trips by 20% in the AM Peak and 49% in the PM Peak
- Pass-By Trip Adjustment – Based on the ITE Trip Generation Manual, an adjustment can be made to generated trips based on the amount of vehicles that are anticipated to be "pass-by" in nature, i.e. a morning commuter stopping to get coffee, gas, fast food, etc on their way to work is considered a pass-by trip. Accounts for an additional 536 trips being reduced in the AM peak and 921 trips in the PM Peak.
- Total Trip Generation – Total of "new" trips added to roadway network.

	Site Generated Trips	Internal Capture Adjustment	Total External Trip Generation	Pass-By Trip Adjustment	Total Site Generated Trips
AM Peak Hour Entering	1,290	(249)	**1,041**	(293)	**748**
AM Peak Hour Exiting	1,090	(249)	**841**	(243)	**598**
PM Peak Hour Entering	1,668	(801)	**867**	(495)	**372**
PM Peak Hour Exiting	1,593	(801)	**792**	(426)	**366**

Existing Intersection Operational Analysis

- Based on Levels of Service (LOS) A – F.

Table 3 – Intersection LOS Criteria

LOS	Signalized Intersection Control Delay (sec)	Unsignalized Intersection Control Delay (sec)
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

- For this Project, the target LOS for intersection operations is LOS D
- Also reviewed 95th Percentile Queue lengths. Represents the anticipated number of vehicles that will be stacked during a red light. Viewed as the "worst case scenario". Assumed that 25' = 1 Vehicle

2022 Existing Intersection Operational Analysis

Intersection	App.	Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM
Olive & Spoede	EB	19.7 (B)	30.1 (C)	462	628
	WB	3.3 (A)	3.8 (A)	112	114
	NB	32.3 (C)	34.8 (C)	102	148
	SB	44.8 (D)	45.0 (D)	34	36
	ALL	**13.1 (B)**	**17.7 (B)**		
Olive & Old Olive W	EB	6.9 (A)	16.4 (B)	219	225
	WB	0.7 (A)	7.9 (A)	6	543
	NB	27.5 (C)	32.7 (C)	30	85
	SB	29.3 (C)	37.6 (D)	138	205
	ALL	**8.0 (A)**	**16.0 (B)**		
Olive & Pavillion	EB	4.3 (A)	2.8 (A)	137	68
	WB	2.9 (A)	9.9 (B)	68	228
	NB	0.0 (A)	0.0 (A)	0	0
	SB	41.9 (D)	34.8 (C)	83	138
	ALL	**4.7 (A)**	**8.6 (A)**		
Olive & SB Lindbergh	EB	4.5 (A)	5.5 (A)	219	203
	WB	15.5 (B)	13.2 (B)	386	372
	NB	28.8 (C)	18.3 (B)	118	48
	ALL	**11.6 (B)**	**10.4 (A)**		

Intersection	App.	Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM
Olive & NB Lindbergh	EB	5.7 (A)	2.5 (A)	263	90
	WB	5.6 (A)	10.2 (B)	251	517
	NB	41.8 (D)	39.1 (D)	106	117
	ALL	**9.9 (A)**	**10.4 (B)**		
Olive & Old Olive E	EB	5.4 (A)	7.4 (A)	499	392
	WB	8.4 (A)	9.6 (A)	252	419
	SB	33.1 (C)	35.0 (C)	67	163
	ALL	**7.5 (A)**	**11.0 (A)**		
Lindbergh & Old Olive*	EB	31.1 (D)	21.9 (C)	55	38
	WB	20.5 (C)	86.3 (F)	53	343
Lindbergh / Monsanto Interchange (1)*	WB	0.0 (A)	8.4 (A)	0	0
Lindbergh / Monsanto Interchange (2)*	WB	6.7 (A)	6.5 (A)	3	3
	NB	6.8 (A)	6.7 (A)	3	3
Lindbergh / Monsanto Interchange (3)*	EB	7.2 (A)	7.1 (A)	3	3
	WB	0.0 (A)	7.1 (A)	0	0
	NB	7.4 (A)	7.4 (A)	5	3
Lindbergh / Monsanto Interchange (4)*	EB	7.2 (A)	7.3 (A)	2	1
	NB	7.0 (A)	7.0 (A)	4	1

* Unsignalized intersection, HCM6 delay/LOS/queue reported for stopped approach only.

2022 Existing Intersection Operational Analysis

Trip Distribution and Assignment

- To/From the north on Lindbergh Boulevard: **22%**
- To/From the south on Lindbergh Boulevard: **22%**
- To/From the west on Olive Boulevard: **22%**
- To/From the east on Olive Boulevard: **22%**
- To/From the east on Monsanto Drive: **4%**
- To/From the north on Old Olive Street W: **4%**
- To/From the north on Pavillion Drive: **4%**

Pass-by trips are assumed to be generated primarily by Olive Boulevard and Lindbergh Boulevard and are estimated to have the following distribution:

- To/From the north on Lindbergh Boulevard: **25%**
- To/From the south on Lindbergh Boulevard: **25%**
- To/From the west on Olive Boulevard: **25%**
- To/From the east on Olive Boulevard: **25%**

2028/2048 No-Build Intersection Operational Analysis

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Spoede	EB	20.2 (C)	31.4 (C)	485	662	22.4 (C)	38.4 (D)	576	810
	WB	3.4 (A)	3.9 (B)	115	119	4.4 (A)	5.0 (A)	127	132
	NB	33.8 (C)	35.5 (C)	105	151	37.2 (D)	37.5 (D)	126	165
	SB	44.8 (D)	45.3 (D)	34	36	45.3 (D)	45.4 (D)	37	37
	ALL	**13.5 (B)**	**18.4 (B)**			**15.1 (B)**	**22.0 (C)**		
Olive & Old Olive W	EB	8.9 (A)	18.1 (B)	240	237	11.3 (B)	20.9 (C)	314	252
	WB	0.7 (A)	8.9 (B)	6	591	1.3 (A)	15.4 (B)	17	871
	NB	27.0 (C)	32.1 (C)	31	87	26.3 (C)	32.4 (C)	33	97
	SB	29.2 (C)	39.6 (C)	142	223	32.1 (C)	46.1 (D)	152	333
	ALL	**9.0 (A)**	**17.4 (B)**			**10.8 (B)**	**22.3 (C)**		
Olive & Pavillion	EB	3.5 (A)	2.8 (A)	65	71	3.8 (A)	3.1 (A)	71	78
	WB	2.9 (A)	10.9 (B)	68	250	2.8 (A)	14.7 (B)	67	323
	NB	0.0 (A)	0.0 (A)	0	0	0.0 (A)	0.0 (A)	0	0
	SB	42.2 (D)	35.1 (D)	86	141	41.8 (D)	35.9 (D)	91	156
	ALL	**4.3 (A)**	**9.1 (A)**			**4.4 (A)**	**11.3 (B)**		
Olive & SB Lindbergh	EB	4.7 (A)	5.8 (A)	256	221	5.3 (A)	6.9 (A)	288	283
	WB	15.8 (B)	13.3 (B)	411	374	16.6 (B)	13.8 (B)	501	383
	NB	30.4 (C)	20.6 (C)	126	51	35.2 (D)	26.4 (C)	153	69
	ALL	**11.9 (B)**	**10.6 (B)**			**13.0 (B)**	**11.7 (B)**		

2028/2048 No-Build Intersection Operational Analysis

Olive & NB Lindbergh	EB	5.8 (A)	2.5 (A)	272	88	7.0 (A)	3.1 (A)	296	103
	WB	6.1 (A)	10.8 (B)	281	530	8.6 (A)	13.4 (B)	395	642
	NB	42.8 (D)	39.1 (D)	108	120	45.6 (D)	39.1 (D)	138	130
	ALL	**10.3 (B)**	**10.7 (B)**			**12.2 (B)**	**12.2 (B)**		
Olive & Old Olive E	EB	5.3 (A)	6.9 (A)	534	389	7.2 (A)	7.5 (A)	800	488
	WB	8.5 (A)	9.6 (A)	264	419	9.1 (A)	11.1 (B)	307	533
	SB	32.9 (C)	35.0 (C)	68	163	32.8 (C)	41.3 (D)	73	184
	ALL	**7.5 (A)**	**10.8 (B)**			**8.8 (A)**	**12.4 (B)**		
Lindbergh & Old Olive*	EB	34.0 (D)	23.2 (C)	63	40	50.5 (F)	29.3 (D)	95	58
	WB	21.7 (C)	107.9 (F)	58	393	27.6 (D)	206.4 (F)	83	593
Lindbergh / Monsanto Interchange (1)*	WB	0.0 (A)	0.0 (A)	0	0	0.0 (A)	0.0 (A)	0	0
Lindbergh / Monsanto Interchange (2)*	WB	6.7 (A)	6.5 (A)	5	3	6.7 (A)	6.5 (A)	5	3
	NB	6.8 (A)	6.7 (A)	3	3	6.8 (A)	6.7 (A)	3	3
Lindbergh / Monsanto Interchange (3)*	EB	7.2 (A)	7.1 (A)	3	3	7.2 (A)	7.1 (A)	3	3
	WB	0.0 (A)	7.1 (A)	0	0	0.0 (A)	7.1 (A)	0	0
	NB	7.5 (A)	7.4 (A)	5	3	7.5 (A)	7.4 (A)	5	3
Lindbergh / Monsanto Interchange (4)*	EB	7.2 (A)	7.3 (A)	2	1	7.2 (A)	7.3 (A)	3	2
	NB	7.0 (A)	7.0 (A)	4	1	7.1 (A)	7.0 (A)	5	1

* Unsignalized intersection, HCM6 delay/LOS/queue reported for stopped approach only.

2028 No-Build Intersection Operational Analysis

2048 No-Build Intersection Operational Analysis

2028/2048 Build Intersection Operational Analysis

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Spoede	EB	11.6 (B)	27.8 (C)	482	666	14.5 (B)	33.4 (C)	588	802
	WB	3.3 (A)	8.8 (A)	134	166	4.5 (A)	14.9 (B)	143	167
	NB	52.9 (D)	28.7 (C)	134	135	52.6 (D)	29.9 (C)	146	147
	SB	50.4 (D)	36.0 (D)	35	32	50.2 (D)	36.0 (D)	38	33
	ALL	**10.7 (B)**	**18.7 (B)**			**12.5 (B)**	**24.2 (C)**		
Olive & Old Olive W	EB	11.3 (B)	14.6 (B)	227	318	12.5 (B)	18.7 (B)	280	320
	WB	15.4 (B)	26.9 (C)	377	551	17.7 (B)	53.5 (D)	548	893
	NB	43.5 (D)	47.9 (D)	85	121	43.0 (D)	49.0 (D)	85	130
	SB	31.2 (C)	38.0 (D)	207	340	34.3 (C)	54.2 (D)	243	439
	ALL	**16.5 (B)**	**24.5 (C)**			**18.2 (B)**	**39.8 (D)**		
Olive & Pavillion	EB	14.8 (B)	14.7 (B)	257	393	19.3 (B)	19.0 (B)	596	524
	WB	19.7 (B)	14.2 (B)	465	377	19.8 (B)	16.3 (B)	468	380
	NB	40.8 (D)	30.1 (C)	204	170	40.8 (D)	29.5 (C)	204	170
	SB	53.7 (D)	40.6 (D)	84	136	53.5 (D)	41.6 (D)	89	151
	ALL	**21.1 (C)**	**17.5 (B)**			**23.0 (C)**	**20.0 (B)**		
Olive & SB Lindbergh	EB	6.8 (A)	12.2 (B)	148	303	7.1 (A)	14.2 (B)	151	368
	WB	10.9 (B)	16.1 (B)	216	406	11.5 (B)	16.5 (B)	225	436
	NB	43.7 (D)	39.6 (D)	154	154	46.0 (D)	42.6 (D)	163	155
	ALL	**12.5 (B)**	**16.2 (B)**			**13.0 (B)**	**17.4 (B)**		

2028/2048 Build Intersection Operational Analysis

Olive & NB Lindbergh	EB	4.1 (A)	5.2 (A)	175	151	5.2 (A)	5.7 (A)	197	164
	WB	6.6 (A)	10.7 (B)	283	531	8.1 (A)	13.3 (B)	394	613
	NB	47.3 (D)	42.9 (D)	155	165	49.8 (D)	46.1 (D)	174	177
	ALL	**11.0 (B)**	**12.7 (B)**			**12.4 (B)**	**14.5 (B)**		
Olive & Old Olive E	EB	3.5 (A)	6.7 (A)	251	456	5.0 (A)	8.8 (A)	120	556
	WB	6.0 (A)	9.8 (A)	277	520	6.5 (A)	11.5 (B)	321	627
	SB	41.8 (D)	48.2 (D)	72	163	41.9 (D)	53.1 (D)	77	179
	ALL	**5.6 (A)**	**11.8 (B)**			**6.7 (A)**	**14.0 (B)**		
Lindbergh & Old Olive	EB	36.6 (D)	21.1 (C)	100	83	40.4 (D)	23.1 (C)	118	98
	WB	36.3 (D)	58.1 (E)	121	487	46.3 (D)	67.6 (E)	156	593
	NB	8.5 (A)	16.4 (B)	353	486	9.9 (A)	19.1 (B)	417	570
	SB	10.0 (A)	20.8 (C)	681	735	13.5 (B)	28.2 (C)	909	930
	ALL	**11.3 (B)**	**23.8 (C)**			**14.4 (B)**	**28.5 (C)**		
Lindbergh / Monsanto Interchange (1)*	WB	9.1 (A)	9.0 (A)	3	3	9.1 (A)	9.0 (A)	3	3
Lindbergh / Monsanto Interchange (2.1)*	WB	9.8 (A)	9.1 (A)	38	30	9.9 (A)	9.1 (A)	40	30
	NB	9.6 (A)	9.0 (A)	30	23	9.6 (A)	9.0 (A)	30	23
	SB	9.9 (A)	9.5 (A)	23	20	9.9 (A)	9.5 (A)	23	20
Lindbergh / Monsanto Interchange (2.2)*	EB	10.6 (B)	10.1 (B)	48	40	10.8 (B)	10.1 (B)	48	40
	NB	13.7 (B)	11.7 (B)	88	60	13.8 (B)	11.7 (B)	90	60
Lindbergh / Monsanto Interchange (3)*	EB	8.7 (A)	8.7 (A)	28	25	8.7 (A)	8.8 (A)	28	28
	WB	8.0 (A)	8.2 (A)	3	3	8.1 (A)	8.2 (A)	3	3
	NB	9.9 (A)	10.7 (B)	35	48	10.0 (B)	10.8 (B)	35	48
Lindbergh / Monsanto Interchange (4)*	EB	7.3 (A)	7.4 (A)	5	3	7.3 (A)	7.4 (A)	5	3
	NB	7.2 (A)	7.1 (A)	4	1	7.2 (A)	7.1 (A)	5	1

* Unsignalized intersection, HCM6 delay/LOS/queue reported for stopped approach only.

2028 Build Intersection Operational Analysis

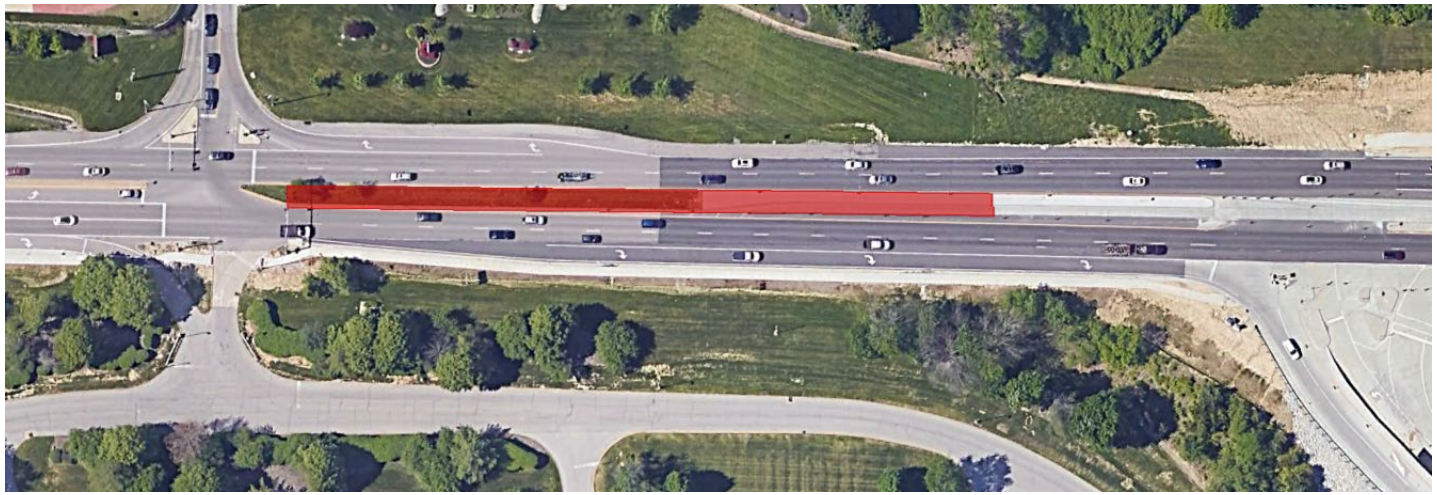
2048 Build Intersection Operational Analysis

Recommendations/Comments

1. Future construction of SB right turn lane at Olive & Old Olive Street (West)

   - 2048 recommendation, recommendation should be reviewed periodically for volumes and delays along southbound approach.

2. Proposed improvements to Olive and Pavillion Drive will adequately handle the proposed traffic. On behalf of the City, a dual left approach was analyzed, but the high volume of northbound right turning vehicles negates the potential benefits.



   - Addition of pedestrian access across Olive Boulevard still being investigated.

3. Additional coordination is necessary for the connection between Harvest Drive/Old Olive Street (West) connection.

Name

Title

email@trekkdesigngroup.com

123.456.7890

Name

Title

email@trekkdesigngroup.com

123.456.7890

Exhibit D

Neighborhood Engagement

Spoede Woods
Spoede Hills
Ramblewood
Mission Hills

NEIGHBORHOOD ENGAGEMENT

Areas of Concern

01

GREEN BUFFER BETWEEN RESIDENTIAL

02

STORMWATER MANAGEMENT & TREE PRESERVATION

03

RETAINING WALL HIGHT, NOISE AND LIGHT POLLUTION

NATURAL AMENITIES

Green Buffer

Current RO zoning district requires a **60’ minimum** green buffer against residential.

Existing conditions today are at least **100’ green buffer**.

CREVE COEUR NEIGHBORS FOR RESPONSIBLE DEVELOPMENT

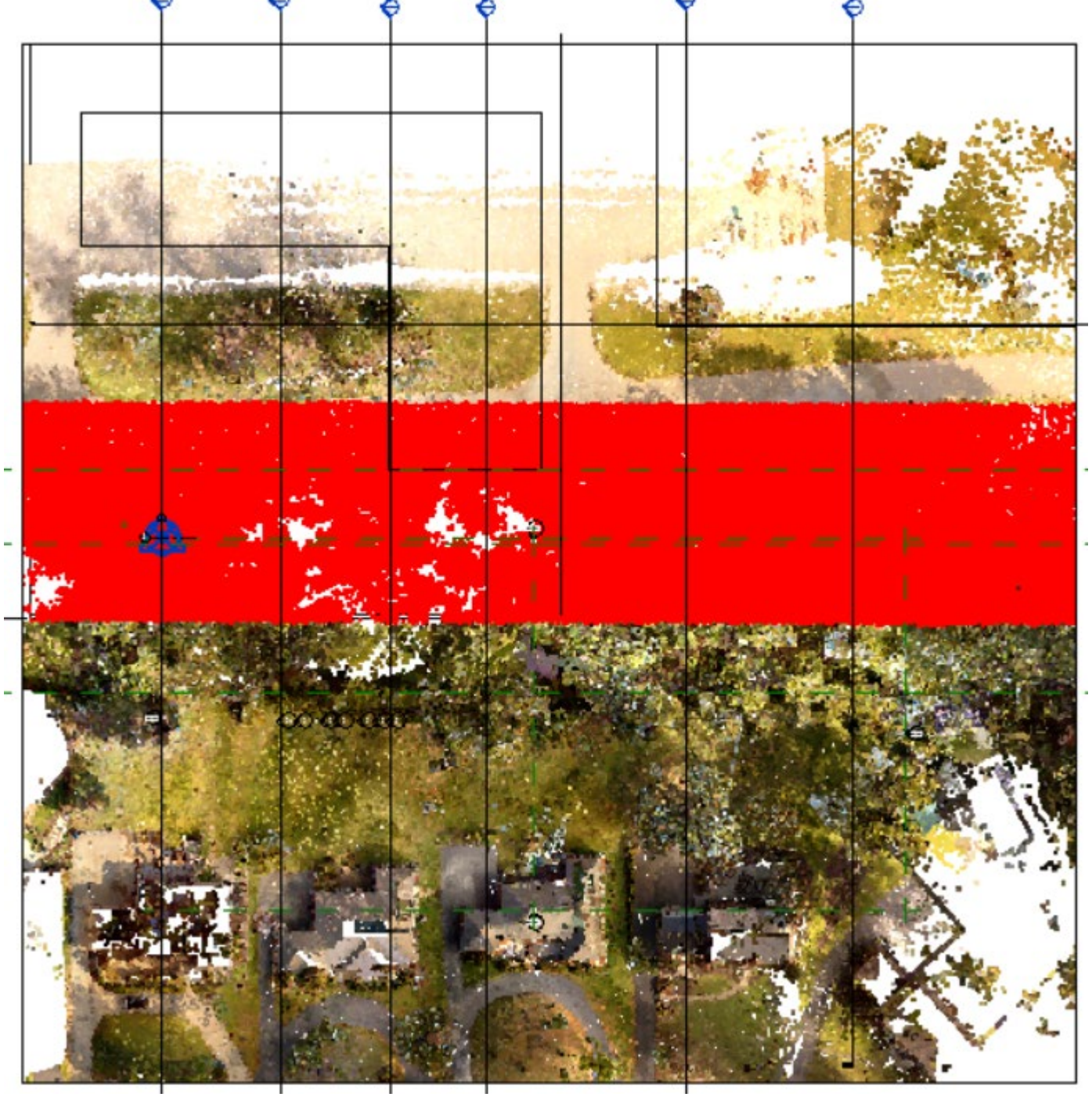
CreveCoeurNeighbors@gmail.com

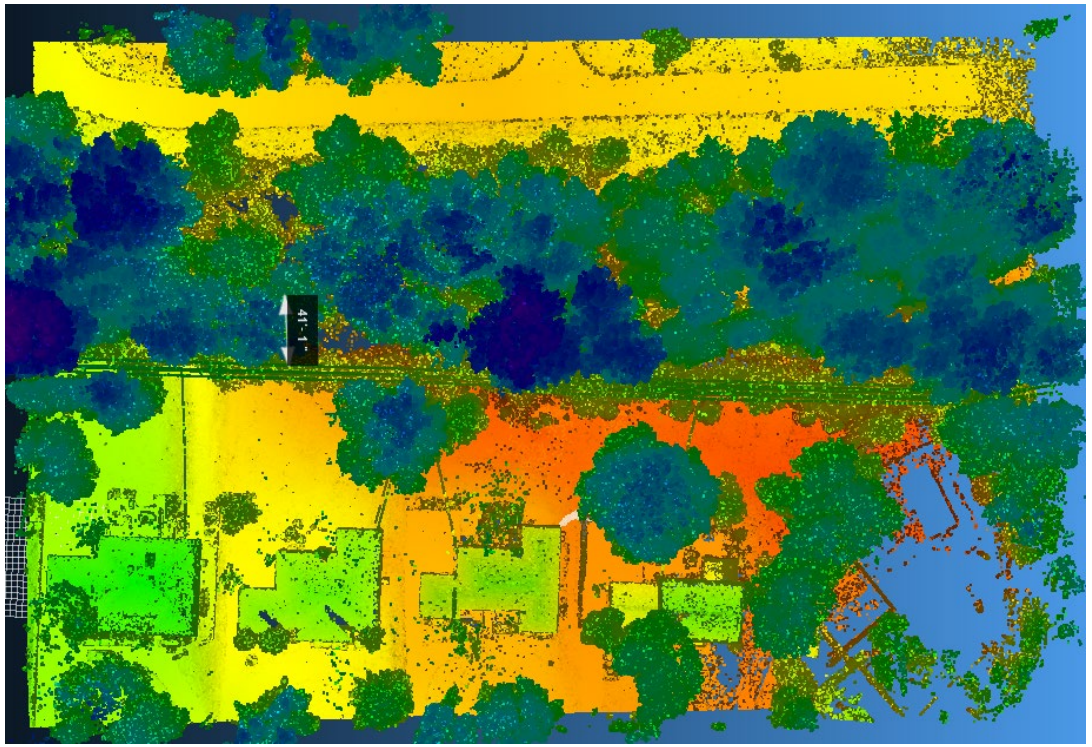
PLEASE ATTEND: Planning and Zoning Commission meeting at Creve Coeur City Hall

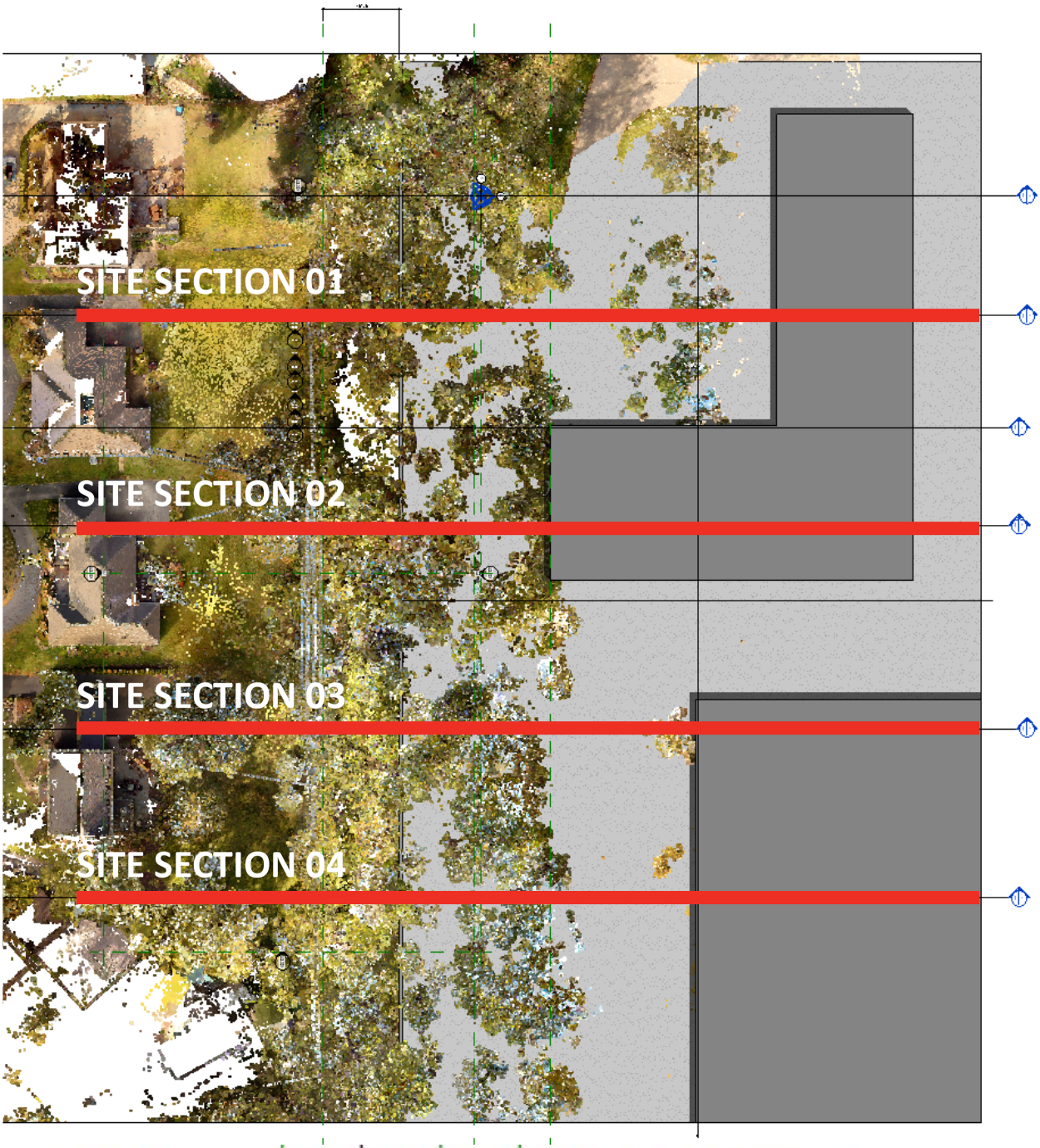
Monday, October 2, 2023 6:00 p.m

Meeting Information

Welcome to Spoede neighborhoods of Today






SITE SECTION 01
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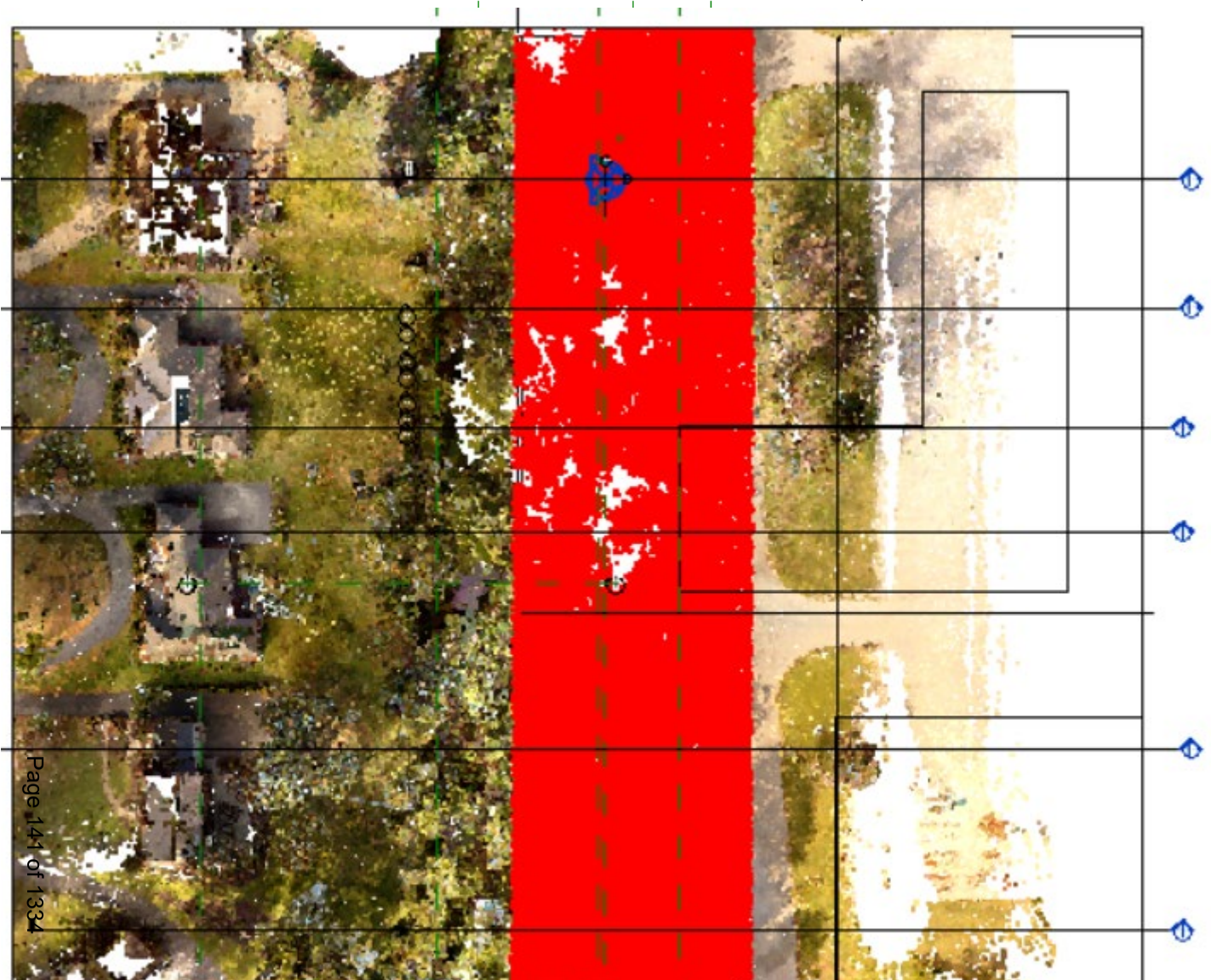
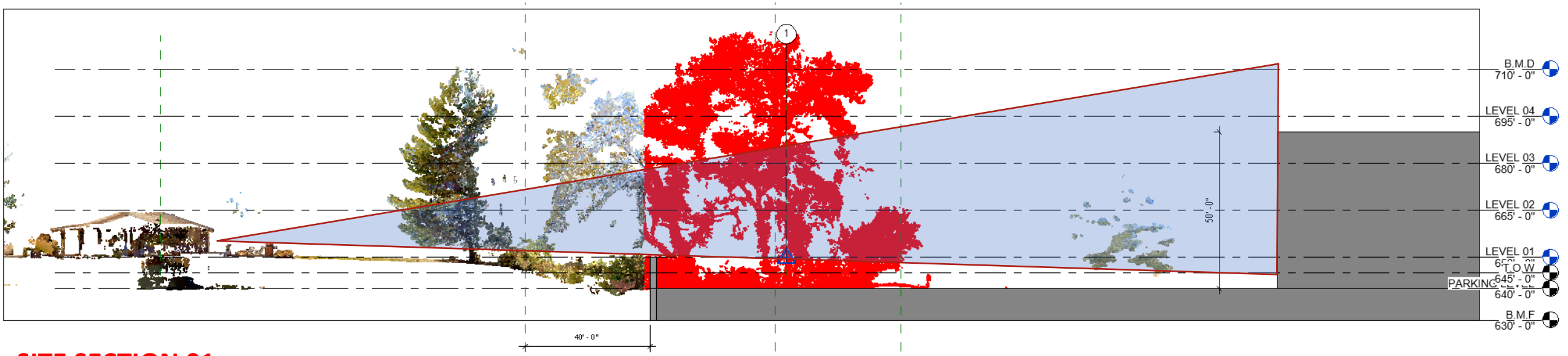
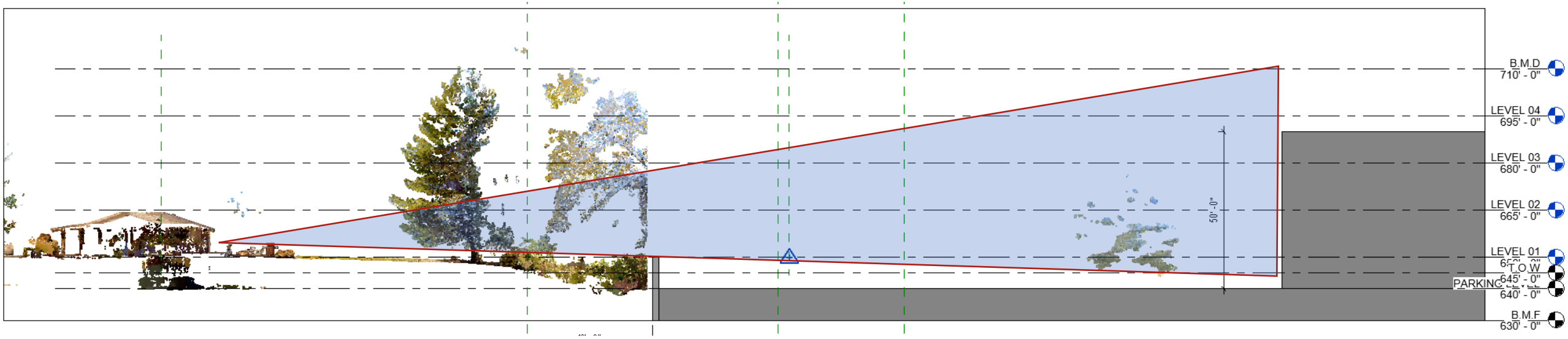
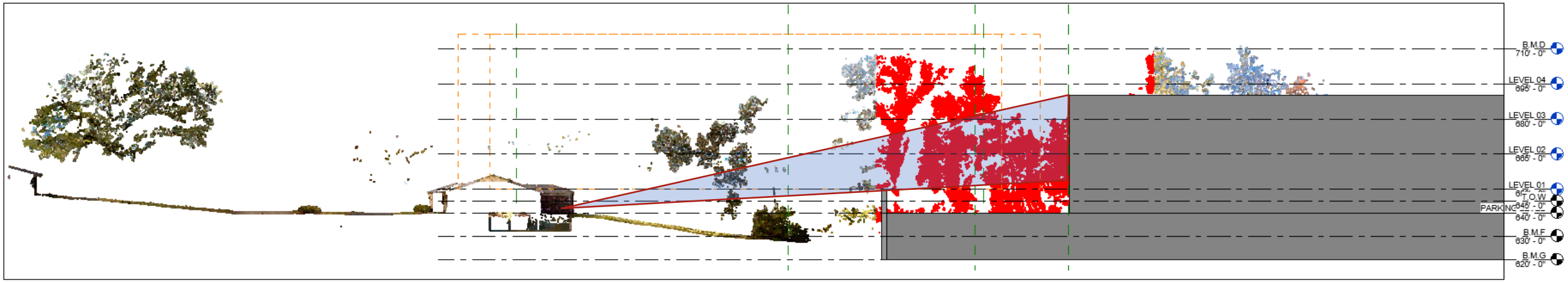
SITE SECTION 04





SITE SECTION 01





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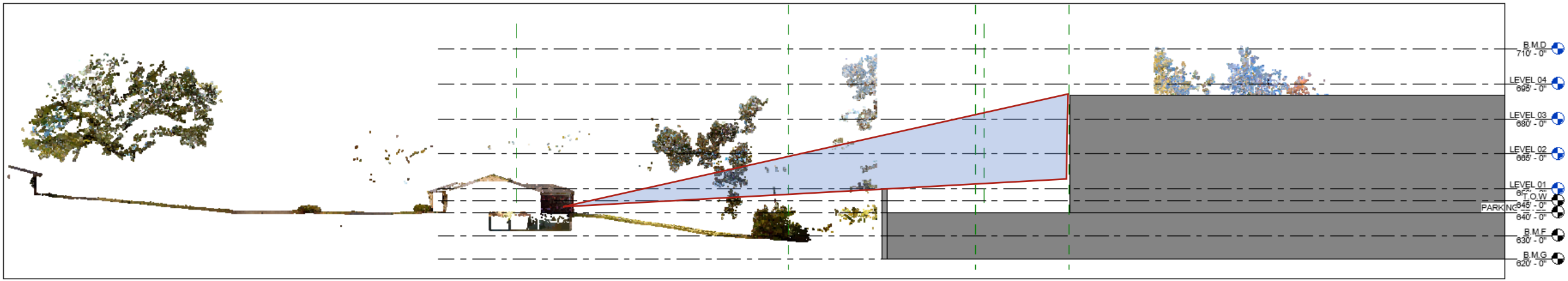
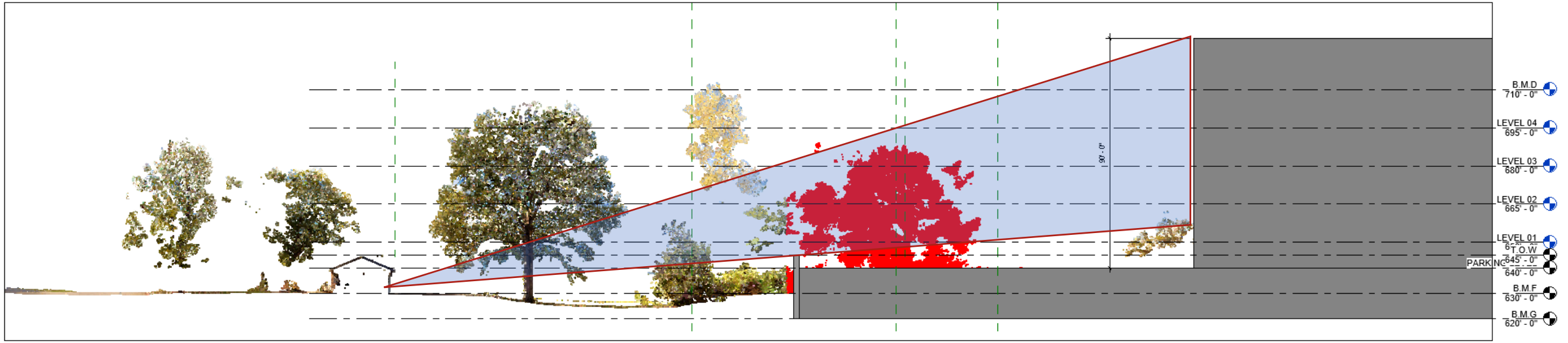
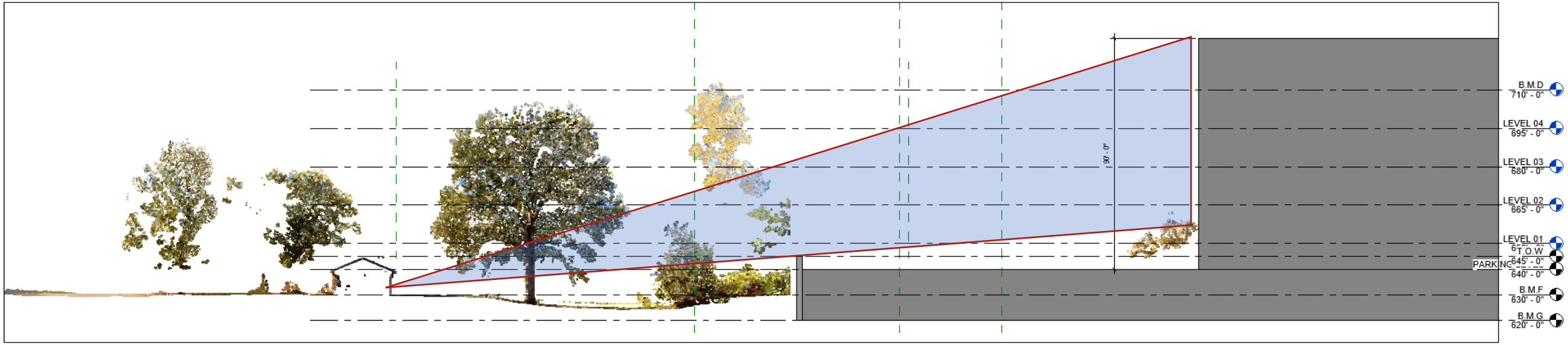
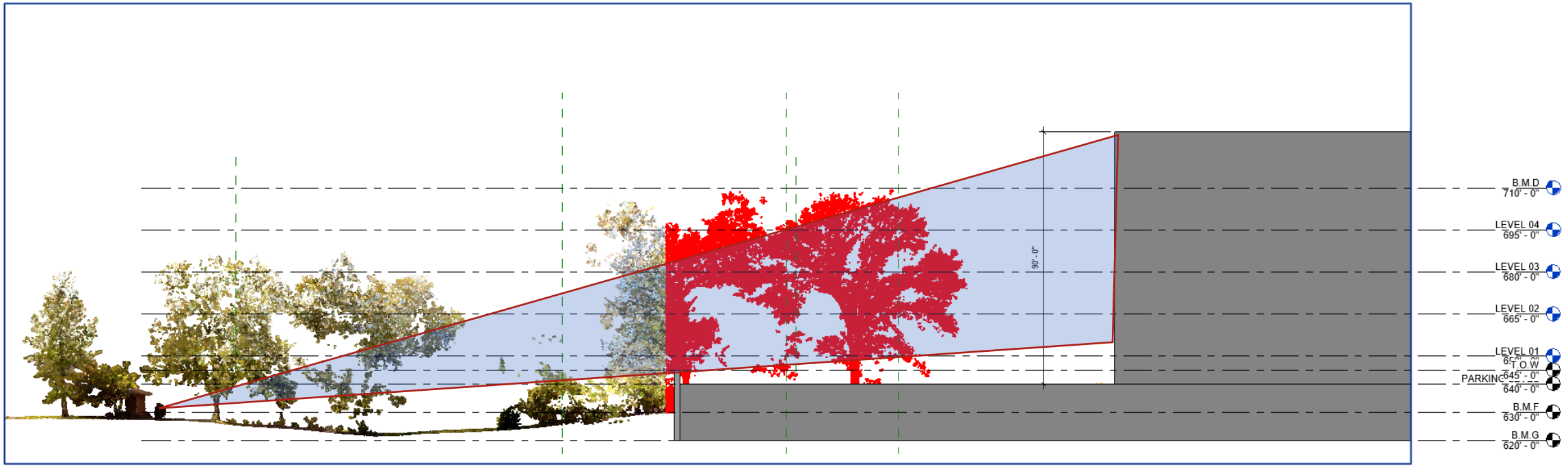


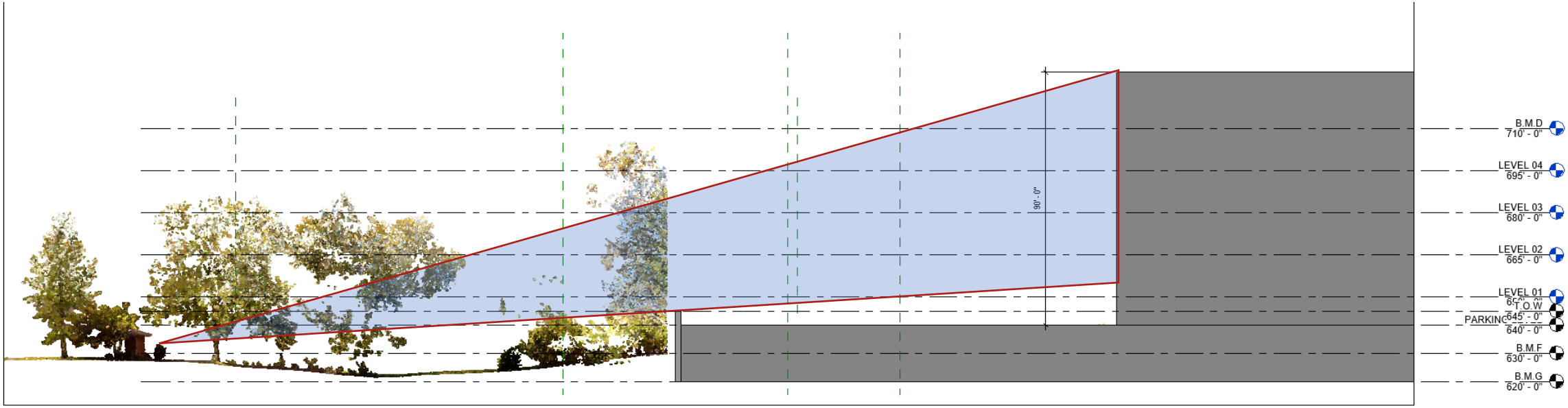


SITE SECTION 03





SITE SECTION 04



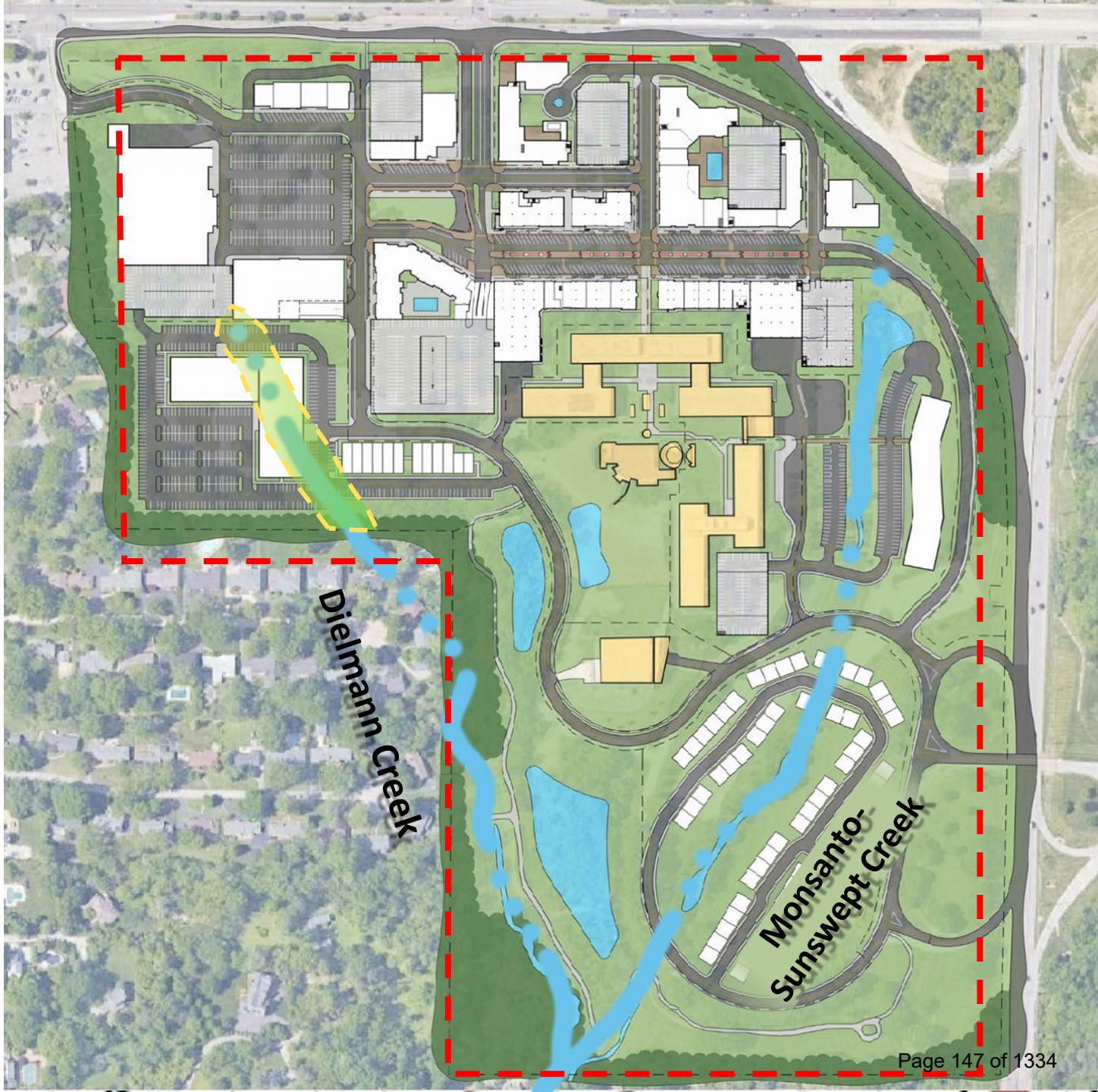
Stormwater Management

STORMWATER

Dielmann Creek

25’ Stream Buffer required.
50’ setback for impervious cover.

No buildings, pavement, or structures are allowed within 50’ of a stream course.



STORMWATER

Two Streams

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

CREVE COEUR QUADRANGLE
MISSOURI
7.5-MINUTE SERIES

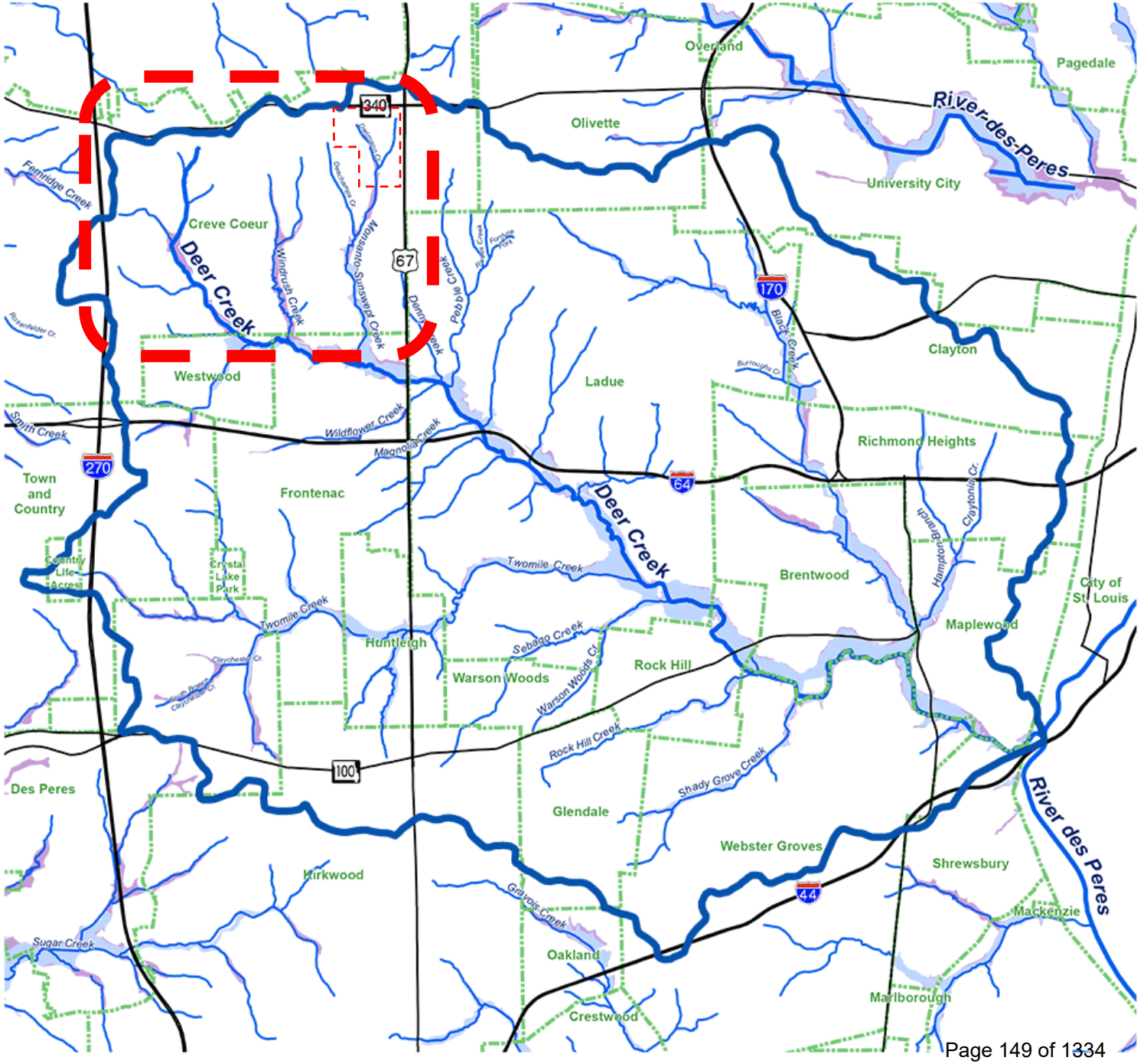
STORMWATER MANAGEMENT

Deer Creek Watershed

Deer Creek Watershed
September 2013

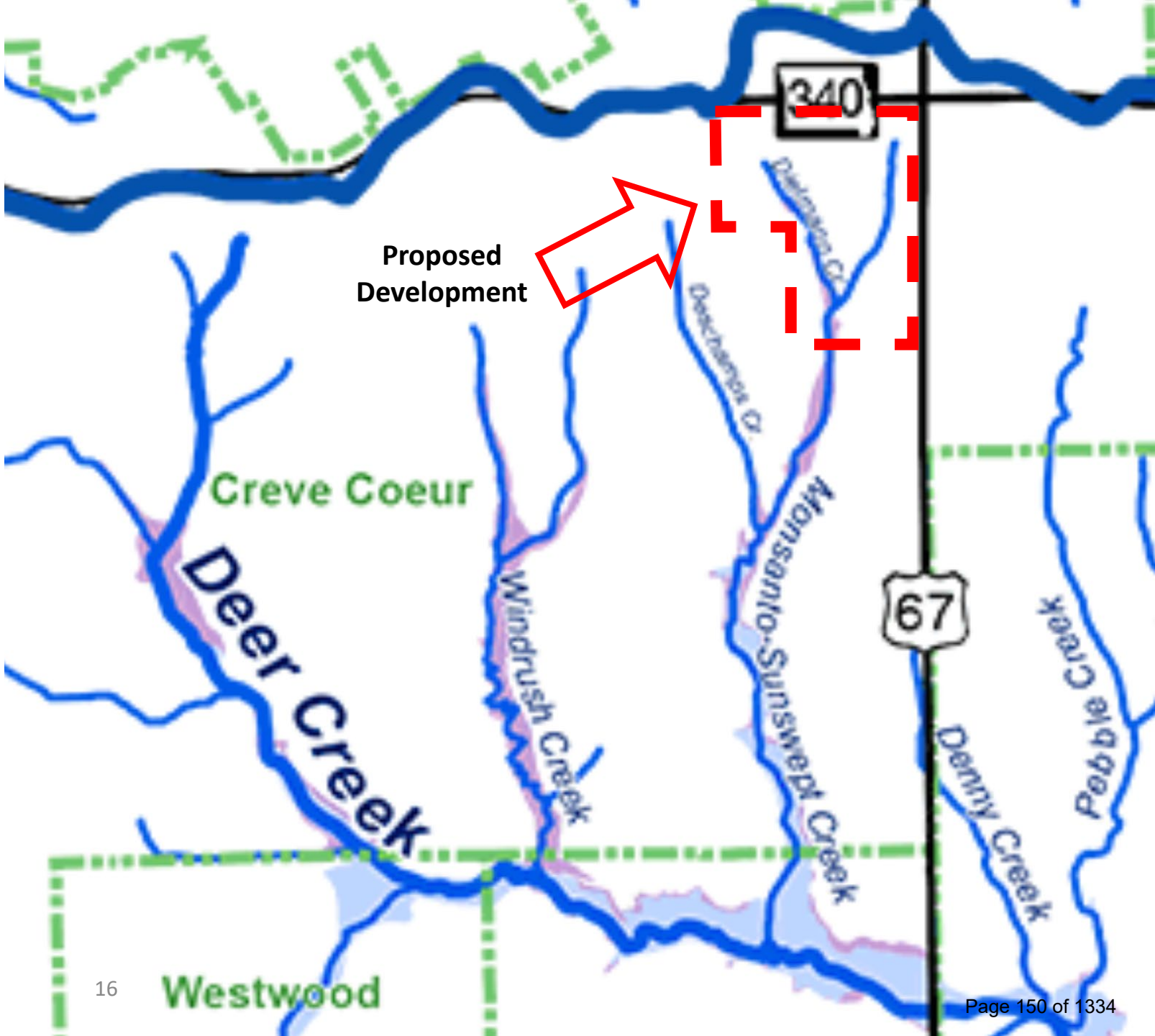
Legend

- Watershed Boundary
- Stream
- Municipal Boundary
- Major Road
- 1% Flood Zone *(100-Year Flood Zone)*
- .2% Flood Zone *(500-Year Flood Zone)*



STORMWATER MANAGEMENT

Two Creeks



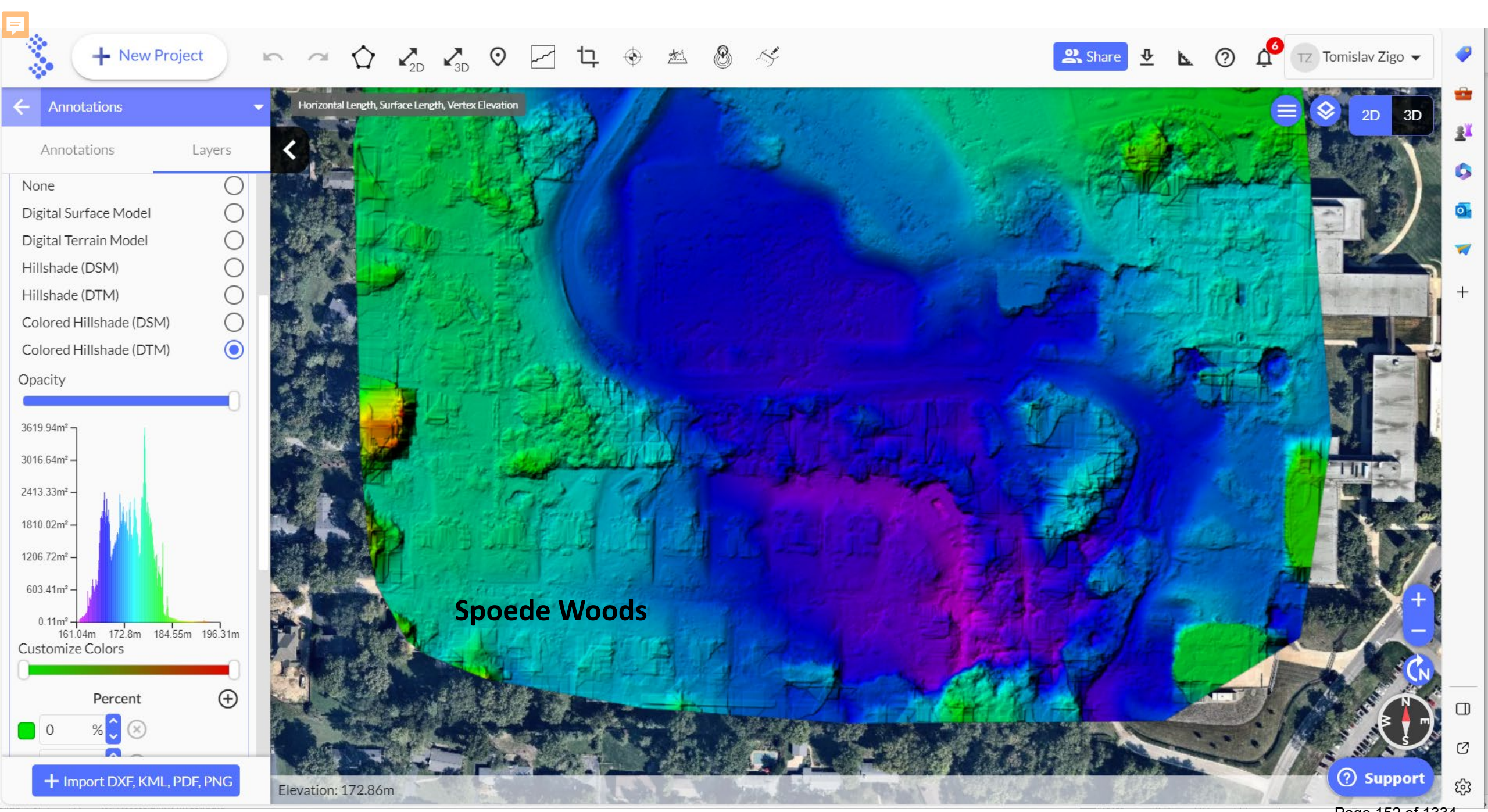
Deer Creek Watershed
September 2013

Legend

- Watershed Boundary
- Stream
- Municipal Boundary
- Major Road
- 1% Flood Zone *(100-Year Flood Zone)*
- .2% Flood Zone *(500-Year Flood Zone)*

STORMWATER MANAGEMENT

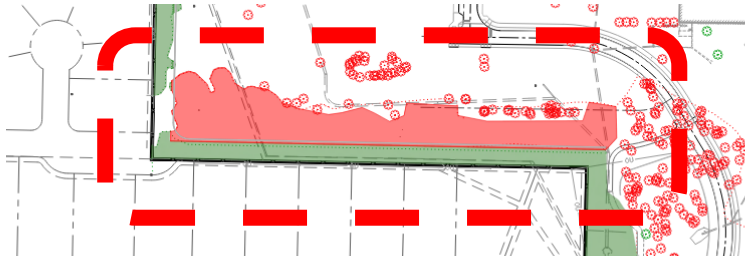
Local Watershed


New Project
Share
Tomislav Zigo
Annotations
Annotations
Layers
None
Digital Surface Model
Digital Terrain Model
Hillshade (DSM)
Hillshade (DTM)
Colored Hillshade (DSM)
Colored Hillshade (DTM)
Opacity
3619.94m²
3016.64m²
2413.33m²
1810.02m²
1206.72m²
603.41m²
0.11m²
161.04m
172.8m
184.55m
196.31m
Customize Colors
Percent
0
%
Import DXF, KML, PDF, PNG
Horizontal Length, Surface Length, Vertex Elevation
2D
3D
Spoede Woods
Elevation: 172.86m
Support

NATURAL AMENITIES

Tree Preservation

Mature forest with **80’-100’** tall Walnuts, Sycamores, and other large trees.



NATURAL AMENITIES

Tree Preservation

"Not more than **fifty percent (50%) of the area of such tree masses nor fifty percent (50%) of such six (6) inch DBH trees** shall be proposed for removal."

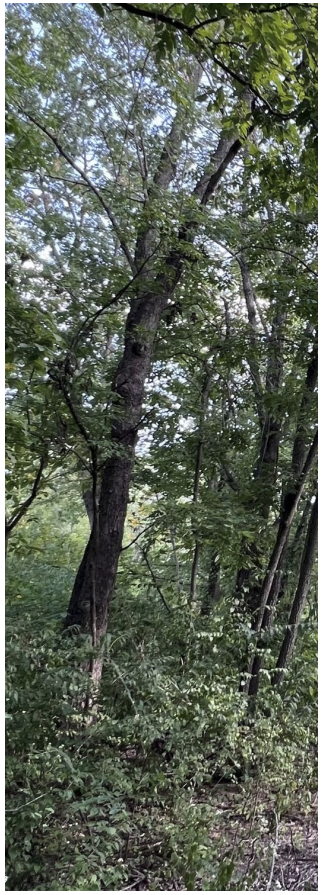
Tree Masses:
318,180 SF to Remain
257,434, SF to Remove

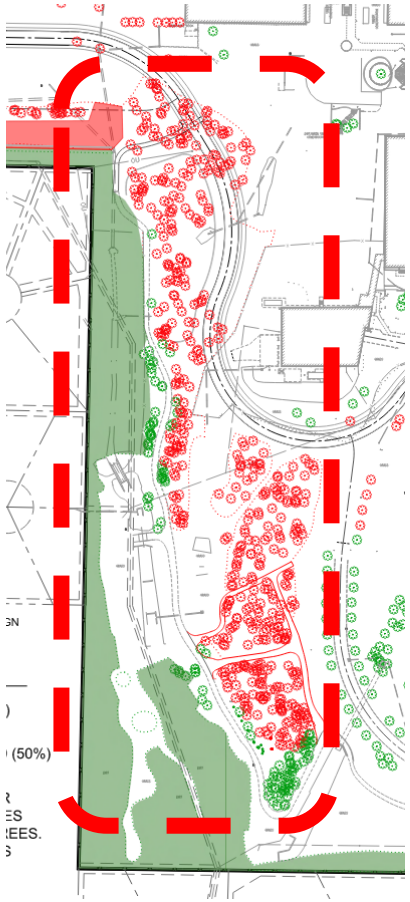
Individual Trees:
423 to Remain
1032 to Remove

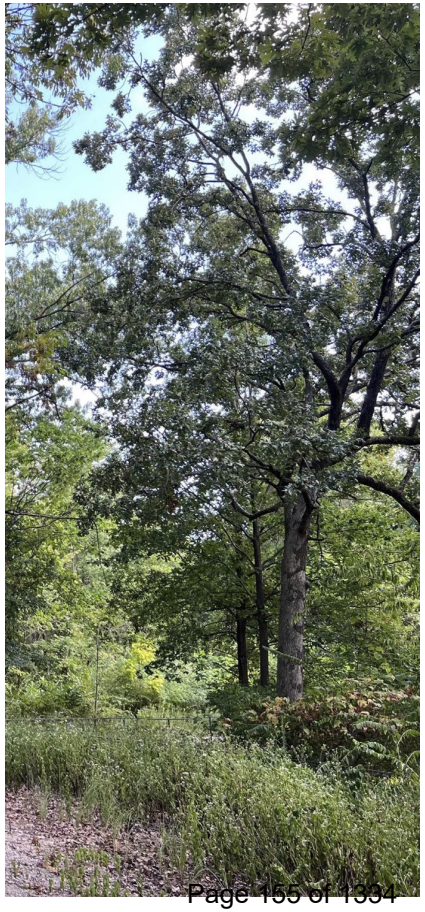
NATURAL AMENITIES

Tree Preservation

Under the current plan, **hundreds of mature trees will need to be removed** to make way for the retention basins.

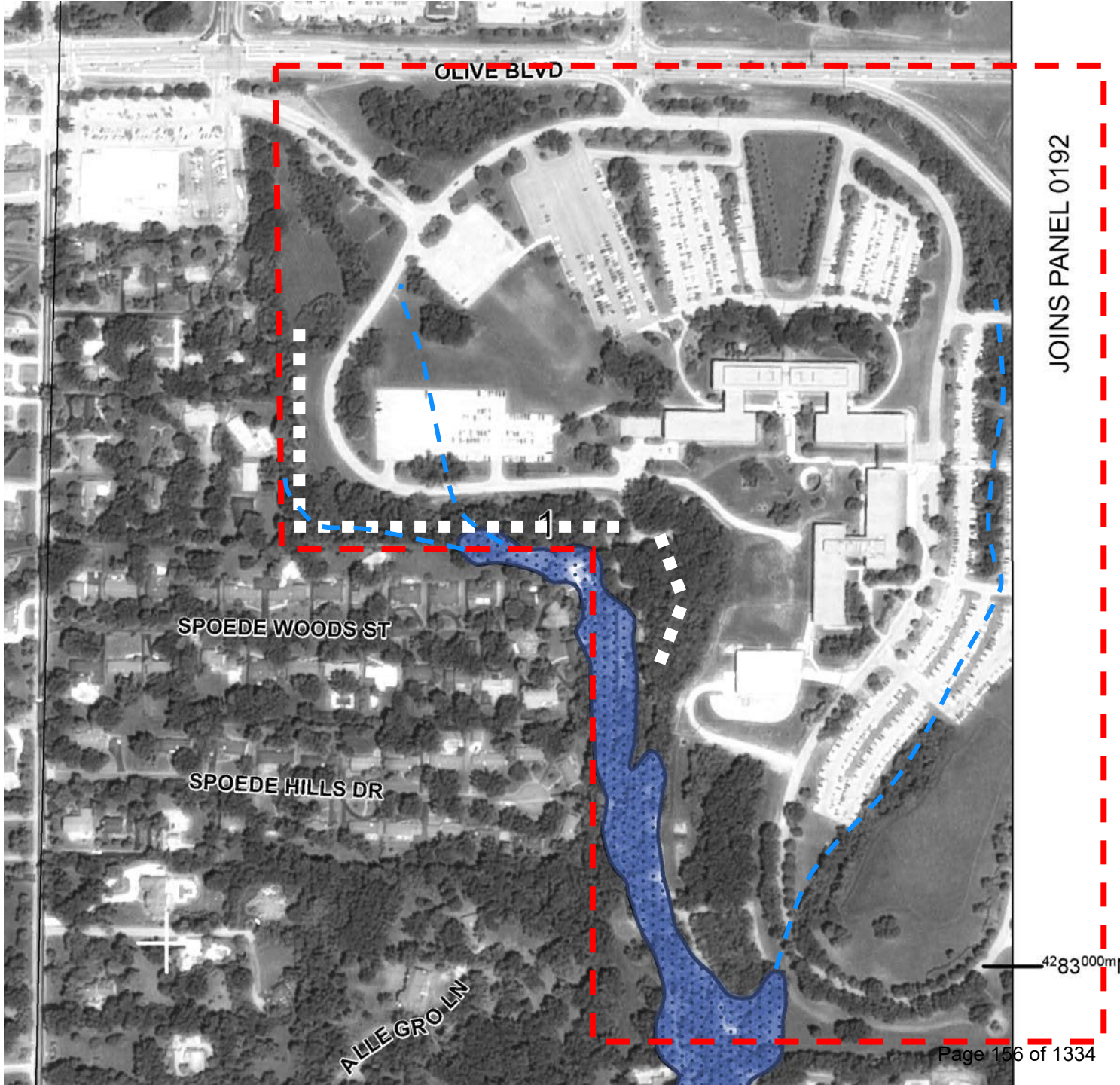






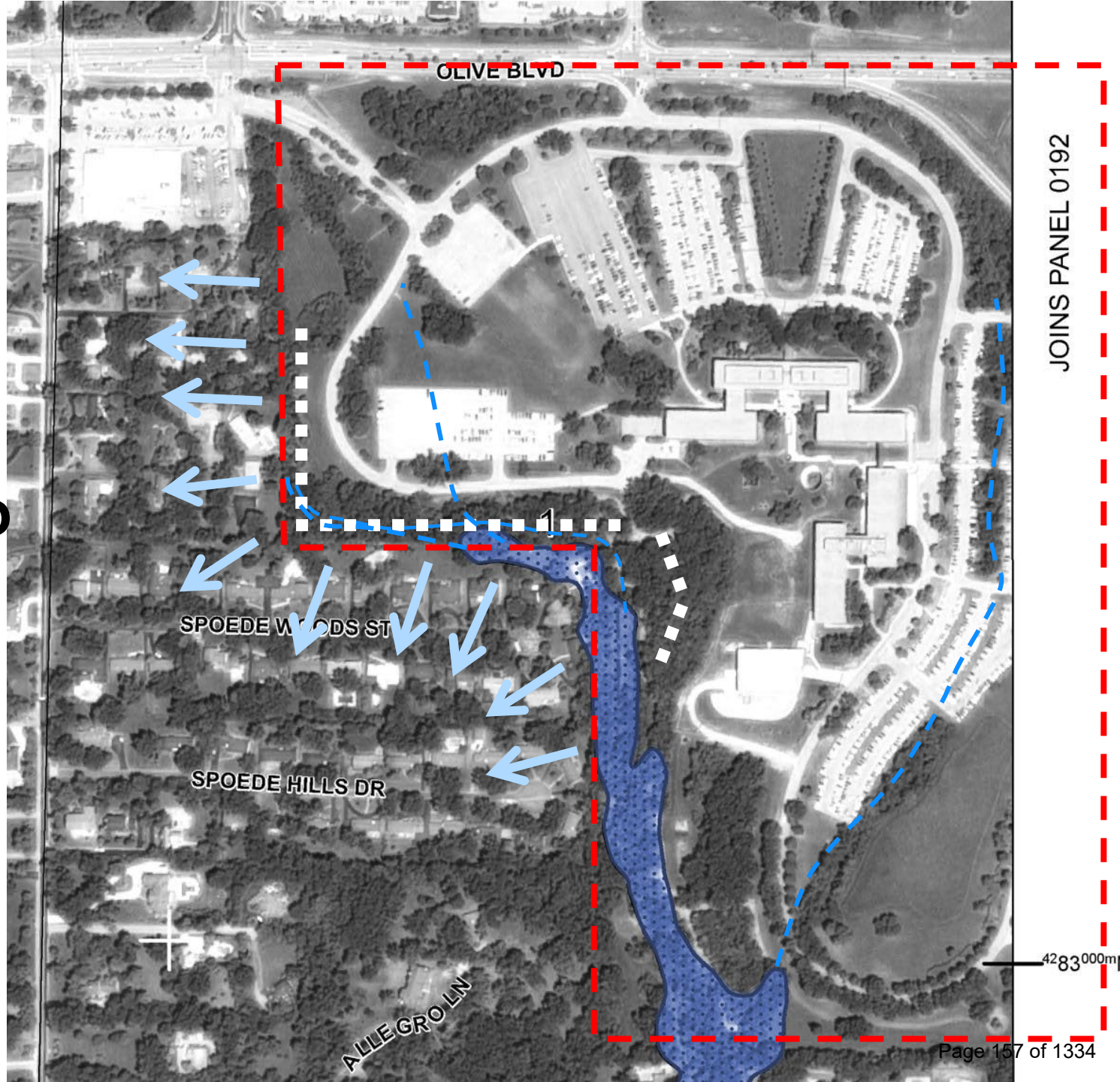
STORMWATER

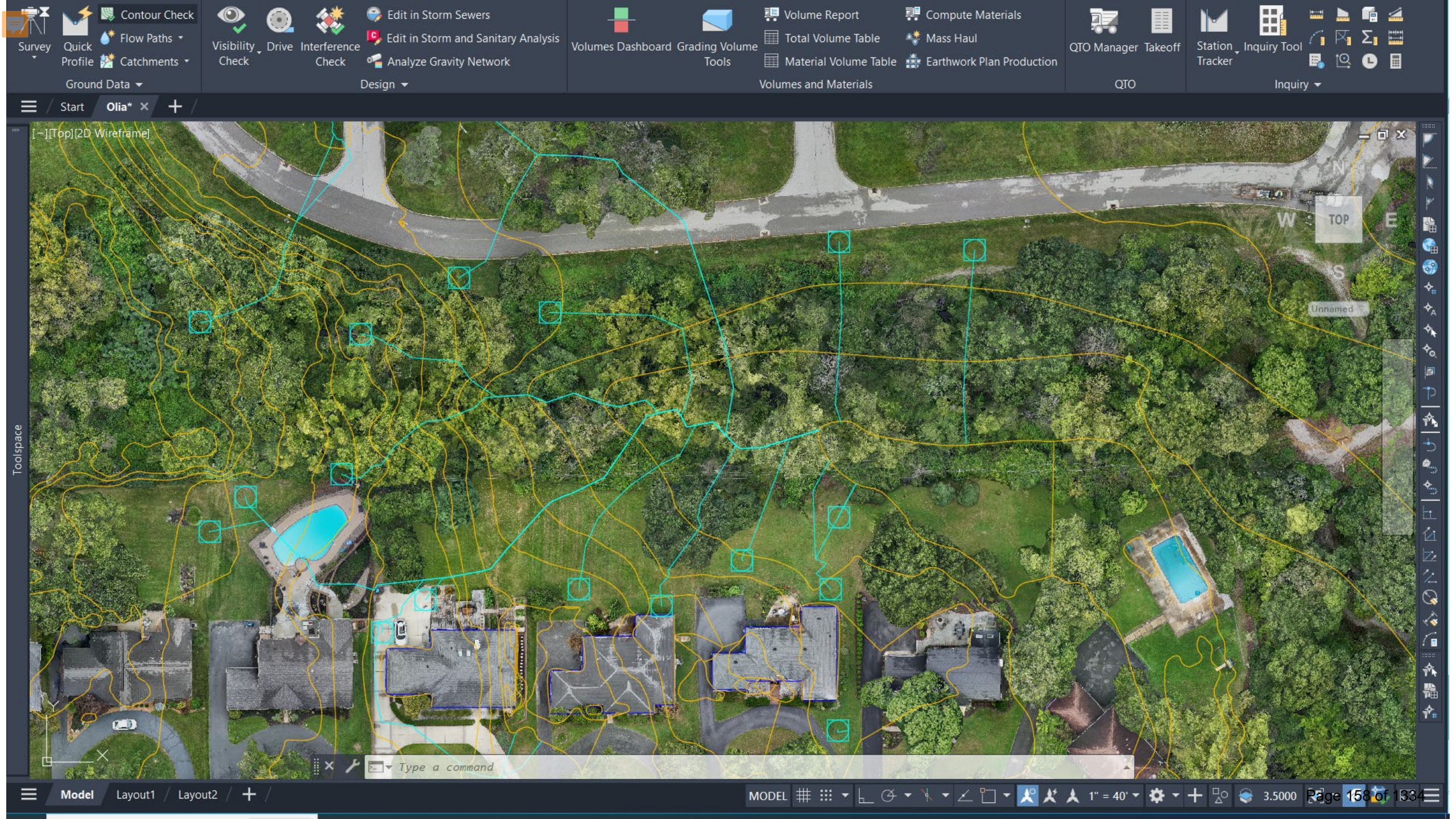
Proposed Retaining Walls

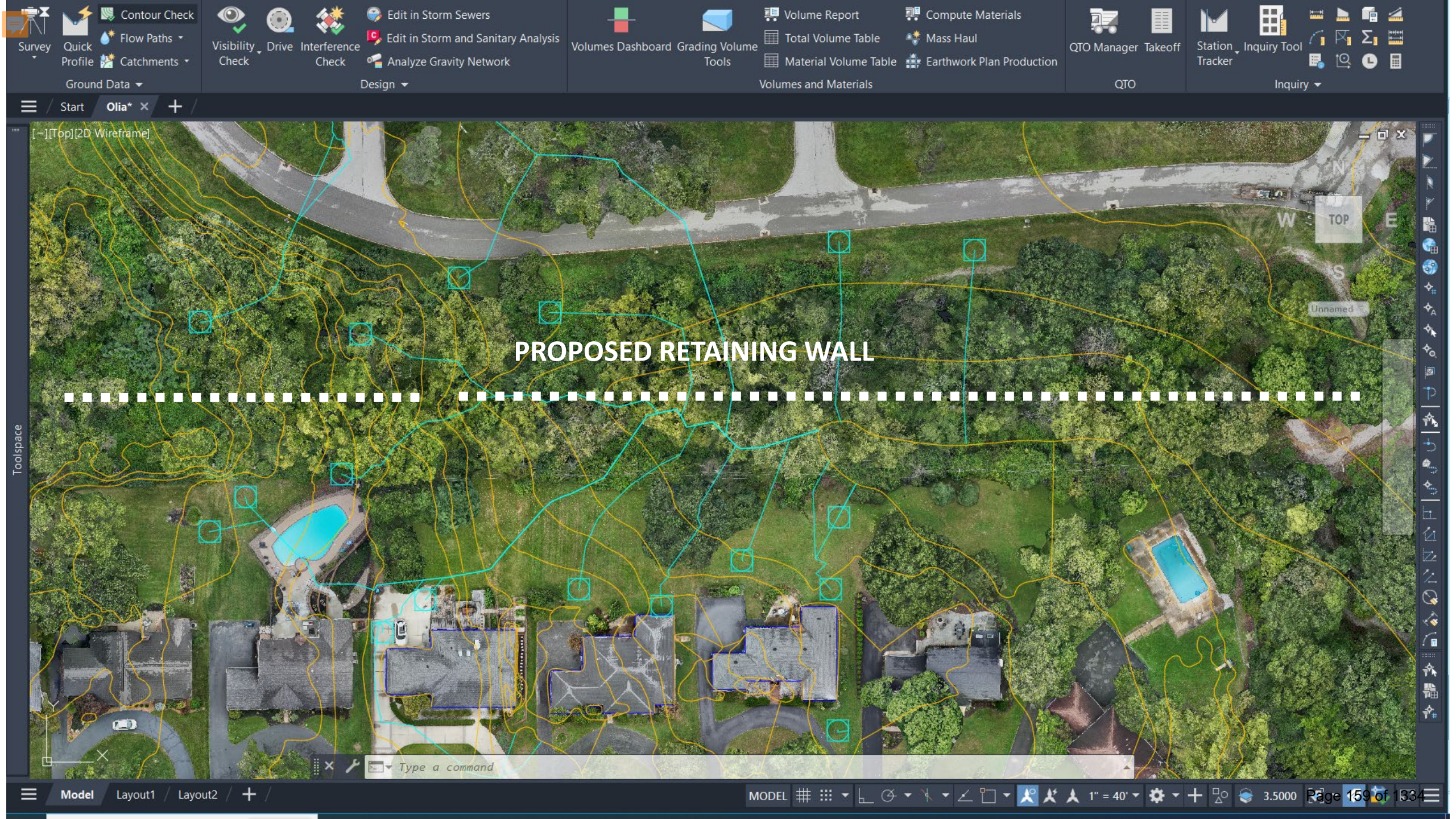


STORMWATER

Effect of New Retaining Walls?




Survey
Quick Profile
Contour Check
Flow Paths
Catchments
Ground Data
Visibility Check
Drive
Interference Check
Edit in Storm Sewers
Edit in Storm and Sanitary Analysis
Analyze Gravity Network
Design
Volumes Dashboard
Grading Volume Tools
Volume Report
Total Volume Table
Material Volume Table
Compute Materials
Mass Haul
Earthwork Plan Production
Volumes and Materials
QTO Manager
Takeoff
QTO
Station Tracker
Inquiry Tool
Inquiry
Start
Olia*
[−][Top][2D Wireframe]
TOP
Unnamed
Toolspace
Type a command
Model
Layout1
Layout2
MODEL
1" = 40'
3.5000


Survey
Quick Profile
Contour Check
Flow Paths
Catchments
Ground Data
Visibility Check
Drive
Interference Check
Edit in Storm Sewers
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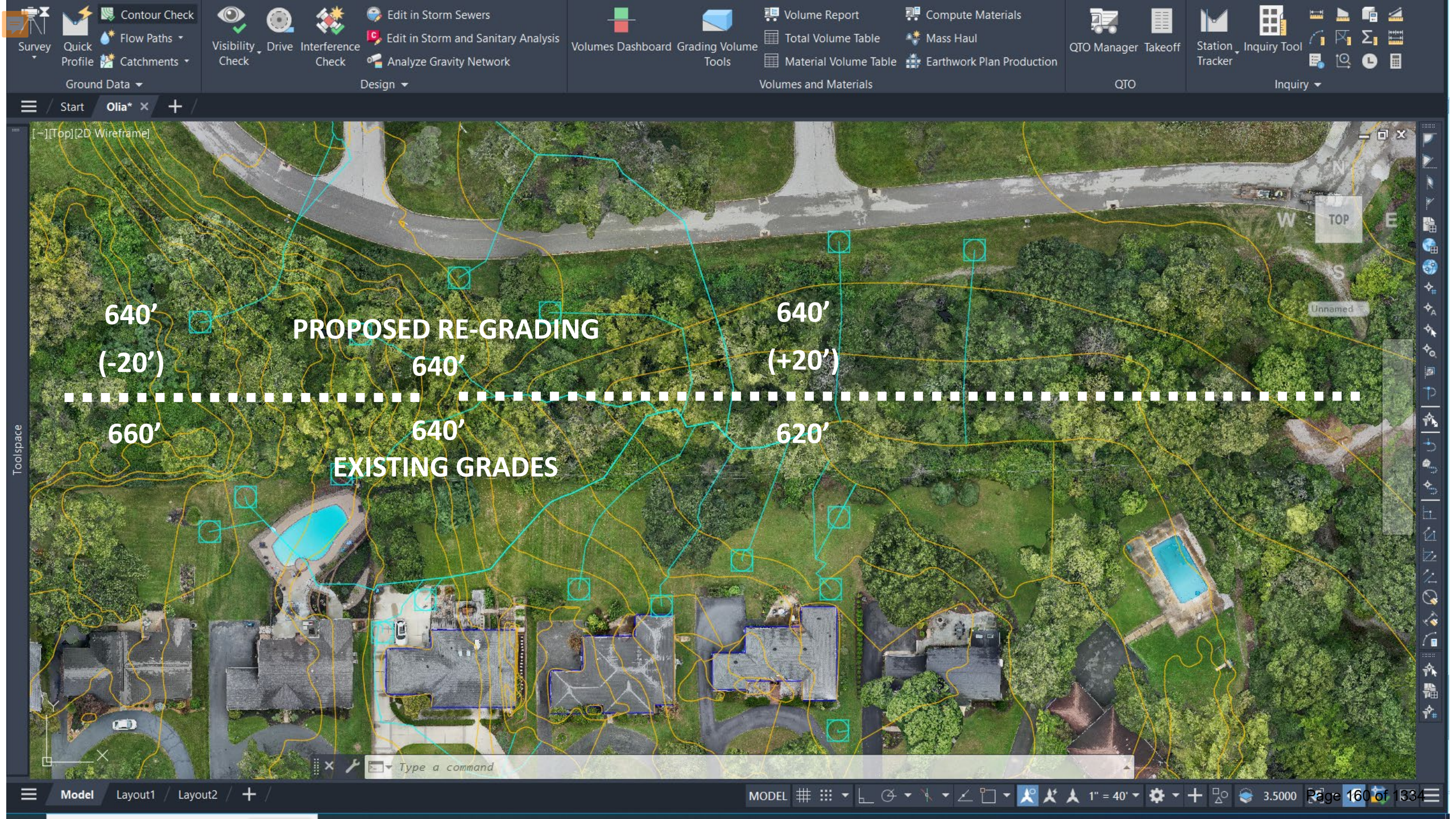
Analyze Gravity Network
Design
Volumes Dashboard
Grading Volume Tools
Volume Report
Total Volume Table
Material Volume Table
Compute Materials
Mass Haul
Earthwork Plan Production
Volumes and Materials
QTO Manager
Takeoff
QTO
Station Tracker
Inquiry Tool
Inquiry
Start
Olia*
[−][Top][2D Wireframe]
PROPOSED RETAINING WALL
Toolspace
Type a command
Model
Layout1
Layout2
MODEL
1" = 40'
3.5000


Survey
Quick Profile
Contour Check
Flow Paths
Catchments
Ground Data
Visibility Check
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Edit in Storm Sewers
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Compute Materials
Mass Haul
Earthwork Plan Production
Volumes and Materials
QTO Manager
Takeoff
QTO
Station Tracker
Inquiry Tool
Inquiry
Start
Olia*
[−][Top][2D Wireframe]
640’
(-20’)
PROPOSED RE-GRADING
640’
640’
(+20’)
660’
640’
620’
EXISTING GRADES
TOP
Unnamed
Toolspace
Type a command
Model
Layout1
Layout2
MODEL
1" = 40'
3.5000

Thank you!

Spoede Woods
Spoede Hills
Ramblewood
Mission Hills

Exhibit E

Creve Coeur Residents for Responsible Development

Resident Requests:

1) Maintain the 120-foot buffer that exists today. This amounts to less than 2% on a 96-acre property.
2) Preserve all living trees within the buffer to protect residents from living in a construction zone and to maintain privacy long-term. The proposed 6–8-foot tree replacements by the developer don't provide the protection that already exists.
3) Reduce the scale of buildings. View scale from both Olive and the residential sides. The developer building up a retaining wall above the residences adds additional height.
4) Require a plan to appropriately address stormwater management.

Current Creve Coeur procedure does not give residents a rebuttal as it does the developer. We'd like to provide perspective on phrases you may hear from the developer, and facts uncovered by residents:

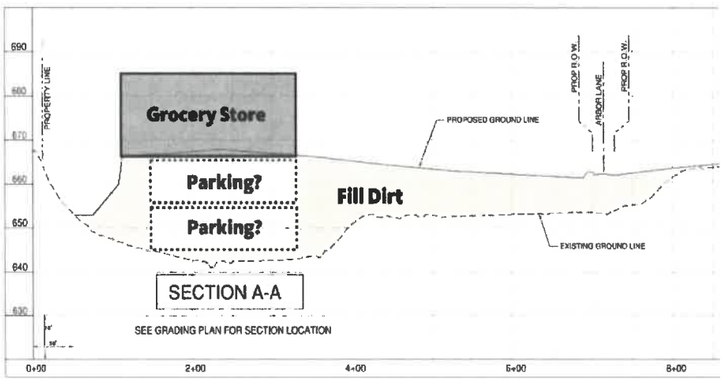
Developer Says:	**Resident Statement:**
"Residents were consulted during the process."	Residents received a letter in late August 2023 when plans were late stage. The developer stated at 10/2/23 P&Z meeting they could no longer make changes. Why is the burden on the residents?
"Developer states they've incorporated requested Spoede Woods changes."	No meaningful changes have been made to the plans.
"The buffer is consistent with Creve Coeur ordinance."	Residents bought their homes with the existing conditions of a 120-foot buffer. Why is the 50-foot buffer being represented as the *maximum* that can be used? There is no other project of this scale next to residential in Creve Coeur.
"Dielman Creek was buried and is dry."	Please review recent stormwater reports on the Creve Coeur website. Water issues exist today. Removal of existing buffer vegetation will increase water issues.

"The existing buffer trees are dead."
The vast majority of trees are alive.

"A lot of the parking is actually underground."
From Olive, some parking appears underground. The perspective of the neighborhoods shows parking garages entirely above grade based on slope. The red arrows represent above ground garages.

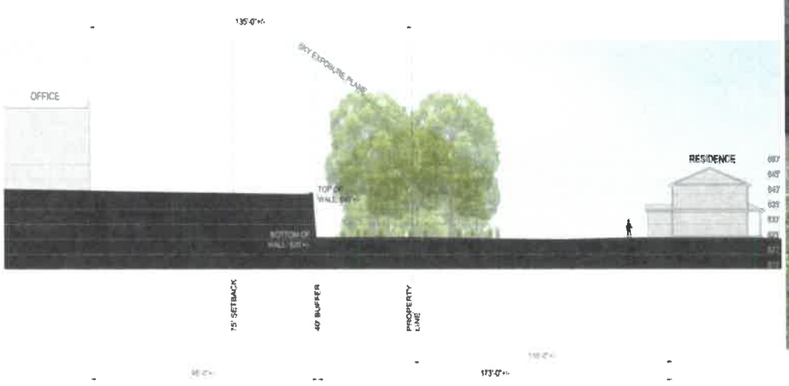
"We cannot build a parking garage under the grocery store because excavation is too expensive."

With the quantity of dirt being moved around, requiring underground parking does not seem unreasonable. View existing and proposed ground line in image.



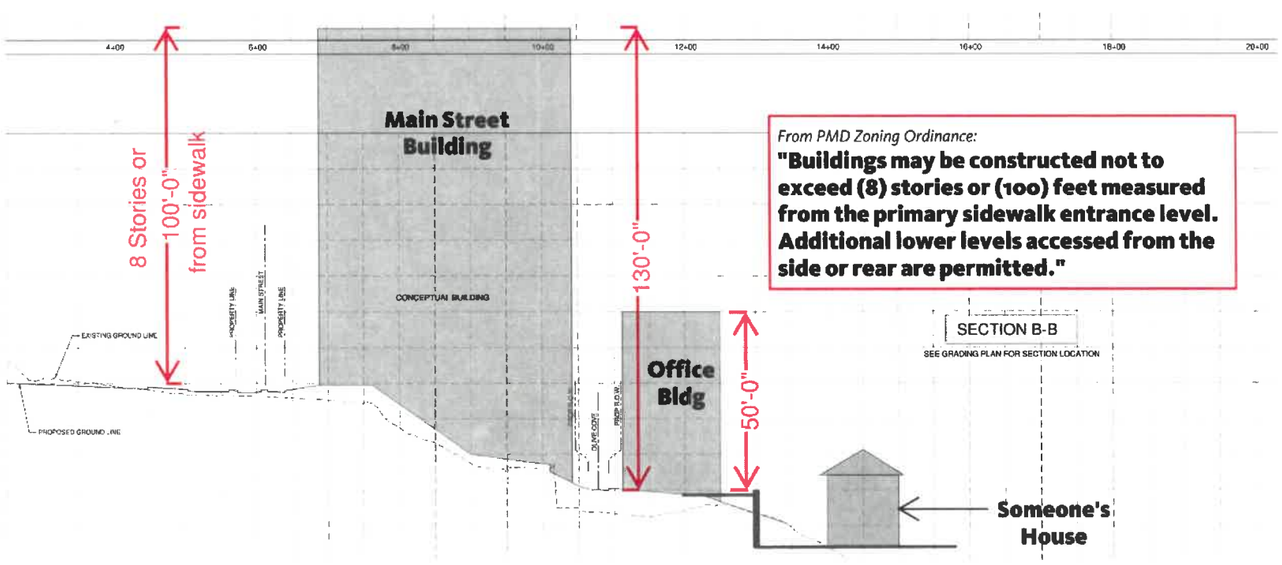
"The filed plans show the layout."

The plans reflect flat terrain. There is significant slope not accounted for in the drawings that misrepresents the true impact to residents.



"Main Street buildings will be up to 6 stories high."
"The building scale is in accordance with the ordinance."

Proposed ordinance has an 8 story, 100 foot height limit from the sidewalk. Additional lower levels are allowed. This would result in neighboring residents seeing 11 story and 130 feet buildings. Please view height from a 360 perspective, including from the Spoede Woods residences when reviewing scale. In addition, the grading is being raised above existing height which creates further scale impact to the residents.



Scale, Proximity, and Visibility

Creve Coeur City Council Meeting

10-9-23 Meeting

1. Statistical research on impact of commercial development

2. Apply to findings to the current development

3. Implications for this process

Research Study #1 - Meta-Analysis

"*Commercial Development Spillover Effects Upon Residential Values*" , 2010, *Southwestern Economic Review*. Aydin, Crawford and Smith (U of Houston).

"…proximity to commercial developments may have a negative impact upon nearby residential properties… the impact is likely dependent upon the **size of the development** and the degree in which **proximity is ameliorated by buffers to minimize visibility…"**

Research Study #2 - Visibility

"Out of Sight, Out of Mind? Using GIS to Incorporate Visibility in Hedonic Property Value Models", 2002, *Land Economics* 78 (3): 417-425.
Robert W. Paterson and Kevin J. Boyle

1. "…visibility of development significantly detracts from property prices."

2. "…proximity alone may not result in property value losses if visibility is minimized."

The Research Office (RO) Zoning

RO: Location of large structures

1. No building or structure shall exceed six (6) stories or ninety (90) feet

2. The City may allow and approve a building or structure in this district over six (6) stories…for buildings or structures entirely within five hundred twenty-seven (527) feet north or south of the centerline Olive Street Road.

Enter an address | Search

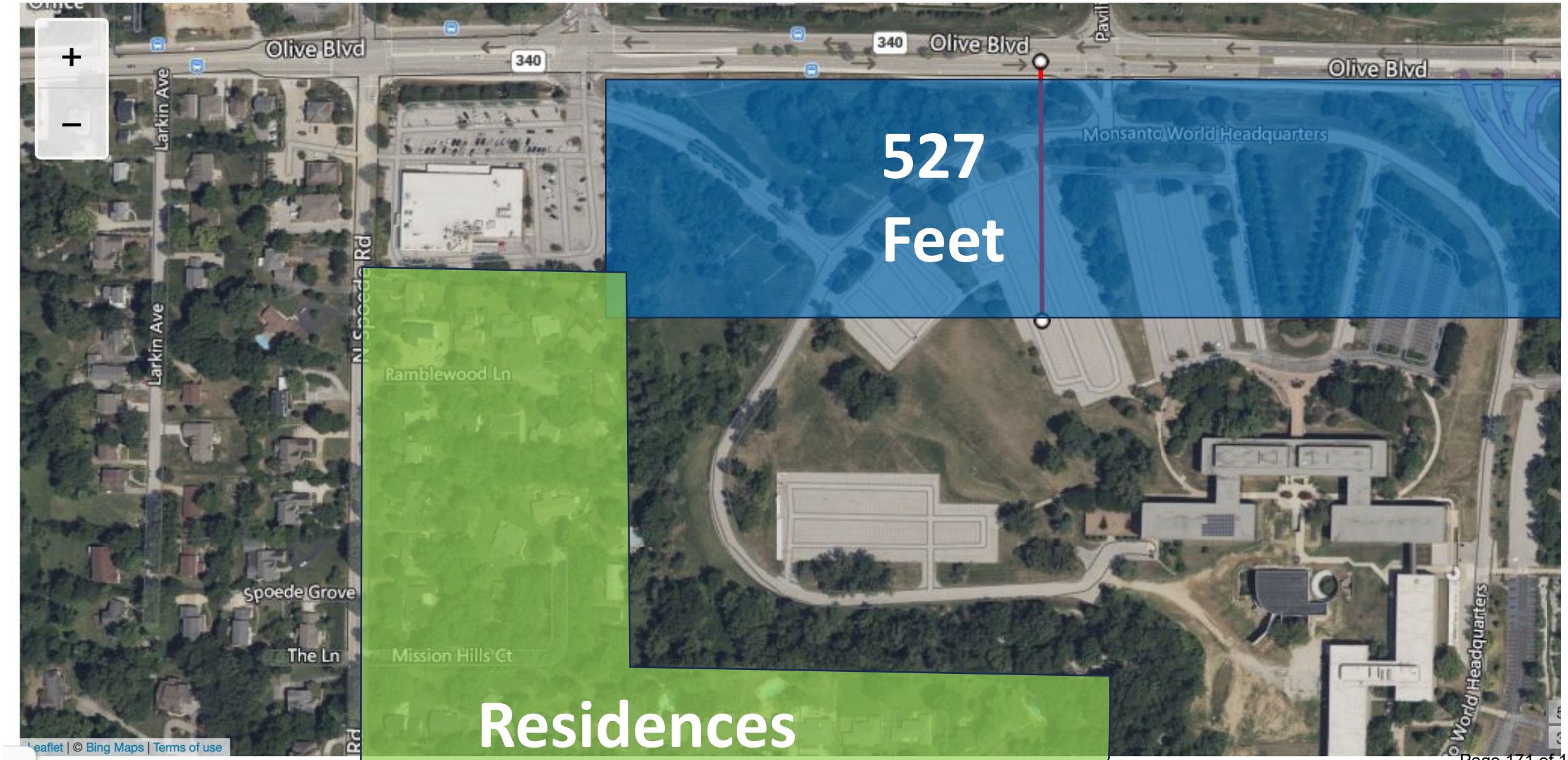
Distance: 160.7 m | 0.16 km | 0.10 mi | 527 ft | 175.7 yd | 0.09 nm

Clear All | Clear Last Point | Share Distance

Enter an address | Search

Distance: 160.7 m | 0.16 km | 0.10 mi | 527 ft | 175.7 yd | 0.09 nm

Clear All | Clear Last Point | Share Distance



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2. The City may allow and approve a building or structure in this district over six (6) stories…for buildings or structures entirely within five hundred twenty-seven (527) feet north or south of the centerline Olive Street Road.

PMD MAIN STREET ORDINANCE: Buildings may be constructed not to exceed (8) stories or (100) feet measured from the primary sidewalk entrance level. **Additional lower levels accessed from the side or rear are permitted.**

Enter an address | Search

Distance: 160.7 m | 0.16 km | 0.10 mi | 527 ft | 175.7 yd | 0.09 nm

Clear All | Clear Last Point | Share Distance

RO: Location of large structures

1. No building or structure shall exceed six (6) stories or ninety (90) feet.

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3. The City in connection with any such approval for increased building and structure height shall make a finding that **such approval does not adversely affect ANY adjoining properties**, complies with all sky exposure plan requirements, and promotes good planning practice. (emphasis mine)

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3. The City in connection with any such approval for increased building and structure height shall make a finding that **such approval does not adversely affect ANY adjoining properties**, complies with all sky exposure plan requirements, and promotes good planning practice. (emphasis mine)

RO: Single-Family Residential Buffer Yard

- Base buffer = 50ft

- **An additional** two (2) feet of buffer yard shall be provided for every foot of building or structure height exceeding forty-five (45) feet.

RO: Single-Family Residential Buffer Yard

- Base buffer = 50ft

- **An additional** two (2) feet of buffer yard shall be provided for every foot of building or structure height exceeding forty-five (45) feet.

    - Office - 50 ft tall = 60 ft buffer

RO: Single-Family Residential Buffer Yard

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- **An additional** two (2) feet of buffer yard shall be provided for every foot of building or structure height exceeding forty-five (45) feet.

  - Office - 50 ft tall = 60 ft buffer
  - Garage
    - 80 ft tall = 120 ft buffer
    - 120 ft tall = 200 ft buffer

RO: Single-Family Residential Buffer Yard

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- **An additional** two (2) feet of buffer yard shall be provided for every foot of building or structure height exceeding forty-five (45) feet.
  - Office - 50 ft tall = 60 ft buffer
  - Garage
    - 80 ft tall = 120 ft buffer
    - 120 ft tall = 200 ft buffer

From RO Zoning

- Maintain safeguards and proper distance between tall buildings and residential properties
- Implement a buffer that addresses proximity AND scale
- Implement a buffer that reduces development visibility

From RO Zoning to PMD Zoning

- ~~Maintain proper distance between tall buildings and~~ residential properties
- ~~Implement a buffer that addresses proximity AND~~ scale
- ~~Implement a buffer that reduces development~~ visibility

Proposed questions

- How will each material change to rezoning affect current residents?
- How much will it affect the residents?
- What alternatives have been offered by the developer to avoid or offset negative effects?
- Was there due process to gather AND INCORPORATE resident feedback to create a better plan?

MEMORANDUM

DATE: October 18, 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 October 5, 2023 through October 18, 2023 in the amount of $725,558.00.

Creve Coeur, MO

Council Report of invoices Paid Listing

By Fund

Payment Dates 10/5/2023 - 10/18/2023

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
Fund: 01 - GENERAL FUND						
ST LOUIS AREA HEALTH INSURANCE TRUST-MEDICAL	1023	10/11/2023	GROUP HEALTH OCT 23	01-2211	66652	108,064.78
ST LOUIS AREA HEALTH INSURANCE TRUST-MEDICAL	1023	10/11/2023	GROUP HEALTH OCT 23	01-2225	66652	3,243.66
GREGORY FX DALY COLLECTOR OF REVENUE	2023 Q3 EARNINGS	10/11/2023	2023 3RD QUARTER EARNIN	01-2101	66633	407.22
ARIA COSMETIC SURGERY	23BL REFUND	10/11/2023	REFUND OVERPAYMENT BUS	01-4402	66630	122.50
MINDFUL CHANGE STL LLC	23BL REFUND	10/11/2023	REFUND OVERPAYMENT BUS	01-4402	66642	67.00
DEPARTMENT OF TREASURY	INV0001875	10/13/2023	SOCIAL SECURITY	01-2102	DFT0007734	1,618.70
DEPARTMENT OF TREASURY	INV0001875	10/13/2023	MEDICARE	01-2103	DFT0007734	378.52
DEPARTMENT OF TREASURY	INV0001875	10/13/2023	FEDERAL WITHHOLDING	01-2104	DFT0007734	422.70
PAYROLL MISSOURI WITHHOLDING TAXES	INV0001876	10/13/2023	STATE WITHHOLDING	01-2105	DFT0007735	251.00
PAYROLL-MS CONTRIBUTION	INV0001877	10/13/2023	ICMA ROTH IRA %	01-2319	DFT0007736	105.72
FAMILY SUPPORT DIVSION-CHILD SUPPORT OFFICE	INV0001878	10/13/2023	CHILD SUPPORT	01-2113	DFT0007737	184.62
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ER PENSION 10%	01-2312	DFT0007738	801.80
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ICMA ROTH 457 $	01-2318	DFT0007738	1,888.08
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ICMA ROTH 457 %	01-2318	DFT0007738	2,748.68
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ICMA ROTH IRA $	01-2319	DFT0007738	494.62
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ICMA 457 $	01-2322	DFT0007738	7,700.43
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ICMA 457 %	01-2322	DFT0007738	1,835.90
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ICMA 457 $	01-2322	DFT0007738	627.47
PAYROLL-MS CONTRIBUTION	INV0001879	10/13/2023	ICMA LOAN PAYMENT	01-2324	DFT0007738	565.31
MOST-MISSOURI'S 529 SAVINGS PLAN	INV0001880	10/13/2023	MOST 529 COLLEGE SAVINGS	01-2323	DFT0007739	920.00
VOYA	INV0001881	10/13/2023	VOYA 457 %	01-2321	DFT0007740	1,995.37
DEPARTMENT OF TREASURY	INV0001882	10/13/2023	SOCIAL SECURITY	01-2102	DFT0007741	38,146.66
DEPARTMENT OF TREASURY	INV0001882	10/13/2023	MEDICARE	01-2103	DFT0007741	9,161.26
DEPARTMENT OF TREASURY	INV0001882	10/13/2023	FEDERAL WITHHOLDING	01-2104	DFT0007741	31,795.42
PAYROLL MISSOURI WITHHOLDING TAXES	INV0001883	10/13/2023	STATE WITHHOLDING	01-2105	DFT0007742	11,934.00
MISSOURI DEPARTMENT OF REVENUE	CVC-SEP23	10/18/2023	CRIME VICTIMS COMPENSAT	01-2413	66670	7.50
MISSOURI DEPARTMENT OF REVENUE	CVC-SEP23	10/18/2023	MISC POLICE FUND REVENU	01-4604	66670	-0.37
WASHINGTON NATIONAL INS CO	P2365982	10/18/2023	WG00006955, 02413 (10/23)	01-2215	368	498.60

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number		Amount
MISSOURI DEPARTMENT OF REVENUE	POST-SEP23	10/18/2023	POST COMMISSION FUND SE	01-2412	66669		1.00
							225,988.15
							225,988.15
Department: 11 - LEGISLATIVE SERVICES							
Division: 12 - MAYOR AND CITY COUNCIL							
SAMS CLUB/SYNCHRONY BANK	N01AQAFFP	10/11/2023	SNACKS FOR ETHICS TRAININ	01-11-12-6264	66650		19.98
DRC FOODWORKS INC	E28329 DOWN PAYMENT	10/12/2023	DEPOSIT FOR MAYOR APPRE	01-11-12-7315	340		1,601.70
						Division 12 - MAYOR AND CITY COUNCIL Total:	**1,621.68**
Division: 13 - CITY CLERK							
CIVIC PLUS	279870	10/18/2023	HISTORICAL IMPORT	01-11-13-6213	66664		656.25
						Division 13 - CITY CLERK Total:	**656.25**
						Department 11 - LEGISLATIVE SERVICES Total:	**2,277.93**
Department: 12 - ADMINISTRATION							
Division: 10 - LEGAL							
CURTIS HEINZ GARRETT AND OKEEFE PC	177071-177075	10/12/2023	NON-RETAINER GENERAL	01-12-10-6201	338		3,004.00
CURTIS HEINZ GARRETT AND OKEEFE PC	177071-177075	10/12/2023	MUNICIPAL PROSECUTION N	01-12-10-6201	338		4,375.00
CURTIS HEINZ GARRETT AND OKEEFE PC	177071-177075	10/12/2023	MUNICIPAL PROSECUTION R	01-12-10-6201	338		2,500.00
CURTIS HEINZ GARRETT AND OKEEFE PC	177071-177075	10/12/2023	RETAINER MEETINGS AND C	01-12-10-6201	338		5,000.00
CURTIS HEINZ GARRETT AND OKEEFE PC	177071-177075	10/12/2023	PROSECUTING ATTORNEY AS	01-12-10-6201	338		1,634.50
						Division 10 - LEGAL Total:	**16,513.50**
Division: 11 - ADMINISTRATIVE							
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES ADMIN 8/21/2	01-12-11-6253	66655		49.48
SAMS CLUB/SYNCHRONY BANK	N01AQAFF5	10/11/2023	SNACKS FOR ETHICS TRAININ	01-12-11-6203	66650		15.56
ASI	A000178623ICIQO	10/12/2023	HRA & FSA ADMIN FEES SEP	01-12-11-6203	337		441.00
RICHARD DECOLLO	6904	10/18/2023	Newsletter handling OCT 23	01-12-11-6203	66676		279.55
MERCY CORPORATE HEALTH	691541	10/18/2023	PRE-EMPLOYMENT SCREENI	01-12-11-6271	66668		55.25
MERCY CORPORATE HEALTH	691929	10/18/2023	PRE-EMPLOYMENT SCREENI	01-12-11-6271	66668		110.50
						Division 11 - ADMINISTRATIVE Total:	**951.34**
Division: 14 - MUNICIPAL COURT							
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES COURT 8/21/2	01-12-14-6253	66655		24.74
RICOH USA, INC	107651854	10/18/2023	COURT COPIER LEASE 9/18/2	01-12-14-6213	66677		250.08
						Division 14 - MUNICIPAL COURT Total:	**274.82**
						Department 12 - ADMINISTRATION Total:	**17,739.66**

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number		Amount
Department: 13 - FINANCE							
Division: 11 - ADMINISTRATIVE							
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES FIN 8/21/23-9/	01-13-11-6253	66655		24.74
PAYROLL MISSOURI WITHHOLDING TAXES	INV0001883	10/13/2023	STATE WITHHOLDING	01-13-11-6202	DFT0007742		0.50
						Division 11 - ADMINISTRATIVE Total:	**25.24**
Division: 15 - INTERDEPARTMENTAL							
ST LOUIS AREA HEALTH INSURANCE TRUST-MEDICAL	1023	10/11/2023	GROUP HEALTH OCT 23	01-13-15-5230	66652		12,359.61
ODP BUSINESS SOLUTIONS LLC	332852376001	10/11/2023	COURT CAL REFILLS/PAPER	01-13-15-7312	66648		112.69
ODP BUSINESS SOLUTIONS LLC	333868320001	10/11/2023	CREDIT-RUBBERBANDS	01-13-15-7312	66648		-17.42
ODP BUSINESS SOLUTIONS LLC	334509388001	10/11/2023	CARTRIDGE/ SCISSORS	01-13-15-7312	66648		190.89
RETIREMENT PLAN ADVISOR	2023-59	10/12/2023	FY24 Q1 INVESTMENT ADVIS	01-13-15-6203	349		2,822.07
RETIREMENT PLAN ADVISOR	2023-59	10/12/2023	FY24 Q1 INVESTMENT ADVIS	01-13-15-6203	349		2,299.03
FOREMOST FITNESS GROUP LLC	2496	10/12/2023	ROW MACHING FOR PD FITN	01-13-15-7317	342		1,035.23
WUSSLER BUSINESS FORMS INC	5206	10/12/2023	COURT WINDOW ENVELOPE	01-13-15-7312	353		970.95
CHARTER COMMUNICATION	173940501100123	10/18/2023	PD PRI FIBER OCT 23	01-13-15-6253	66663		1,532.22
CHARTER COMMUNICATION	173941901	10/18/2023	PW GARAGE LAN INTERNET	01-13-15-6255	66662		326.82
CHARTER COMMUNICATION	173957701100123	10/18/2023	ANALOG & PW GARAGE CON	01-13-15-6253	66661		511.38
CHARTER COMMUNICATION	173957901100123	10/18/2023	CITY HALL TV WIFI OCT 23	01-13-15-6253	66659		205.32
KONICA MINOLTA BUSINESS SOLUTIONS	289627149	10/18/2023	ADMIN COPIER MAINTENAN	01-13-15-6213	66666		67.10
ODP BUSINESS SOLUTIONS LLC	335172502001	10/18/2023	CALENDAR STENO PADS FLA	01-13-15-7312	66672		54.15
ODP BUSINESS SOLUTIONS LLC	335279526001	10/18/2023	PENS	01-13-15-7312	66672		24.06
ODP BUSINESS SOLUTIONS LLC	335279529001	10/18/2023	PENS	01-13-15-7312	66672		30.08
WUSSLER BUSINESS FORMS INC	5211	10/18/2023	BUSINESS CARDS BOSHEARS	01-13-15-7312	370		282.00
						Division 15 - INTERDEPARTMENTAL Total:	**22,806.18**
Division: 51 - MIS OPERATIONS							
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES MIS 8/21/23-9	01-13-51-6253	66655		24.74
CHARTER COMMUNICATION	173957901100123	10/18/2023	CITY HALL TV WIFI OCT 23	01-13-51-6213	66659		97.98
						Division 51 - MIS OPERATIONS Total:	**122.72**
						Department 13 - FINANCE Total:	**22,954.14**

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
Department: 14 - COMMUNITY SERVICES						
Division: 11 - ADMINISTRATIVE						
MYRLYNN HENLEY	120A	10/18/2023	TAI CHI INSTRUCTION 10/10/	01-14-11-6202	362	456.00
					Division 11 - ADMINISTRATIVE Total:	**456.00**
					Department 14 - COMMUNITY SERVICES Total:	**456.00**
Department: 16 - MUNICIPAL FACILITIES MAINTENANCE						
Division: 11 - ADMINISTRATIVE						
MISSOURI AMERICAN WATER CO	1017-210013915103-08-31-	10/11/2023	300 N NEW BALLAS RD DOM	01-16-11-6254	66644	1,044.93
HOME DEPOT CREDIT SERVICES	2614428	10/11/2023	PAINT ROLLER TRAY AND LIN	01-16-11-6212	66634	60.94
HOME DEPOT CREDIT SERVICES	2614428	10/11/2023	PAINT ROLLER TRAY AND LIN	01-16-11-7302	66634	19.24
HOME DEPOT CREDIT SERVICES	3610024	10/11/2023	BOUNCE PISTOL BLOW GUN	01-16-11-6212	66634	38.40
AMERENUE	55031-62002-09/29/23	10/11/2023	ELECTRIC CITY HALL AUG-SE	01-16-11-6250	DFT0007755	6,615.06
HOME DEPOT CREDIT SERVICES	614620	10/11/2023	DUCT TAPE	01-16-11-6212	66634	12.97
HOME DEPOT CREDIT SERVICES	7626179	10/11/2023	DRILL BIT WASP SPRAY TRAS	01-16-11-6212	66634	102.59
HOME DEPOT CREDIT SERVICES	8513104	10/11/2023	FIBERGLASS RAKES	01-16-11-7302	66634	104.94
HOME DEPOT CREDIT SERVICES	8614753	10/11/2023	2X2 FITTING PVC PLUGS	01-16-11-6212	66634	48.52
HOME DEPOT CREDIT SERVICES	9622464	10/11/2023	5GAL BUCKET W LID SPONG	01-16-11-6212	66634	38.25
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES BLDG MAINT 8	01-16-11-6253	66655	24.74
WALTER KNOLL FLORIST	INV12848	10/11/2023	MONTHLY PLANT MAINTENA	01-16-11-6212	66657	80.00
UNIFIRST CORPORATION	1880078027	10/12/2023	PD & CITY HALL UNIFORMS	01-16-11-7308	352	11.20
NEW SYSTEM LLC	101158	10/18/2023	CITY HALL CUSTODIAL SUPPL	01-16-11-6212	364	396.80
UNIFIRST CORPORATION	1880079214	10/18/2023	CITY HALL & PD UNIFORMS	01-16-11-7308	367	461.71
WIEGMANN ASSOCIATES	79967	10/18/2023	UPRIGHT COOLER REPAIR	01-16-11-6211	369	586.28
					Division 11 - ADMINISTRATIVE Total:	**9,646.57**
					Department 16 - MUNICIPAL FACILITIES MAINTENANCE Total:	**9,646.57**
Department: 21 - POLICE						
Division: 11 - ADMINISTRATIVE						
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES POLICE 8/21/2	01-21-11-6253	66655	54.49
UNIFIRST CORPORATION	1880078027	10/12/2023	PD & CITY HALL UNIFORMS	01-21-11-7308	352	5.94
UNIFIRST CORPORATION	1880079214	10/18/2023	CITY HALL & PD UNIFORMS	01-21-11-7308	367	21.43
VERIZON WIRELESS SERVICES LLC	9946083983	10/18/2023	TABLETS AND AIRCARDS PD	01-21-11-6253	66682	280.07
					Division 11 - ADMINISTRATIVE Total:	**361.93**

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number		Amount
Division: 22 - PATROL							
SUNTRUP FORD INC	485194	10/11/2023	SEALS FOR CAR 2419	01-21-22-6210	66654		37.85
MCCLAIN RADAR SERVICE	4879	10/11/2023	16 RADAR AND 5 LIDAR CERT	01-21-22-6211	66640		1,070.00
						Division 22 - PATROL Total:	**1,107.85**
						Department 21 - POLICE Total:	**1,469.78**
Department: 31 - PUBLIC WORKS							
Division: 11 - ADMINISTRATIVE							
US BANK EQUIPMENT FINANCE	511881856	10/11/2023	COPIER LEASE & MAINTENA	01-31-11-6213	66656		224.51
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES PW ADMIN 8/2	01-31-11-6253	66655		148.44
DELL MARKETING LP	10702387347	10/12/2023	MICROSOFT PROJECT USER -	01-31-11-6202	339		639.19
						Division 11 - ADMINISTRATIVE Total:	**1,012.14**
Division: 41 - STREET MAINTENANCE							
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	1030 N LINDBERGH BLVD 08/	01-31-41-6254	66647		-42.86
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	451 N NEW BALLAS RD IRR3	01-31-41-6254	66647		6.60
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	198 N NEW BALLAS RD IRRIG	01-31-41-6254	66647		179.25
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	160 N NEW BALLAS RD IRRIG	01-31-41-6254	66647		114.72
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	6 BEACON HILL LN IRRIG 08/	01-31-41-6254	66647		77.80
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	533 N NEW BALLAS RD IRRC	01-31-41-6254	66647		56.04
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	740 N NEW BALLAS RD IRR1S	01-31-41-6254	66647		42.64
POMP'S TIRE SERVICE, INC.	1240041313	10/11/2023	LEAF VAC TIRES	01-31-41-6211	66649		967.28
ABSTENENCIA GENTRY	1261-2000013358	10/11/2023	PW TEMPORARY EMPLOYEE	01-31-41-6207	66628		579.60
ABSTENENCIA GENTRY	1261-200013374	10/11/2023	PW TEMPORARY EMPLOYEE	01-31-41-6207	66628		695.52
HOME DEPOT CREDIT SERVICES	2191642	10/11/2023	RETURN FLOOD LIGHTS	01-31-41-6212	66634		-10.04
HOME DEPOT CREDIT SERVICES	2524557	10/11/2023	ORANGE FLAGGING TAPE	01-31-41-7305	66634		31.88
HOME DEPOT CREDIT SERVICES	3610036	10/11/2023	INSULATING SPRAY EXPANDI	01-31-41-6212	66634		37.66
AMERENUE	55031-62002-09/29/23	10/11/2023	ELECTRIC STREET DEPT AUG-	01-31-41-6250	DFT0007755		1,402.11
AMERENUE	55031-62002-09/29/23	10/11/2023	ELECTRIC STREET LIGHTING	01-31-41-6251	DFT0007755		10,602.43
HOME DEPOT CREDIT SERVICES	8101821	10/11/2023	FLOOD LIGHTS	01-31-41-6212	66634		10.04
CRAFCO INC	9403039253	10/11/2023	FLAGGING TAPE	01-31-41-7305	66632		82.95
CRAFCO INC	9403039254	10/11/2023	OVERNIGHT HEATER & CRAC	01-31-41-6211	66632		299.89
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES STREETS 8/21/	01-31-41-6253	66655		122.06
HYSPECO, INC.	00662472	10/12/2023	LOADER HOSE	01-31-41-6211	345		68.71

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
HUMAN RESOURCE STAFFIN	1001075368	10/12/2023	PW TEMPORARY EMPLOYEE	01-31-41-6207	344	1,574.97
UNIFIRST CORPORATION	1880078038	10/12/2023	PW GARAGE UNIFORMS	01-31-41-7308	352	65.48
SUPER BRIGHT LEDS INC	INVN-212280	10/12/2023	114 LIGHT BAR - SPOT LIGHT	01-31-41-6210	350	258.56
ST LOUIS COUNTY TREASURE	002929-12-23	10/18/2023	INSPECTION FOR AUTO LIFT	01-31-41-6202	66679	60.00
NEW FRONTIER MATERIALS LLC	12695890	10/18/2023	HOTMIX POTHOLES	01-31-41-7305	363	259.07
NEW FRONTIER MATERIALS LLC	12697002	10/18/2023	HOTMIX POTHOLES	01-31-41-7305	363	182.97
L AND C TRUCK REPAIR INC	128928	10/18/2023	CHIPPER DERATE	01-31-41-6211	66667	97.50
CHARTER COMMUNICATION	173942001	10/18/2023	PW GARAGE TV WIFI OCT 23	01-31-41-6253	66660	119.27
UNIFIRST CORPORATION	1880079221	10/18/2023	PW GARAGE UNIFORMS	01-31-41-7308	367	109.90
VALTEC HYDRAULICS	252152	10/18/2023	211 LIFTCYLINDER	01-31-41-6210	66681	202.61
RUSH TRUCK CENTER	3034170908	10/18/2023	321 AC PARTS	01-31-41-6210	66678	411.60
NEUMAYER EQUIPMENT COMPANY INC	5566501-IN	10/18/2023	GAS PUMP SERVICE	01-31-41-6202	66671	557.62
GRAINGER	9851647926	10/18/2023	POTATO FORKS	01-31-41-7305	357	165.42
					Division 41 - STREET MAINTENANCE Total:	**19,389.25**
Division: 43 - PARKS MAINTENANCE						
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	902 MASON RD 08/22/23-09	01-31-43-6224	66647	-19.55
HOME DEPOT CREDIT SERVICES	1034121	10/11/2023	WOOD FOR MALCOLM BRID	01-31-43-6212	66634	251.72
HOME DEPOT CREDIT SERVICES	1040693	10/11/2023	WOOD WASHERS SCREWS L	01-31-43-6212	66634	364.09
POMP'S TIRE SERVICE, INC.	1240041313	10/11/2023	LEAF VAC TIRES	01-31-43-6211	66649	322.42
ABSTENENCIA GENTRY	1261-2000013358	10/11/2023	PW TEMPORARY EMPLOYEE	01-31-43-6207	66628	193.20
ABSTENENCIA GENTRY	1261-200013374	10/11/2023	PW TEMPORARY EMPLOYEE	01-31-43-6207	66628	231.84
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	135244279-001	10/11/2023	ALGAECIDE & GUARDHSHAC	01-31-43-6212	66651	533.37
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	135244279-001	10/11/2023	ALGAECIDE & GUARDHSHAC	01-31-43-7303	66651	66.59
HOME DEPOT CREDIT SERVICES	4035006	10/11/2023	CEDAR PLANTS HINGE STRAP	01-31-43-6212	66634	115.32
HOME DEPOT CREDIT SERVICES	5470133	10/11/2023	URINAL SCREENS	01-31-43-6212	66634	30.65
AMERENUE	55031-62002-09/29/23	10/11/2023	ELECTRIC PARKS DEPT AUG-S	01-31-43-6250	DFT0007755	1,236.43
HOME DEPOT CREDIT SERVICES	5523183	10/11/2023	INSULATING FOAM SEALANT	01-31-43-6212	66634	77.16
HOME DEPOT CREDIT SERVICES	5523183	10/11/2023	THERMOSTAT	01-31-43-6224	66634	379.98
HOME DEPOT CREDIT SERVICES	6942575	10/11/2023	WASP AND HORNET KILLER	01-31-43-7303	66634	118.40
HOME DEPOT CREDIT SERVICES	7278770	10/11/2023	BATTERY POWERED LOPPER	01-31-43-6224	66634	158.54

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
HOME DEPOT CREDIT SERVICES	7622686	10/11/2023	LED FLOOD LIGHT FOR LAVE	01-31-43-6212	66634	218.00
HOME DEPOT CREDIT SERVICES	8621427	10/11/2023	HOSE	01-31-43-6224	66634	39.98
HOME DEPOT CREDIT SERVICES	8621427	10/11/2023	PLIERS WRENCH SCREWDRIV	01-31-43-7302	66634	101.88
CRAFCO INC	9403039254	10/11/2023	OVERNIGHT HEATER & CRAC	01-31-43-6211	66632	99.96
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES PARKS 8/21/23	01-31-43-6253	66655	24.74
JAMES B BROWN	FY24 DOWN PAYMENT	10/11/2023	FY24 DOG PARK TAGS DOWN	01-31-43-6247	66638	637.50
HYSPECO, INC.	00662472	10/12/2023	LOADER HOSE	01-31-43-6211	345	22.90
HUMAN RESOURCE STAFFIN	1001075368	10/12/2023	PW TEMPORARY EMPLOYEE	01-31-43-6207	344	524.99
UNIFIRST CORPORATION	1880078038	10/12/2023	PW GARAGE UNIFORMS	01-31-43-7308	352	21.82
SUPER BRIGHT LEDS INC	INVN-212280	10/12/2023	114 LIGHT BAR - SPOT LIGHT	01-31-43-6210	350	86.19
L AND C TRUCK REPAIR INC	128928	10/18/2023	CHIPPER DERATE	01-31-43-6211	66667	32.50
CHARTER COMMUNICATION	173942001	10/18/2023	PW GARAGE TV WIFI OCT 23	01-31-43-6253	66660	39.75
UNIFIRST CORPORATION	1880079221	10/18/2023	PW GARAGE UNIFORMS	01-31-43-7308	367	36.64
VALTEC HYDRAULICS	252152	10/18/2023	211 LIFTCYLINDER	01-31-43-6210	66681	67.54
RUSH TRUCK CENTER	3034170908	10/18/2023	321 AC PARTS	01-31-43-6210	66678	137.20
NEUMAYER EQUIPMENT COMPANY INC	5566501-IN	10/18/2023	GAS PUMP SERVICE	01-31-43-6202	66671	185.88
					Division 43 - PARKS MAINTENANCE Total:	**6,337.63**
					Department 31 - PUBLIC WORKS Total:	**26,739.02**
Department: 32 - COMMUNIITY DEVELOPMENT						
Division: 11 - ADMINISTRATIVE						
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES PLNING 8/21/2	01-32-11-6253	66655	24.74
MCLAUGHLIN COURT REPORTING SERVICES INC	100623-1	10/12/2023	P&Z PROJECT 23-027 23-028	01-32-11-6202	347	1,890.00
MCLAUGHLIN COURT REPORTING SERVICES INC	101123-1	10/18/2023	P&Z PROJECT 23-7 7 SHERW	01-32-11-6202	361	508.80
					Division 11 - ADMINISTRATIVE Total:	**2,423.54**
Division: 61 - BUILDING DEPARTMENT						
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES BUILDING 8/21	01-32-61-6253	66655	123.70
MARBECK PRINTING LLC	214713	10/18/2023	INSPECTION REQUEST SHEET	01-32-61-7304	360	516.90
VERIZON WIRELESS SERVICES LLC	9946083983	10/18/2023	TABLETS AND AIRCARDS BLD	01-32-61-6253	66682	280.07
					Division 61 - BUILDING DEPARTMENT Total:	**920.67**
					Department 32 - COMMUNIITY DEVELOPMENT Total:	**3,344.21**
					Fund 01 - GENERAL FUND Total:	**310,615.46**
Fund: 02 - CAPITAL IMPROVEMENT FUND						
Department: 61 - CIP						
Division: 71 - CIP						
HOME DEPOT CREDIT SERVICES	1040692	10/11/2023	MAILBOX AND STICKERS	02-61-71-9510	66634	94.17

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
ST LOUIS COUNTY TREASURE	154128	10/11/2023	CONCRETE TEST	02-61-71-9510	66653	33.00
MCMFO LLC	347486	10/11/2023	F-250 pick up with plow	02-61-71-9516	66641	850.00
MCMFO LLC	347486	10/11/2023	F-250 pick up with plow	02-61-71-9516	66641	58,620.00
KIMCO USA INC	9967	10/12/2023	stainless conveyor	02-61-71-9516	346	83,242.95
RACHEL C BALLARD	13060	10/18/2023	TREE REMOVAL FOR NEW BA	02-61-71-9510	365	3,200.00
HORNER AND SHIFRIN INC	70187	10/18/2023	NEW BALLAS PHASE 1 PAY A	02-61-71-9510	358	1,315.00
					Division 71 - CIP Total:	**147,355.12**
					Department 61 - CIP Total:	**147,355.12**
					Fund 02 - CAPITAL IMPROVEMENT FUND Total:	**147,355.12**
Fund: 05 - PARKS & STORMWATER FUND						
Department: 61 - CIP						
Division: 71 - CIP						
IDEAL LANDSCAPE CONSTRUCTION INC	3981	10/11/2023	MILLENNIUM PARK PHASE 1	05-61-71-9506	66636	109,929.99
TWO ALPHA CONTRACTING LLC	20231005.01	10/12/2023	ALDEN LANE STORMWATER I	05-61-71-9509	351	14,478.00
FASTSIGNS OF BRIDGETON	270-79600	10/12/2023	COROPLAST SIGNS	05-61-71-9506	341	140.96
SWIFT PRINT COMMUNICATIONS	000018326	10/18/2023	VENABLE PARK CONCEPT DIS	05-61-71-9506	366	465.00
SWIFT PRINT COMMUNICATIONS	000018621	10/18/2023	VENABLE PARK MEMORIAL C	05-61-71-9506	366	125.00
INTUITION AND LOGIC ENGINEERING INC	230903	10/18/2023	NEW BALLAS CULVERT DESIG	05-61-71-9509	359	1,265.00
INTUITION AND LOGIC ENGINEERING INC	230910	10/18/2023	WATERSHED MANAGEMENT	05-61-71-9509	359	39,611.85
					Division 71 - CIP Total:	**166,015.80**
					Department 61 - CIP Total:	**166,015.80**
					Fund 05 - PARKS & STORMWATER FUND Total:	**166,015.80**
Fund: 06 - MUNICIPAL ENTERPRISE FUND						
ANKIT DARDA	FY24DRC REFUND	10/11/2023	DRC REFUND	06-4541	66629	10.00
						10.00
						10.00
Department: 14 - COMMUNITY SERVICES						
Division: 31 - ICE ARENA						
J LEES CARPET AND FLOOR CLEANING LLC	#4070	10/11/2023	DRC CARPET CLEANING	06-14-31-6203	66637	440.00
MISSOURI AMERICAN WATER CO	1017-210013831861 OCT 3 -	10/11/2023	DRC FIRE SERVICES OCT. 3 -	06-14-31-6254	66646	75.68
CHARTER COMMUNICATION	173955201100123	10/11/2023	DRC TV & INTERNET OCT 202	06-14-31-6255	66631	162.06
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES GOLF 8/21/23-	06-14-31-6253	66655	24.74
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES ICE RINK 8/21/	06-14-31-6253	66655	24.74
NEW SYSTEM LLC	100746-01	10/12/2023	DRC CUSTODIAL SUPPLIES	06-14-31-7301	348	61.98

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number		Amount
NEW SYSTEM LLC	101085	10/12/2023	DRC CUSTODIAL SUPPLIES	06-14-31-7301	348		445.73
ARAMARK UNIFORM SERVICES	6170196704	10/12/2023	DRC TOWEL AND MOP SERVI	06-14-31-7301	336		32.01
ARAMARK UNIFORM SERVICES	6170191717	10/18/2023	DRC MOP AND TOWEL SERVI	06-14-31-7301	355		32.01
ARAMARK UNIFORM SERVICES	6170199264	10/18/2023	DRC MOP & TOWEL SERVICE	06-14-31-7301	355		32.01
RHINE PARACO GAS OF ST LOUIS	755879	10/18/2023	OLY PROPANE	06-14-31-7307	66675		147.87
						Division 31 - ICE ARENA Total:	**1,478.83**
Division: 32 - GOLF MAINTENANCE							
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	135148590-001	10/11/2023	3 YDS MULCH	06-14-32-6212	66651		96.00
SITEONE LANDSCAPE SUPPLY HOLDING, LLC	135196943-001	10/11/2023	EMERALD FUNGICIDE FOR G	06-14-32-7303	66651		494.96
T MOBILE USA	971998911-09/21/23-RESUB	10/11/2023	CITY PHONES GOLF MAINT 8	06-14-32-6253	66655		24.74
GRAINGER	9838278662	10/12/2023	SPRINGPIN FOR ROLLER	06-14-32-6211	343		10.99
ERB TURF EQUIPMENT INC	01-101129	10/18/2023	CHAIN LINK FOR ROLLER	06-14-32-6211	356		23.80
ERB TURF EQUIPMENT INC	01-101577	10/18/2023	CHAIN AND PARTS FOR ROLL	06-14-32-6211	356		98.33
ANDERSON DIRT & TURF LLC	1353	10/18/2023	DEEP TINE AERATION	06-14-32-6212	354		1,300.00
						Division 32 - GOLF MAINTENANCE Total:	**2,048.82**
Division: 33 - PRO-SHOP							
CHARTER COMMUNICATION	173955201100123	10/11/2023	DRC TV & INTERNET OCT 202	06-14-33-6255	66631		69.46
ARAMARK UNIFORM SERVICES	6170196704	10/12/2023	DRC TOWEL AND MOP SERVI	06-14-33-7301	336		19.92
PATTONVILLE SCHOOL DISTRICT	1117	10/18/2023	GOLF CLUB SCORE CARDS	06-14-33-7304	66673		1,037.00
T N T INC	388897	10/18/2023	CART RENTAL	06-14-33-9503	66680		450.00
ARAMARK UNIFORM SERVICES	6170191717	10/18/2023	DRC MOP AND TOWEL SERVI	06-14-33-7301	355		19.92
ARAMARK UNIFORM SERVICES	6170199264	10/18/2023	DRC MOP & TOWEL SERVICE	06-14-33-7301	355		19.92
CALLAWAY GOLF SALES COMPANY	937110787	10/18/2023	GOLF GEAR FOR RESALE	06-14-33-8324	66658		270.23
						Division 33 - PRO-SHOP Total:	**1,886.45**
Division: 34 - FOOD SERVICES							
ARAMARK UNIFORM SERVICES	6170196704	10/12/2023	DRC TOWEL AND MOP SERVI	06-14-34-7301	336		14.00
PEPSICO BEVERAGE SALES LL	08930312	10/18/2023	SODA FOR RESEALE	06-14-34-8317	66674		347.63
ARAMARK UNIFORM SERVICES	6170191717	10/18/2023	DRC MOP AND TOWEL SERVI	06-14-34-7301	355		14.00

Vendor Name	Payable Number	Payment Date	Description (Item)	Account Number	Payment Number	Amount
ARAMARK UNIFORM SERVICES	6170199264	10/18/2023	DRC MOP & TOWEL SERVICE	06-14-34-7301	355	14.00
					Division 34 - FOOD SERVICES Total:	**389.63**
					Department 14 - COMMUNITY SERVICES Total:	**5,803.73**
					Fund 06 - MUNICIPAL ENTERPRISE FUND Total:	**5,813.73**
Fund: 11 - SEWER LATERAL FUND						
Department: 61 - CIP						
Division: 93 - SEWER LATERAL						
JULIE HUPPERTS	SLR-07/31/23	10/11/2023	SANITARY SEWER LATERAL R	11-61-93-9315	66639	2,250.00
DAN WASIELEWSKI	SLR 07/21/23	10/18/2023	SANITARY SEWER LATERAL R	11-61-93-9315	66665	1,250.00
					Division 93 - SEWER LATERAL Total:	**3,500.00**
					Department 61 - CIP Total:	**3,500.00**
					Fund 11 - SEWER LATERAL FUND Total:	**3,500.00**
Fund: 19 - PUBLIC SAFETY FUND						
Department: 21 - POLICE						
Division: 23 - COUNTY PUBLIC SAFETY-PROP P						
MISSOURI AMERICAN WATER CO	1017-210041135520-09-26-	10/11/2023	350 N NEW BALLAS RD 08/1	19-21-23-6254	66647	-9.97
MISSOURI AMERICAN WATER CO	1017-220023905711-09/21/	10/11/2023	350 NEW BALLAS ROAD 8/1	19-21-23-6254	66645	524.44
MISSOURI AMERICAN WATER CO	220023905773-10-3-23	10/11/2023	350 N NEW BALLAS FIRE SER	19-21-23-6254	66643	139.70
AMERENUE	0427008070-09/27/23	10/18/2023	350 N NEW BALLAS POLICE 8	19-21-23-6250	DFT0007756	7,400.93
					Division 23 - COUNTY PUBLIC SAFETY-PROP P Total:	**8,055.10**
					Department 21 - POLICE Total:	**8,055.10**
					Fund 19 - PUBLIC SAFETY FUND Total:	**8,055.10**
Fund: 99 - POOLED CASH						
ARVEST BANK	1797-10/09/23	10/11/2023	EPAYMENT 10/11/23	99-2809	DFT0007757	12,249.94
ARVEST BANK	1797-10/16/23	10/18/2023	EPAYMENT 10/18/23	99-2809	DFT0007759	71,952.85
						84,202.79
						84,202.79
					Fund 99 - POOLED CASH Total:	**84,202.79**
					Grand Total:	**725,558.00**

Report Summary

Fund Summary

Fund	Payment Amount
01 - GENERAL FUND	310,615.46
02 - CAPITAL IMPROVEMENT FUND	147,355.12
05 - PARKS & STORMWATER FUND	166,015.80
06 - MUNICIPAL ENTERPRISE FUND	5,813.73
11 - SEWER LATERAL FUND	3,500.00
19 - PUBLIC SAFETY FUND	8,055.10
99 - POOLED CASH	84,202.79
Grand Total:	**725,558.00**

Account Summary

Account Number	Account Name	Payment Amount
01-11-12-6264	IN TOWN MEETINGS	19.98
01-11-12-7315	SPECIAL EVENTS	1,601.70
01-11-13-6213	OFFICE EQUIPMENT MAI	656.25
01-12-10-6201	LEGAL AND ACCOUNTIN	16,513.50
01-12-11-6203	PROFESSIONAL SERVICE	736.11
01-12-11-6253	TELEPHONE	49.48
01-12-11-6271	MEDICAL SUPPLIES	165.75
01-12-14-6213	OFFICE EQUIPMENT MAI	250.08
01-12-14-6253	TELEPHONE	24.74
01-13-11-6202	TECHNICAL AND PERSO	0.50
01-13-11-6253	TELEPHONE	24.74
01-13-15-5230	HOSPITAL AND MEDICAL	12,359.61
01-13-15-6203	PROFESSIONAL SERVICE	5,121.10
01-13-15-6213	OFFICE EQUIPMENT MAI	67.10
01-13-15-6253	TELEPHONE	2,248.92
01-13-15-6255	CABLE TV AND INTERNE	326.82
01-13-15-7312	OFFICE SUPPLIES	1,647.40
01-13-15-7317	SLAIT WELLNESS EXPENS	1,035.23
01-13-51-6213	OFFICE EQUIPMENT MAI	97.98
01-13-51-6253	TELEPHONE	24.74
01-14-11-6202	TECHNICAL AND PERSO	456.00
01-16-11-6211	EQUIPMENT MAINTENA	586.28
01-16-11-6212	BUILDING AND GROUND	778.47
01-16-11-6250	ELECTRICITY	6,615.06
01-16-11-6253	TELEPHONE	24.74
01-16-11-6254	WATER AND SEWER	1,044.93
01-16-11-7302	SMALL TOOLS	124.18
01-16-11-7308	WEARING APPAREL AND	472.91
01-2101	ST. LOUIS CITY EARNING	407.22

Account Summary

Account Number	Account Name	Payment Amount
01-2102	FICA WITHHOLDING	39,765.36
01-2103	MEDICARE WITHHOLDIN	9,539.78
01-2104	FEDERAL TAX WITHHOL	32,218.12
01-2105	MISSOURI TAX WITHHOL	12,185.00
01-21-11-6253	TELEPHONE	334.56
01-21-11-7308	WEARING APPAREL AND	27.37
01-2113	PAYROLL CHILD SUPPOR	184.62
01-21-22-6210	VEHICLE MAINTENANCE	37.85
01-21-22-6211	EQUIPMENT MAINTENA	1,070.00
01-2211	HEALTH INSURANCE	108,064.78
01-2215	INTENSIVE CARE/CANCE	498.60
01-2225	HEALTH INS PREM PAID	3,243.66
01-2312	401 - ICMA	801.80
01-2318	ICMA ROTH 457	4,636.76
01-2319	ICMA ROTH IRA	600.34
01-2321	457 - VOYA	1,995.37
01-2322	457 - ICMA	10,163.80
01-2323	MOST PROGRAM	920.00
01-2324	ICMA LOAN REPAYMENT	565.31
01-2412	PEACE OFFICER AND STA	1.00
01-2413	CVC - CRIME VICTIMS C	7.50
01-31-11-6202	TECHNICAL AND PERSO	639.19
01-31-11-6213	OFFICE EQUIPMENT MAI	224.51
01-31-11-6253	TELEPHONE	148.44
01-31-41-6202	TECHNICAL AND PERSO	617.62
01-31-41-6207	TEMP PROFESSIONAL SE	2,850.09
01-31-41-6210	VEHICLE MAINTENANCE	872.77
01-31-41-6211	EQUIPMENT MAINTENA	1,433.38
01-31-41-6212	BUILDING AND GROUND	37.66
01-31-41-6250	ELECTRICITY	1,402.11
01-31-41-6251	STREET LIGHTING	10,602.43
01-31-41-6253	TELEPHONE	241.33
01-31-41-6254	WATER AND SEWER	434.19
01-31-41-7305	STREET & SIDEWALK MA	722.29
01-31-41-7308	WEARING APPAREL AND	175.38
01-31-43-6202	TECHNICAL AND PERSO	185.88
01-31-43-6207	TEMP PROFESSIONAL SE	950.03
01-31-43-6210	VEHICLE MAINTENANCE	290.93
01-31-43-6211	EQUIPMENT MAINTENA	477.78
01-31-43-6212	BUILDING AND GROUND	1,590.31
01-31-43-6224	TAPPMEYER HOUSE MAI	558.95
01-31-43-6247	DOG PARK EXPENSES	637.50

Account Summary

Account Number	Account Name	Payment Amount
01-31-43-6250	ELECTRICITY	1,236.43
01-31-43-6253	TELEPHONE	64.49
01-31-43-7302	SMALL TOOLS	101.88
01-31-43-7303	HORTICULTURAL SUPPLI	184.99
01-31-43-7308	WEARING APPAREL AND	58.46
01-32-11-6202	TECHNICAL AND PERSO	2,398.80
01-32-11-6253	TELEPHONE	24.74
01-32-61-6253	TELEPHONE	403.77
01-32-61-7304	GENERAL SUPPLIES	516.90
01-4402	OCCUPATIONAL LICENSE	189.50
01-4604	POLICE MISC REVENUE	-0.37
02-61-71-9510	STREETS	4,642.17
02-61-71-9516	CAPITAL EQUIPMENT	142,712.95
05-61-71-9506	PARK DEVELOPMENT PR	110,660.95
05-61-71-9509	STORMWATER PROJECTS	55,354.85
06-14-31-6203	PROFESSIONAL SERVICE	440.00
06-14-31-6253	TELEPHONE	49.48
06-14-31-6254	WATER AND SEWER	75.68
06-14-31-6255	CABLE TV AND INTERNE	162.06
06-14-31-7301	CHEMICALS & CLEANING	603.74
06-14-31-7307	GASOLINE, PROPANE &	147.87
06-14-32-6211	EQUIPMENT MAINTENA	133.12
06-14-32-6212	BUILDING AND GROUND	1,396.00
06-14-32-6253	TELEPHONE	24.74
06-14-32-7303	HORTICULTURAL SUPPLI	494.96
06-14-33-6255	CABLE TV AND INTERNE	69.46
06-14-33-7301	CHEMICALS & CLEANING	59.76
06-14-33-7304	GENERAL SUPPLIES	1,037.00
06-14-33-8324	MERCHANDISE-GOLF BA	270.23
06-14-33-9503	EQUIPMENT	450.00
06-14-34-7301	CHEMICALS & CLEANING	42.00
06-14-34-8317	COFFEE,TEA & SOFT DRI	347.63
06-4541	DIELMANN EAST MEETI	10.00
11-61-93-9315	SEWER LATERAL REIMB	3,500.00
19-21-23-6250	ELECTRICITY	7,400.93
19-21-23-6254	WATER AND SEWER	654.17
99-2809	EPAYABLES LIABILITY	84,202.79
	Grand Total:	**725,558.00**

Project Account Summary

Project Account Key	Payment Amount
None	557,158.97
204E	110,070.95
21701E	1,315.00
400E	39,611.85
402E	14,478.00
403E	1,265.00
60022E	33.00
SLAIT22E	1,035.23
VPARKE	590.00
Grand Total:	**725,558.00**

BILL NO.___6089_____ ORDINANCE NO. _____

AN ORDINANCE AUTHORIZING A CHANGE OF ZONING FROM "RO" RESEARCH OFFICE DISTRICT TO THE OLIA VILLAGE "PMD" PLANNED MIXED-USE DEVELOPMENT DISTRICT AND APPROVING THE SITE CONCEPT PLAN AND PHASE ONE SITE DEVELOPMENT PLAN FOR SUCH DEVELOPMENT ON THE APPROXIMATELY 96 ACRE PROPERTY LOCATED AT 10300 OLIVE BOULEVARD.

WHEREAS, Mr. Matt Pfund, of Jack Matthews Development, representing 10300 Olive, L.L.C., has submitted an application to amend the Official Zoning Map of the City of Creve Coeur to change the zoning on the property of approximately 96 acres located at 10300 Olive Boulevard, from "RO" Research Office District to "PMD" Planned Mixed-Use Development District for the Olia Village Development; and

WHEREAS, in accordance with Section 405.390 of the Zoning Ordinance, the applicant has submitted the Site Concept Plan and Phase One Site Development Plan for the Olia Village development on the subject property to the Department of Community Development; and

WHEREAS, a "PMD" Planned Mixed-Use Development district is a Planned Zoning District that will allow a unique mixture of commercial, residential, office, lodging and service uses subject to the criteria set forth in Section 405.390, Planned Zoning Districts, of the Zoning Code, the terms of this ordinance, and the conditions of approval; and

WHEREAS, a public hearing was held by the Creve Coeur Planning and Zoning Commission on Tuesday, September 5, 2023, beginning at 6:00 p.m. or immediately following the close of the previous public hearing, on said application; and

WHEREAS, notice of 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 otherwise posted and published in accordance with the Zoning Ordinance; and

WHEREAS, the Commission resumed the public hearing on September 18, 2023 and October 2, 2023; and

WHEREAS, the Planning and Zoning Commission reviewed and, by a 7-0 vote, recommended approval of the rezoning, Site Concept Plan and Phase One Site Development Plan subject to conditions at its meeting on October 2, 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 rezoning the property as set forth herein 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 and in good zoning practice; and

WHEREAS, the City Council further finds that the proposed development is eligible for consideration to be a Planned Mixed-Use Development under the planned zoning district process, because it exceeds three acres in size, could not be approved under any other Zoning District, is currently zoned "RO" Research Office, and the applicant has provided credible evidence that the proposal substantially complies with the purpose, objectives and provisions of

Section 405.390 and is generally consistent with the applicable provisions of the Comprehensive Plan, subject to the terms and conditions of approval set forth herein; and

WHEREAS, the City Council further finds that the proposed development as described in the Site Concept Plan meets the applicable design criteria set forth in Section 405.390.F.6(a) as hereby supplemented, modified and superseded and will provide sufficient public benefits as required by Section 405.390.E; and

WHEREAS, the City Council further finds that the Phase One Site Development Plan substantially complies with the Site Concept Plan and otherwise meets the requirements of Section 405.390.H subject to the conditions of approval set forth herein:

NOW, THEREFORE, be it ordained by the City Council of the City of Creve Coeur, Missouri, as follows:

SECTION 1: The Official Zoning Map of the City of Creve Coeur shall be amended to rezone the approximately 96 acre property located at 10300 Olive Boulevard, from "RO" Research Office to the Olia Village "PMD" Planned Mixed-Use Development District, subject to the regulations, requirements and conditions stated herein, which property is more specifically described on Exhibit A attached hereto.

SECTION 2: The zoning and development regulations of the Olia Village PMD District shall be as set forth on Exhibit B attached hereto.

SECTION 3: The Site Concept Plan submitted for Olia Village on September 26, 2023, and attached hereto as Exhibit C is hereby approved, subject to the zoning and development regulations provided in Exhibit B and the following conditions:

1. All improvements for traffic mitigation as recommended by the Traffic Impact Study dated September 13, 2023 prepared by CMT shall be approved by MoDOT and the City's Department of Public Works prior to approval of a final occupancy permit by the Building Division in association with Phase 2 building construction.
2. Each phase as identified in the approved Site Concept Plan shall require Site Development Plan approval in accordance with Section 405.390.H. of the Zoning Code.
3. The residential buffer yard shall be a minimum width of 50-feet from the property line when the buffer yard is adjacent to the existing single family residential zoning districts.

SECTION 4: The Phase One Site Development Plan submitted for Olia Village on September 26, 2023 and attached hereto as Exhibit D is hereby approved subject to the zoning and development regulations provided in Exhibit B and the Site Concept Plan provided in Exhibit C, in lieu of a separate resolution, subject to the following conditions:

1. A final subdivision plat consistent with the approved preliminary plat for the property shall be submitted prior to issuance of any permits other than demolition and grading permits. The final subdivision plat shall include the restrictive covenants and deeds for the property; and shared parking and access agreements for review and approval by the City Attorney.
2. The Applicant shall submit Site Improvement Plans, showing all site improvements, to the Department of Public Works for review and issuance of a Site Improvement

Permit. The Site Improvement Plans shall be in substantial conformance with the "Phase One Site Development Plan" received September 26, 2023 in conjunction with Application #23-028 by CMT. All regional, state and federal agency approvals shall be submitted to the Department of Public Works prior to the City's issuance of a site improvement permit.

3. All street lighting shall substantially comply with the Site Lighting standards provided in the Phase One Site Development Plan, including fixture design.

4. A final landscape plan shall be submitted for staff approval in substantial compliance with the Conceptual Landscape Plan for Phase One Site Development Plan and the Tree Preservation Plan prepared by SWT and submitted to the City on 9-26-23 subject to the following additional requirements:
    a. All deciduous trees shall be a minimum size of 2.5-inch caliper in size at time of planting; evergreen or coniferous varieties shall be a minimum height of 6-feet at time of planting.

5. Residential Adjacent Buffer yard. The 40-foot buffer yard as shown on the submitted Site Concept Plan shall be increased to 50-feet as stated above and improved to the following standards:
    a. All new plantings as shown on the Phase 1 Planting Plan prepared by SWT Design with a sealed signature date of 9-26-23 shall be installed as part of this phase. The plantings shall be a minimum of 2.5-inch caliper in size for deciduous trees and 8-feet in height for evergreen or coniferous varieties at time of planting. Additional plantings may be required by the Zoning Administrator, at the time of final inspection, to ensure a robust and dense landscaped screen to the maximum extent as conditions allow prior to a final inspection approval of the site improvement permit associated with Phase One.

SECTION 5: This Ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter but not prior to the Ordinance and the approved Site Concept Plan and Phase One Site Development Plan being 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. If said Ordinance and Plans are not recorded within one (1) year of the date of approval, the Ordinance shall be deemed repealed and the approval of the Plans shall be deemed revoked. This Ordinance, the Site Concept Plan, and the Phase One Site Development Plan, and subsequently approved site development plans, shall govern the development and use of the subject property and no development or use, other than temporary uses allowed by the Zoning Code, shall be permitted within the area of the Olia Village Planned Mixed-Use Development District. The Site Concept Plan as herein approved shall be valid for a period of eight years from the date hereof, unless extended as provided in Section 405.390.N. The Phase One Site Development Plan as herein approved shall be valid for 12 months from the date hereof, subject to the provisions of Section 405.390.N. All building permits shall conform to the provisions of the Olia Village PMD District and the approved Site Concept Plan and Phase One Site Development Plan.

BILL NO.___6089_____ **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

EXHIBIT A LAND DESCRIPTION

A TRACT OF LAND BEING PART OF LOTS 9, 10, 11 AND 12 OF MAJOR THOMAS SUBDIVISION, SITUATED IN THE SOUTHWEST QUARTER AND NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 45 NORTH, RANGE 5 EAST, ST. LOUIS COUNTY, MISSOURI, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WEST RIGHT OF WAY LINE OF STATE HIGHWAY 67, A.K.A. LINDBERGH (VARIABLE WIDTH-PUBLIC RIGHT OF WAY) BOULEVARD WITH THE NORTH LINE OF LAND NOW OR FORMERLY OF VANTAGE CREDIT UNION, AS RECORDED BY DEED IN BOOK 23850, PAGE 141 OF THE ST. LOUIS COUNTY, MISSOURI RECORDER'S OFFICE;

THENCE ALONG SAID NORTH LINE AND THE NORTH LINE OF SUNSWEPT PLAT 3, A SUBDIVISION AS RECORDED IN PLAT BOOK 87 PAGE 4 AND SUNSWEPT PLAT 2, A SUBDIVISION AS RECORDED IN PLAT BOOK 87 PAGE 23, ALL OF SAID RECORDER'S OFFICE, NORTH 89 DEGREES 11 MINUTES 17 SECONDS WEST, A DISTANCE OF 1352.62 FEET TO THE EAST LINE OF LAND NOW OR FORMERLY OF DONALD J AND MARGRETTA CASSMEYER, ETAL, AS RECORDED BY DEED IN BOOK 11070, PAGE 767 OF SAID RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE AND THE EAST LINE OF LAND NOW OR FORMERLY OF JAVED MUHAMMAD ALI AND ALZUBEIDI DUHA, AS RECORDED BY DEED IN BOOK 23726, PAGE 3547; TIMOTHY C TOWNSEND, ETAL, AS RECORDED BY DEED IN BOOK 23562, PAGE 160, ALL OF SAID RECORDER'S OFFICE, NORTH 01 DEGREES 12 MINUTES 14 SECONDS EAST, A DISTANCE OF 500.19 FEET TO THE EAST LINE OF SPOEDE HILLS, A SUBDIVISION AS RECORDED IN PLAT BOOK 54, PAGE 26 OF SAID RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE AND THE EAST LINE OF SPOEDE WOODS, A SUBDIVISION FORMERLY KNOWN AS GAS LIGHT SQUARE, AS RECORDED IN PLAT BOOK 104, PAGE 18 OF SAID RECORDER'S OFFICE, NORTH 01 DEGREES 08 MINUTES 11 SECONDS EAST, A DISTANCE OF 831.21 FEET TO THE NORTH LINE OF SAID SPOEDE WOODS;

THENCE ALONG SAID NORTH LINE, NORTH 88 DEGREES 51 MINUTES 14 SECONDS WEST, A DISTANCE OF 826.36 FEET TO THE EAST LINE OF MISSION HILLS, A SUBDIVISION AS RECORDED IN PLAT BOOK 59, PAGE 36 OF SAID RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE AND THE EAST LINE OF RAMBLEWOOD, A SUBDIVISION AS RECORDED IN PLAT BOOK 59, PAGE 58 AND THE EAST LINE OF LAND NOW OR FORMERLY OF MDC COAST 22 LLC, AS RECORDED BY DEED IN BOOK 25302, PAGE 4186, ALL OF SAID RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE, THE FOLLOWING COURSES AND DISTANCES: NORTH 01 DEGREES 12 MINUTES 15 SECONDS EAST, A DISTANCE OF 466.53 FEET; NORTH 88 DEGREES 57 MINUTES 33 SECONDS WEST, A DISTANCE OF 51.85 FEET AND NORTH 04 DEGREES 53 MINUTES 33 SECONDS WEST, A DISTANCE OF 682.38 FEET TO THE SOUTH RIGHT OF WAY LINE OF MISSOURI STATE HIGHWAY 340, A.K.A. OLIVE (VARIABLE WIDTH - PUBLIC RIGHT OF WAY) BOULEVARD;

THENCE ALONG SAID SOUTH RIGHT OF WAY LINE, THE FOLLOWING COURSES AND DISTANCES: ALONG A NON- TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 11,358.19 FEET, WITH A CENTRAL ANGLE OF 00 DEGREES 49 MINUTES 02 SECONDS, WHICH CHORD BEARS SOUTH 89 DEGREES 27 MINUTES 38 SECONDS EAST, A CHORD DISTANCE OF 162.03 FEET, THROUGH AN ARC LENGTH OF 162.03 FEET; SOUTH 89 DEGREES 03 MINUTES 07 SECONDS EAST, A DISTANCE OF 427.12 FEET; NORTH 01 DEGREES 00 MINUTES 53 SECONDS EAST, A DISTANCE OF 20.00 FEET; SOUTH 89 DEGREES 03 MINUTES 07 SECONDS EAST, A DISTANCE OF 723.00 FEET AND SOUTH 86 DEGREES 13 MINUTES 52 SECONDS EAST, A DISTANCE OF 200.26 FEET TO THE SOUTHWEST RIGHT OF WAY TRANSITION BETWEEN STATE HIGHWAY 340 AND STATE HIGHWAY 67, A.K.A. LINDBERGH (VARIABLE WIDTH - PUBLIC RIGHT OF WAY) BOULEVARD;

THENCE ALONG SAID SOUTHWEST RIGHT OF WAY LINE, THE FOLLOWING COURSES AND DISTANCES: SOUTH 65 DEGREES 03 MINUTES 50 SECONDS EAST, A DISTANCE OF 328.98 FEET;

SOUTH 43 DEGREES 48 MINUTES 52 SECONDS EAST, A DISTANCE OF 413.64 FEET; SOUTH 32 DEGREES 46 MINUTES 12 SECONDS EAST, A DISTANCE OF 248.25 FEET AND SOUTH 11 DEGREES 42 MINUTES 30 SECONDS EAST, A DISTANCE OF 250.82 FEET TO THE WEST RIGHT OF WAY LINE OF THE AFOREMENTIONED LINDBERGH BOULEVARD;

THENCE ALONG SAID WEST RIGHT OF WAY LINE, THE FOLLOWING COURSES AND DISTANCES: SOUTH 01 DEGREES 00 MINUTES 47 SECONDS EAST, A DISTANCE OF 256.89 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 105.09 FEET; NORTH 88 DEGREES 06 MINUTES 17 SECONDS WEST, A DISTANCE OF 10.00 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 50.00 FEET; NORTH 88 DEGREES 06 MINUTES 17 SECONDS WEST, A DISTANCE OF 30.00 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 50.00 FEET; SOUTH 88 DEGREES 06 MINUTES 17 SECONDS EAST, A DISTANCE OF 40.00 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 300.00 FEET; SOUTH 88 DEGREES 06 MINUTES 17 SECONDS EAST, A DISTANCE OF 10.00 FEET AND SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 847.31 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED TRACT OF LAND CONTAINING 4,171,444 SQUARE FEET OR 95.763 ACRES IS BASED UPON AN ACTUAL URBAN CLASS BOUNDARY SURVEY DONE IN ACCORDANCE WITH THE CURRENT MISSOURI STANDARDS FOR PROPERTY BOUNDARY SURVEYS, SUBJECT TO ALL EASEMENTS, RESTRICTIONS, RESERVATIONS, CONDITIONS OF RECORD AND NOT OF RECORD, IF ANY.

ATTACHMENT B

All provisions of the City of Creve Coeur, MO City Code shall apply to this Planned Mixed-Use Development (PMD) District (subject to the terms thereof) except as specifically modified herein.

I SPECIFIC CRITERIA

A. PERMITTED USES

Permitted Uses within the PMD shall be as shown on Table A at the end of this Attachment B. The permitted uses are further broken down by the following sub-district categories which have been identified on the approved Site Concept Plan and further defined below in this Attachment B.

1. Sub-District Category A – Main Street Development
2. Sub-District Category B – Mixed-Used Development
3. Sub-District Category C – General Office Development
4. Sub-District Category D – Residential Development

B. SUB-DISTRICT CATEGORY STANDARDS

Within the PMD, four (4) sub-districts categories have been identified to provide varying levels of regulations. The location of each sub-district shall be as shown on the approved Site Concept Plan and have each been further defined below.

1. CATEGORY A – "Main Street" Development Pattern Building placement:
    - Building volume: Buildings may be constructed not to exceed (8) stories or (100) feet measured from the primary sidewalk entrance level. Additional lower levels accessed from the side or rear are permitted.
    - Building floor heights: Sidewalk commercial level shall be 12-30 feet, upper-level office or residential shall be 9-30 feet.
    - Projecting façade elements: Awnings, canopies, balconies, colonnades are permitted.
    - Bay windows permitted on upper stories.
    - Parking: Shall not be permitted as a primary use. Structured, public surface, or on-street parking permitted. Private off-street surface parking prohibited.

2. CATEGORY B – Mixed Use Development Pattern Building placement:
    - Building volume: Buildings may be constructed not to exceed (5) stories or (60) feet measured from the primary sidewalk entrance level, except for Lot 1, as identified on the Site Concept Plan, the height of the buildings and parking structures cannot exceed (3) stories or (45) feet. - Additional lower levels accessed from the side or rear are permitted.
    - Building floor heights: First floor level shall be 12-30 feet; upper levels shall be 9-30 feet.
    - Projecting façade elements: Awnings, canopies, balconies, colonnades, porte-cocheres are permitted.
    - Bay windows permitted on upper stories.

- Parking: Structured, public surface, on-street parking, private off-street parking permitted.

3. CATEGORY C – General Office Development Pattern Building Placement:
   - Building Volume: Buildings may be constructed not to exceed (4) stories or (70) feet measured from the primary building entrance, except for Lots 10 and 17, as identified on the Site Concept Plan, the height of buildings cannot exceed (3) stories or (~~50~~45) feet. Additional lower levels accessed from the side or rear are permitted.
   - Building Floor Heights: All floor levels shall be 12-30 feet.
   - Projecting Façade Elements: Awnings, canopies, balconies, colonnades, porte-cocheres are permitted.
   - Outdoor Space: Outdoor amenity space such as patios or plazas serving building occupants are permitted.
   - Parking: Structured, public surface, on-street parking, private off-street parking permitted.

4. CATEGORY D – Residential Development Pattern Building placement:
   - Building Volume: Attached single-family dwellings may be constructed not to exceed 3 stories or (40) feet in height; detached single family dwellings may be constructed not to exceed 2 ½ stories or (35) feet in height.

C. DIMENSIONAL REGULATIONS

1. Maximum Site Coverage.

   a. Maximum site coverage shall be determined globally for the entire PMD District and shall not be calculated on an individual site/lot or sub-district basis. The total acreage used to define this calculation shall be the total PMD area, less any areas to be dedicated as public ROW or privately maintained streets, and shall be calculated as Site Coverage is defined in Section 405.120 of the City Code. ~~less any land that has been dedicated for use as public ROW.~~

   b. Maximum site coverage for the entire PMD District shall not exceed 60%.~~The amount of gross site area covered by buildings and structures, surface parking, pavement for automobile circulation or permitted exterior business services, storage, merchandise display, repair or processing shall not exceed 70% of the site.~~

2. Maximum Floor Area Ratio (FAR).

   a. Floor Area Ratio shall be defined as the gross leasable floor area of all commercial buildings and all multifamily dwellings, and the dwelling unit floor area of all other residential buildings on any lot divided by the land area of such lots. Parking garages shall not be included in the Floor Area Ratio calculation.

   b. Maximum floor area ratio shall be determined globally for the entire PMD District and shall not be calculated on an individual site/lot or sub-district basis. The total acreage

used to define this calculation shall be the total PMD area less any land that has been dedicated for use as public ROW.

i. The Maximum Floor Area Ratio for the entire PMD District shall not exceed 0.70.

3. Lot Size Requirements:

    a. Minimum Lot Area. The permitted use of any given site or lot shall be determined by the size of the site or lot under single ownership or other common legal control as prescribed in Section 405.370(B).
    b. CATEGORY A – "Main Street" Sub-district:
        1. Minimum Lot Area. One-half (1/2) acre.
        2. Minimum Lot Width. One Hundred (100) feet.
        3. Minimum Lot Depth. One Hundred (100) feet.

    c. CATEGORY B – Mixed Use Sub-district:
        1. Minimum Lot Area. One-half (1/2) acre.
        2. Minimum Lot Width. Seventy-Five (75) feet.
        3. Minimum Lot Depth. One Hundred Fifty (150) feet.

    d. CATEGORY C – General Office Sub-district:
        1. Minimum Lot Size. One-half (1/2) acre.
        2. Minimum Lot Width. Seventy-Five (75) feet.
        3. Minimum Lot Depth. One Hundred Fifty (150) feet.

    e. CATEGORY D – Residential Sub-district:
        1. Minimum Lot Size. Eight hundred (800) square feet per lot.
        2. Minimum Lot Width. Fifteen (15) feet.
        3. Minimum Lot Depth. Forty (40) feet.

D. BULK REGULATIONS

1. Setback and Building Line Requirements within the Development (Internal):

    a. CATEGORY A – "Main Street" Sub-district:
        1. Minimum Front Yard. Zero (0) feet.
        2. Minimum Side Yard. Zero (0) feet.
        3. Minimum Rear Yard. Zero (0) feet.
        4. Buffer Yard. Not applicable internally.

    b. CATEGORY B – Mixed Use Sub-district:
        1. Minimum Front Yard. Zero (0) feet.
        2. Minimum Side Yard. Zero (0) feet.
        3. Minimum Rear Yard. Zero (0) feet.
        4. Buffer Yard. Not applicable internally.

    c. CATEGORY C – General Office Sub-district:
        1. Minimum Front Yard. Zero (0) feet.
        2. Minimum Side Yard. Zero (0) feet.
        3. Minimum Rear Yard. Zero (0) feet.
        4. Minimum Distance Between Buildings or Unit Clusters. Zero (0) feet.
        5. Buffer Yard. Not applicable internally.

d. CATEGORY D – Residential Sub-district:
    1. Minimum Front Yard. Five (5) feet.
    2. Minimum Side Yard. None or seven and a Half (7.5) feet.
    3. Minimum Rear Yard. Five (5) feet.
    4. Minimum Distance Between Buildings or Unit Clusters. Fifteen (15) feet.
    5. Buffer Yard. Not applicable internally.

2. Buffer, Setback and Building Line Requirements to Adjacent Zoning Parcels (External to the PMD District):

    a. Any tract of land site abutting or adjoining a commercial development shall not require a buffer yard. Any tract of land site abutting or adjoining a single-family residential development shall only be required to meet the following requirements below:

        ~~ii.~~i. Provide a fifty (50) foot buffer yard on all sides of the PMD development that abut a single-family development. The buffer yard shall otherwise be as defined in amended Section 405.390 of the City of Creve Coeur's zoning ordinance.

        ~~iii.~~ii. No new commercial building may be located closer than twenty-five (25) feet to any required buffer yard.

    b. Setback and Building Line Requirements along Right-of-Ways:

        i. In every instance, the first ten (10) feet of the front yard setback measured from the right-of-way shall be provided with and maintained with sidewalks and/or landscaping including, but not limited to, deciduous street trees at regular intervals as shown on the concept plan.

        ii. No building or structure shall be closer than ten (10) feet when abutting a non-residential zoned property.

        iii. No maximum building line setback shall be enforced.

    c. Other CATEGORY D Regulations:

        1. Maximum number of units per acre. Twenty (20).
        2. Minimum dwelling unit floor area. Seven hundred fifty (750) square feet/unit.
        3. Garages. No district restrictions will be required on garage facing, recessing, architectural details, or street facing frontage.

E. PARKING AND LOADING REQUIREMENTS

1. Parking Requirements:

    a. Required parking for this entire PMD District shall be determined globally for the entire District and shall not be calculated on an individual site/lot or sub-district basis; and shall be calculated as follows:

        i. Required parking shall be calculated cumulatively per phase of development (as designated on the approved Phase Plan) based upon the sum of the square footage of individual land uses at the rate required by the City of Creve Coeur Code, less a fifteen percent (15%) reduction in the total number of spaces. Parking within the Residential Development District (CATEGORY D) shall not be provided with a fifteen percent (15%) reduction in the total number of spaces and shall adhere to the rate required by the City of Creve Coeur Code.

        ii. Required parking shall be allowed on surface parking lots, parking garages, and on-street locations.

        iii. No off-street surface parking locations will be allowed in any buffer yard or within the 10' yard setback along Right-of-Ways. Off-street surface parking locations shall be allowed in all other yards or setbacks within the development.

        iv. Joint Parking Facilities. In the case of mixed-use buildings, the parking spaces required shall be computed separately for each use except as provided in Sections 405.800(G)(3-4) and 405.820(H)(6)(b).

        v. On-street parking shall be allowed as approved by the City's Traffic Engineer and said parking shall count towards the required PMD parking noted in (i) above.

        vi. No individual lot Site Development Plan shall be approved which will result in parking provided at less than the amount set forth in prior paragraphs.

2. Loading Requirements:

    a. Purpose And Intent:

        i. It is the developers' intent to provide sufficient off-street loading areas and to ensure that such areas are located in a convenient location to the extent feasible. Loading areas shall be provided for trash collection as well as general deliveries.

        ii. The developer also acknowledges that the complexity of the proposed development will require flexibility in providing loading spaces and zones. The developer shall work with the City to find a balance of meeting the needs of the tenants and lot owners while respecting the safety and aesthetics of the traveling public. This may include actions such as restricting on-street parking during off-peak hours to allow for loading zones within on-street parking spaces to occur during early morning or late evening

hours. The developer shall work with the City to provide loading spaces and zones to meet the needs of the development.

iii. Loading areas utilized for the location of trash collection or compaction areas may coincide with the required building loading space.

b. Dimensions of Spaces:

i. Loading spaces, where designated, shall have a minimum dimension of twelve (12) feet width by thirty-five (35) feet length with a vertical clearance of at least fourteen (14) feet as shown on the approved individual lot Site Development Plan. In addition, some uses may require loading zones of larger dimension to accommodate larger tractor-trailers. These zones shall be at least sixty (60) feet in length, as shown on the approved individual lot Site Development Plan.

c. Schedule of Off-Street Loading Spaces:

i. Loading spaces and zones shall take a shared approach within Category A – Main Street, Category B – Mixed-Use, and Category C – General Commercial sub-districts. The required spaces and zones for each individual use will be determined based upon the sections below with the quantity to be provided for each lot based upon the minimum required for the highest individual use (not cumulative).

1. A combination of dedicated loading spaces and shared loading spaces / zones may be used by restricting on street parking during off peak hours to allow for loading spaces or zones within the on-street parking space areas to occur during early morning or late evening hours.

2. The required loading spaces shall be calculated based upon the maximum required uses as follows:

a. CATEGORIES A, B & C:

i. Residential & Transient Residential (Hotels, etc.) Uses. Any building containing more than fifty (50) apartment dwelling / room units shall provide one (1) loading space for each two hundred (200) units or fraction thereof.

ii. Office Uses. One (1) loading space shall be provided for each such use having greater than 6,000 square feet of gross floor space.

iii. Non-Residential or Non-Office Uses. The required loading spaces and/or zones shall be calculated upon the following table:

Floor Area (square foot)	Number of Spaces	Number of Zones
0 – 3,000	0	0
3,000 – 24,999	1	0
25,000 – 49,999	0	1
50,000 – 150,000	1	1
Each additional 150,000	1 additional	1 additional

b. CATEGORY D – Residential Sub-district: No loading spaces or zones shall be required within this sub-district.

3. The loading spaces required for Lots 8, 14 & 15 shall be shared. The existing underground tunnel network between the existing buildings to remain will provide access from each building to the existing loading docks on Lot 14. Additional loading spaces & zones may be provided to meet the requirements above on any of the 3 lots and will be shared and accessible from the existing tunnel system.

4. The loading spaces and zones shall be provided based upon the approved Site Development Plan for each individual lot.

F. LANDSCAPE AND TREE REQUIREMENTS

1. The developer shall adhere to the Resource Protection Standards (Article V) of the City of Creve Coeur Code with the following exceptions:

a. Landscaping along Main Street within the City of St. Louis water main easement shall require City of St. Louis Water Department approval.

b. All parking and/or loading spaces adjoining interior public rights-of-way shall ~~not~~ be ~~required to be~~ screened based on site conditions.~~.~~

c. In addition to any landscaped front, back or side yard areas required by this or any other Section of the City of Creve Coeur code, a minimum of ten (10) square feet of interior landscaped area shall be provided within the parking lot for each five hundred (500) square feet of paved area within any surface parking lot including parking spaces and driving aisles. The landscaping shall be in one (1) or more areas so as to minimize and reduce the apparent size of parking areas. On-street parking provided within the development shall be exempt from this requirement. Existing surface parking lots to be repurposed as part of this development shall also be exempt from this requirement, even if maintenance is to be considered for said existing lots to remain.

d. Landscape plans for each parcel shall be coordinated and consistent with a Landscape Concept Plan for the applicable Category of this ordinance. These plans should enhance the pedestrian experience, complement architectural features, provide shade, and screen utility areas.

e. All medians greater than 4' in width (3' of plant-able space) within the development are required to be landscaped and irrigated and will be maintained by the developer.

f. All existing surface parking lots to remain on Lots 9, 13, & 15 shall not be required to meet Article V of the City of Creve Coeur Code. Existing surface parking lots to remain on Lot 13 shall be required to provide additional landscaping where appropriate during the Site Development Plan for that lot.

g. In order to present a healthy, neat and orderly appearance, all landscaped areas within the Main Street sub-district category, as well as Lots 1 and 3 of the Mixed-Use sub-district category, the "Village Green~~Park~~" as identified on the Site Concept Plan (with the exception of back of house and service areas), and Lots 10 and 17 within the General Office sub-district category shall be provided with an installed, operated and maintained underground irrigation system. All other landscaped areas outside of these areas shall be landscaped with plant materials adapted to the region and not requiring irrigation to thrive unless proposed plant selections deem irrigation necessary.

h. All landscaped areas in parking areas or adjacent to parking areas or loading areas, or that can be encroached upon by a motor vehicle, shall be provided with adequate, vehicular deterrent (such as curb, bollard, wheel stop, or other design alternative to be approved by the Director of Public Works) to restrict the destruction of the landscape areas by vehicles.

2. The following tree conservation standards apply throughout the PMD District:
   a. Any removal of individual trees 6-inches in diameter at breast height (DBH) or larger or any removal of tree masses as identified on the approved Tree Preservation Plan of the Site Concept Plan that exceeds 50 percent removal shall require replacement within the PMD District. When replacement is required, the following standards shall apply:
      i. Removed trees 6-inches at DBH or greater shall be replaced on the basis of a one-to-one ratio (1:1). All trees that are over 20-inches at DBH shall be replaced on the basis of a two-to-one ratio (2:1). All replacement trees shall be a minimum of two and one-half (2.5) caliper inches at time of planting. Such trees shall be of a species contained in the City's list of recommended trees and shall be in addition to any trees classified as street trees.
      ~~h.~~ii. The removal of any trees that are hazardous, in poor condition, dead, diseased or considered invasive by the Missouri Department of Conservation as determined by a licensed landscape architect, architect, engineer or International Society of Arboriculture (ISA) certified arborist or other evidence as deemed credible by the City, is not subject to these requirements.

G. SIGN REQUIREMENTS

1. ~~-~~Signs shall be permitted in accordance with a c~~C~~omprehensive p~~P~~lan of signage subject to the recommendation of the Planning and Zoning Commission and approval of the City Council in accordance with Section 405.955 of the Creve Coeur Sign Regulations. The c~~C~~omprehensive p~~P~~lan for signage shall show the location, size, height, extent and design of all proposed signs.

H. LIGHT REQUIREMENTS

1. Provide a lighting plan in accordance with the City of Creve Coeur Code for each phase of the PMD District as a component of the Site Development Plan submission.
2. All lighting proposed on lots within the development that are immediately adjacent to existing single family residential zoning districts (currently shown on the Site Concept Plan as Lots 10 & 17) shall provide occupancy sensors and full cut-off/shielded fixtures. The maximum light pole height within any surface or structured parking lots adjacent to existing ~~single family~~single-family districts is 16-feet.

3. Individual Lighting Plans, including fixture types, shall be consistent with a Lighting Fixture Plan for the applicable category in this ordinance. The proposed Lighting Fixture Plan must provide for consistent and complementary fixture designs and styles throughout the PMD District.

I. ARCHITECTURAL REQUIREMENTS

1. For individual lot developments only, the developer shall submit a design package including, but not limited to, architectural elevations, colored renderings and building materials. The proposed package shall give consideration to creating a visually appealing development pattern consistent with the intent and purpose of this PMD District. Architectural information is to be reviewed and approved by the Planning and Zoning Commission.

2. Building facades should be articulated by using color, arrangement or change in materials to emphasize the façade elements. The planes of the exterior walls may be varied in height, depth or direction. Extremely long facades shall be designed with sufficient building articulation and landscaping to avoid a monotonous or overpowering appearance.

3. Building finish material types in Olia Village shall be generally specified as any combination of white, off-white, light grey, wood grain, or light beige. Accents are acceptable as dark grey, black, or dark bronze. Red, orange, or yellow brick or other bold color finish materials are prohibited. Masonry and glass are preferred. Metal, cementitious siding, and EFIS should not be used as the primary material on the building.

4. Trash enclosures: The location, material, and elevation of any trash enclosure will be as approved on the Site Development Plan. Trash receptacles shall be located indoors or be enclosed with an eight (8) foot high sight-proof enclosure with materials that match the adjacent structures and complemented by adequate landscaping as approved on the individual lot-specific landscape plans.

5. Mechanical equipment placed on the ground shall be adequately screened with six (6) foot high sight proof enclosures or to a height equal to the height of the equipment (whichever is greater).

6. Rooftop mechanical equipment shall be screened on roofs with architecturally designed, fully enclosed screening materials that complement the building design at a height equal to or greater than the height of the equipment.

7. Flat roof surfaces below 5 stories shall incorporate ballast, green roof, artificial turf, or medium tone colored membrane to reduce daytime glare for upper-level tenants in adjacent buildings.

J. ACCESS/ACCESS MANAGEMENT

1. Street and drives related to this development shall be designed and located as directed by the Department of Public Works.

2. The location of public streets within the PMD District shall be determined by the Site Concept Plan.

3. The location of lot access points shall be determined by individual lot-specific Site Development Plans within the PMD District.

4. Access to the development from external roadways shall be as shown on the Site Concept Plan and as directed by the City of Creve Coeur, the Missouri Department of Transportation, and St. Louis County Department of Transportation, as applicable.

5. Adequate sight distance shall be provided. If adequate sight distance cannot be provided at the access location(s), acquisition of right-of-way, reconstruction of pavement and other off-site improvements may be required to provide the required sight distance as required by the City of Creve Coeur and the agency in control of the right of way off which the access is proposed.

6. Driveway access to internal streets shall comply with City Code.

7. No construction-related parking shall be permitted within right-of-way or on an existing roadway. All construction related to parking shall be confined to the development's boundary.

8. Any improvements within the Missouri Department of Transportation (MoDOT) right-of-way will require a permit from MoDOT. The entrance geometries and drainage design shall be in accordance with MoDOT standards.

9. Any request to install a gate in this development must be approved by the City of Creve Coeur and the agency in control of the right-of-way off of which the entrance is constructed. No gate installation will be permitted on public right-of-way.

    a. If a gate is allowed to be installed on a street in the development, the street(s) within the development or that portion of the development that is gated shall be private.

K. PUBLIC/PRIVATE ROAD IMPROVEMENTS, INCLUDING PEDESTRIAN CIRCULATION

1. Approvals are to be obtained from the City of Creve Coeur Department of Public Works and/or the Missouri Department of Transportation as applicable.

2. The National Association of City Transportation Officials (NACTO) has an Urban Street Design Guide. All intersections of Olia Village shall conform to the principles of the NACTO Urban Street Design Guide.

3. Internal streets and sidewalks shall be private unless an agreement is reached and executed between the City of Creve Coeur and Olia Village whereby the City of Creve Coeur accepts the internal streets and/or sidewalks as public. All public streets shall be designed to meet the City of Creve Coeur's Code for the Development of Streets (Section 410.240), unless otherwise described herein.

4. Provide sidewalks, conforming to Americans with Disabilities Act (ADA) standards, along all frontages of the site and along internal roadways as shown on the Site Concept Plan. The sidewalk shall provide for future connectivity to adjacent developments and/or roadway projects. The sidewalk may be located within right-of-way controlled by another agency, if permitted by that agency, or on private property within a sidewalk, maintenance, and utility easement dedicated to the City Creve Coeur for public use.

5. Pedestrian crossings for Olive Boulevard shall be provided as required by MoDOT.

6. Mid-block crossings internal to the PMD District shall be provided as shown on the approved Site Concept Plan, or as otherwise approved by the City's Traffic Engineer.

7. Obtain approvals from the City of Creve Coeur and Missouri Department of Transportation, as necessary, for locations of proposed curb cuts and access points, areas of new dedication, and roadway improvements.

8. Additional right-of-way and road improvements shall be provided, as required by the City of Creve Coeur and/or the Missouri Department of Transportation.

9. Provide a minimum 8-foot-wide shared use path for public use which connects to the existing sidewalk in right-of-way along the south side of Olive Boulevard.

    a. The location of the shared use path within the PMD District shall be as shown in the approved Site Concept Plan.

10. Pedestrian circulation to be as shown on the approved Site Concept Plan.

11. Public Street Design Standards:

    a. Minimum Right-Of-Way 26'
    b. Maximum Grade at Centerline 10%
    c. Minimum Grade at Centerline 1.0% Concrete
    d. Minimum Pavement Width 26'

	(Back-to-Back of Curb)	
e.	Minimum Site Distance at Crest of Curve	150’
f.	Minimum Horizontal Radius of Centerline	150’
g.	Minimum Horizontal Tangent Distance Between Reverse Curves	None
h.	Sidewalks	As shown on approved Site Concept Plan
i.	Curb & Gutter	Vertical Or Lip (Rolled) Concrete

12. Public Street Pavement Standards:

    a. Concrete = minimum 8 inches on 4-inch compacted crushed limestone (typ. 1” minus rock)

13. Private Street Design Standards:

a.	Minimum Right-Of-Way	N/A
b.	Maximum Grade at Centerline	10%
c.	Minimum Grade at Centerline	1.0% Asphalt / 1.0% Concrete
d.	Minimum Pavement Width (Back-to-Back of Curb)	24’
e.	Minimum Site Distance at Crest of Curve	150’
f.	Minimum Horizontal Radius of Centerline	150’
g.	Minimum Horizontal Tangent Distance Between Reverse Curves	None
h.	Sidewalks	As shown on approved Site Concept Plan
i.	Curb & Gutter	Vertical Or Lip (Rolled) Concrete

14. Private Street Pavement Standards:

    a. Asphalt or Concrete. Pavement sections to be determined based upon recommendations from Geotechnical Report prepared for this development.

L. TRAFFIC IMPACT STUDY

1. External Roadway Network:

    a. The developer shall provide a traffic impact study as directed by the City of Creve Coeur & the Missouri Department of Transportation for impacts to the existing adjacent public roadway network. The scope of the study shall include external circulation and may be limited to specific impacts, such as the need for additional lanes, entrance configuration, geometries, sight distance, traffic signal modifications or other improvements required, as long as the density of the proposed development remains consistent with the Site Concept Plan. The proposed trip generations included as part of this study shall be used as a baseline for the overall development of the PMD District and shall not be reviewed or required to be adhered to for each individual lot development. Should the actual trip generations for the entire PMD District increase by more than 10% from the density assumed in the traffic impact study approved by MoDOT within five (5) years of the initial approved Site Concept Plan, an updated traffic study may be required by the City of Creve Coeur.

2. Internal Roadway Network:

    a. Both the City and the developer acknowledge that this development will include a built environment that is meant to encourage pedestrian activity and improve pedestrian mobility. This approach will include intentional roadway & sidewalk design geometries to be established to promote pedestrian access over vehicular where possible, while respecting the safety of both pedestrians and vehicles as well as emergency personnel. This will include a design which considers how people interact with the space to increase access for all community members, including ADA compliancy. As such, a comprehensive

traffic impact study including traffic counts, trip generations, signal warrants, accessory warrants, etc. for the internal roadway network will not be required. Approval will be required by the City's Traffic Engineer, which may include more detailed analysis of isolated locations.

M. MISCELLANEOUS

1. Kiosks are allowed in the PMD District provided they do not impede pedestrian traffic on the sidewalk and meet ADA accessibility requirements. Kiosks can be an arrangement of mobile units, fixed units, or a mixture of both joined together to form a structure not to exceed 100 sq. feet. Uses within the kiosk will be the approved uses in this Attachment A. Locations and numbers of kiosks shall be as approved on the Site Concept Plan for the PMD District.

2. Loading docks, overhead doors and service entries will be permitted only on the side or rear of a tenant space. Deliveries shall be made on the side or rear of a tenant space with the exception of designated street delivery and loading areas as approved on the Site Concept Plan.

3. The height of retaining walls required for the development shall conform to the approved Site Concept Plan or Site Development Plan corresponding with each phase, as appropriate.

4. Stream Buffer Protection Ordinance Requirements:

    a. Stream bank shall be defined as the "ordinary high-water mark" as defined by the US Army Corps of Engineers.

    b. Existing impervious encroachments into existing Stream Buffer Protection setbacks from any existing stream shall not be required to meet the Stream Buffer Protection Regulations in Chapter 430 of the City of Creve Coeur code regardless of whether improvements are proposed to be made to said existing impervious areas. No further impervious encroachment into existing Stream Buffer setbacks will be allowed.

5. The addition of Electric Vehicle (EV) charging stations will be ~~considered~~ provided where appropriate as determined during the Site Development Plan stage for individual lots.

6. Internal bus stops shall not be required within the development. The existing bus stop along the south side of Olive Boulevard, west of Pavilion shall be upgraded to include an architectural bus shelter meeting the following minimum criteria as acceptable to MoDOT & Metro:

N. Pre-finished or painted steel 6' x 13' bus shelter with wind screen side, rear panels and shed roof. Shelter accessories to include a coordinating bench and waste receptacle. New 7' x 14' slab to match adjacent sidewalk finish and provide flush connection. The final bus stop shelter design will follow the Site Development Plan approval process.

O. PUBLIC ART REQUIREMENTS

1. A separate public art package shall be required and follow the City of Creve Coeur review processes for public art which include review and recommendation by the City's Arts Committee to the Planning and Zoning Commission with City Council approval of public art agreements for public access easements and owner maintenance.

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT

TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	2012 NAICS Title	Zoning District - Olia PMD			
		A Main	B Mixed	C Office	D Residential
311351	Chocolate and Confectionery Manufacturing from Cacao Beans	P	P		
311811	Retail Bakeries	P	P		
311812	Commercial Bakeries	P	P		
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing	P	P		
312120	Breweries	P	P		
312140	Distilleries	P	P		
441110	New Car Dealers (No outside surface storage or display allowed)	P	P		
441228	Motorcycle, ATV, and All Other Motor Vehicle Dealers (No outside surface storage or display allowed)	P	P		
CC442100	All Drive-in and Drive Through Services (excluding Food Services)		P		
442110	Furniture Stores	P	P		
442210	Floor Covering Stores	P	P		
442291	Window Treatment Stores	P	P		
442299	All Other Home Furnishings Stores	P	P		
443141	Household Appliance Stores	P	P		
443142	Electronics Stores	P	P		
444120	Paint and Wallpaper Stores	P	P		
445110	Supermarkets and Other Grocery (except Convenience) Stores		P		
445120	Convenience Stores	P	P		
445210	Meat Markets	P	P		
445220	Fish and Seafood Markets	P	P		
445230	Fruit and Vegetable Markets	P	P		
445291	Baked Goods Stores	P	P		
445292	Confectionery and Nut Stores	P	P		
445299	All Other Specialty Food Stores	P	P		
445310	Beer, Wine, and Liquor Stores	P	P		
446110	Pharmacies and Drug Stores	P	P		
446120	Cosmetics, Beauty Supplies and Perfume Stores	P	P		
446130	Optical Goods Stores	P	P		
446191	Food (Health) Supplement Stores	P	P		
446199	All Other Health and Personal Care Stores	P	P		
448110	Men's Clothing Stores	P	P		
448120	Women's Clothing Stores	P	P		
448130	Children's and Infants' Clothing Stores	P	P		
448140	Family Clothing Stores	P	P		
448150	Clothing Assessories Stores	P	P		
448190	Other Clothing Stores	P	P		
448210	Shoe Stores	P	P		
448310	Jewelry Stores	P	P		
448320	Luggage and Leahter Goods Stores	P	P		
451110	Sporting Goods Stores (except those exclusively engaged in the sale of firearms and ammunition)	P	P		
451120	Hobby, Toy, and Game Stores	P	P		
451130	Sewing, Needlework, and Piece Goods Stores	P	P		
451140	Musical Instrument and Supplies Stores	P	P		
451211	Book Stores	P	P		
451212	News Dealers and Newsstands	P	P		
452111	Department Stores (except Discount Department Stores)		P		
452112	Discount Department Stores		P		
452910	Warehouse Clubs and Supercenters		P		
452990	All Other General Merchandise Stores	P	P		
453110	Florists	P	P		
453210	Office Supplies and Stationary Stores	P	P		
453220	Gift, Novelty, and Souvenir Stores	P	P		
453310	Used Merchandise Stores (No building materials, outside sales, exchange or drop-off of used goods)	P	P		
453910	Pet and Pet Supplies Stores	P	P		
453920	Art Dealers	P	P		
453991	Tobacco Stores	P	P		
CC453999	Comprehensive or Medical Marijuana Dispensary Facility as defined under Section 405.120, including Microbusiness Marijuana Dispensary Facility	P	P		
492210	Local Messengers and Local Delivery	P	P		
512240	Sound Recording Industries	P	P	P	
512290	Other Sound Recording Industries	P	P	P	
515111	Radio Networks	P	P	P	
518210	Data Processing, Hosting, and Related Services	P*	P	P	
519110	News Syndicates	P*	P	P	
519120	Libraries and Archives	P	P	P	
519130	Internet Publishing and Broadcasting and Web Search Portals	P*	P	P	
519190	All Other Information Services	P*	P	P	

*** Use shall not be permitted in the street facing ground floor within Main Street District**

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT

TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	**2012 NAICS Title**	**Zoning District - Olia PMD**			
		A Main	**B Mixed**	**C Office**	**D Residential**
521110	Monetary Authorities-Central Bank	P	P	P	
522110	Commercial Banking	P	P	P	
522120	Savings Institutions	P	P	P	
522130	Credit Unions	P	P	P	
522190	Other Depository Credit Intermediation	P	P	P	
522210	Credit Card Issuing	P	P	P	
522220	Sales Financing	P	P	P	
522291	Consumer Landing	P	P	P	
522292	Real Estate Credit	P	P	P	
522293	International Trade Financing	P	P	P	
522294	Secondary Market Financing	P	P	P	
522310	Mortgage and Non-Mortgage Loan Brokers	P*	P	P	
522320	Financial Transactions Processing, Reserve and Clearinghouse Activities	P	P	P	
523110	Investment Banking and Securities Dealing	P*	P	P	
523120	Securities Brokerage	P*	P	P	
523130	Commodity Contracts Dealing	P*	P	P	
523140	Commodity Contracts Brokerage	P*	P	P	
523210	Securities and Commodity Exchanges	P*	P	P	
523910	Miscellaneous Intermediation	P*	P	P	
523920	Portfolio Management	P	P	P	
523930	Investment Advice	P	P	P	
523991	Trust, Fiduciary, and Custody Activities	P	P	P	
523999	Miscellaneous Financial Investment Activities	P	P	P	
524113	Direct Life Insurance Carriers	P	P	P	
524114	Direct Health and Medical Insurance Carriers	P	P	P	
524126	Direct Property and Casualty Insurance Carriers	P	P	P	
524127	Direct Title Insurance Carriers	P	P	P	
524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	P	P	P	
524130	Reinsurance Carriers	P*	P	P	
524210	Insurance Agencies and Brokerages	P	P	P	
524291	Claims Adjusting	P*	P	P	
524292	Third Party Administration of Insurance and Pension Funds	P*	P	P	
524298	All Other Insurance Related Activities	P	P	P	
525110	Pension Funds	P*	P	P	
525120	Health and Welfare Funds	P*	P	P	
525190	Other Insurance Funds	P*	P	P	
525910	Open-End Investment Funds	P*	P	P	
525920	Trusts, Estates, and Agency Accounts	P*	P	P	
525990	Other Financial Vehicles	P*	P	P	
531110	Lessors of Non-Residential Buildings and Dwellings	P	P	P	
531120	Lessors of Non-Residential Buildings (except Miniwarehouses)	P	P	P	
531190	Lessors of Other Real Estate Property	P	P	P	
531210	Offices of Real Estate Agents and Brokers	P	P	P	
531311	Residential Property Managers	P	P	P	
531312	Non-Residential Property Managers	P	P	P	
531320	Offices of Real Estate Appraisers	P	P	P	
531390	Other Activities Related to Real Estate	P	P	P	
531311	Residential Property Managers	P	P	P	
531312	Non-Residential Property Managers	P	P	P	
531320	Offices of Real Estate Appraisers	P	P	P	
531390	Other Activities Related to Real Estate	P	P	P	
532210	Consumer Electronics and Appliances Rental	P	P		
532220	Formal Wear and Costume Rental	P	P		
532230	Video Tape and Disc Rental	P	P		
532291	Home Health Equipment Rental	P	P		
541110	Offices of Lawyers	P	P	P	
541120	Office of Notaries	P	P	P	
541191	Title Abstract and Settlement Offices	P	P	P	
541199	All Other Legal Services	P	P	P	
541211	Offices of Certified Public Accountants	P	P	P	
541213	Tax Preparation Services	P	P	P	
541214	Payroll Services	P*	P	P	
541219	Other Accounting Services	P*	P	P	
541310	Architectural Services	P	P	P	
541320	Landscape Architectural Services	P	P	P	
541330	Engineering Services	P	P	P	
541340	Drafting Services	P	P	P	
541350	Building Inspection Services	P	P	P	
541360	Geophysical Surveying and Mapping Services	P	P	P	

*** Use shall not be permitted in the street facing ground floor within Main Street District**

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT

TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	**2012 NAICS Title**	**Zoning District - Olia PMD**			
		A Main	**B Mixed**	**C Office**	**D Residential**
541370	Surveying and Mapping (except Geophysical) Services	P	P	P	
541380	Testing Laboratories	P*	P	P	
541410	Interior Design Services	P	P	P	
541420	Industrial Design Services	P	P	P	
541430	Graphic Design Services	P	P	P	
541490	Other Specialized Design Services	P	P	P	
541511	Custom Computer Programming Services	P	P	P	
541512	Computer Systems Design Services	P	P	P	
541513	Computer Facilities Management Services	P	P	P	
541519	Other Computer Related Services	P	P	P	
541611	Administrative Management and General Management Consulting Services	P	P	P	
541612	Human Resources Consulting Services	P	P	P	
541613	Marketing Consulting Services	P	P	P	
541614	Process, Physical Distribution, and Logistics Consulting Services	P	P	P	
541618	Other Management Consulting Services	P	P	P	
541620	Environmental Consulting Services	P	P	P	
541690	Other Scientific and Technical Consulting Services	P	P	P	
541711	Research and Development in Biotechnology	P*	P	~~P~~	
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	P*	P	~~P~~	
541720	Research and Development in the Social Sciences and Humanities	P*	P	~~P~~	
541810	Advertising Agencies	P	P	P	
541820	Public Relations Agencies	P	P	P	
541830	Media Buying Agencies	P	P	P	
541840	Media Representatives	P	P	P	
541850	Outdoor Advertising	P	P	P	
541860	Direct Mail Advertising	P	P	P	
541870	Advertising Material Distribution Services	P	P	P	
541890	Other Services Related to Advertising	P	P	P	
541910	Marketing Research and Public Opinion Polling	P	P	P	
541921	Photography Studios, Portrait	P	P	P	
541922	Commercial Photography	P	P	P	
541930	Translation and Interpretation Services	P	P	P	
541940	Veterinary Services	P	P	P	
541990	All Other Professional, Scientific, and Technical Services	P	P	P	
551111	Offices of Bank Holding Companies	P*	P	P	
551112	Offices of Other Holding Companies	P*	P	P	
551114	Corporate, Subsidiary, and Regional Managing Offices	P*	P	P	
CC561100	Business Enterprise Center (as defined in Chapter 405.120, Definition of Terms)	P	P	P	
561110	Office Administrative Services	P	P	P	
561210	Facilities Support Services	P	P	P	
561311	Employment Placement Agencies	P	P	P	
561312	Executive Search Services	P	P	P	
561320	Temporary Help Services	P	P	P	
561330	Professional Employer Organizations	P	P	P	
561410	Document Preparation Services	P*	P	P	
561421	Telephone Answering Service	P*	P	P	
561422	Telemarketing Bureaus and Other Contact Centers	P*	P	P	
561431	Private Mail Centers	P	P	P	
561439	Other Business Service Centers (including Copy Shops)	P	P	P	
561440	Collection Agencies	P*	P	P	
561450	Credit Bureaus	P*	P	P	
561491	Repossession Services	P*	P	P	
561492	Court Reporting and Stenotype Services	P*	P	P	
561499	All Other Business Support Services	P	P	P	
561510	Travel Agencies	P	P	P	
561520	Tour Operators	P	P	P	
561591	Convention and Visitors Bureaus	P	P	P	
561599	All Other Travel Arrangement and Reservation Services	P	P	P	
621111	Offices of Physicians (except Mental Health Specialists)	P	P	P	
621112	Offices of Physicians, Mental Health Specialists	P	P	P	
621310	Offices of Chiropractors	P	P	P	
621320	Offices of Optometrists	P	P	P	
621330	Offices of Mental Health Practioners (except Physicians)	P	P	P	
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists	P	P	P	
621391	Office of Podiatrists	P	P	P	
621399	Offices of All Other Miscellaneous Health Practitioners	P	P	P	
621410	Family Planning Centers			P	
621420	Outpatient Mental Health and Substance Abuse Centers			P	
621210	Offices of Dentists	P	P	P	

*** Use shall not be permitted in the street facing ground floor within Main Street District**

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT

TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	**2012 NAICS Title**	**Zoning District - Olia PMD**			
		A Main	**B Mixed**	**C Office**	**D Residential**
621491	HMO Medical Centers			P	
621492	Kidney Dialysis Centers			P	
621493	Freestanding Ambulatory Surgical and Emergency Centers			P	
621498	All Other Outpatient Care Centers			P	
621511	Medical Laboratories			P	
621512	Diagnostic Imaging Centers			P	
621610	Home Health Care Services			P	
624410	Child Day Care Services	P	P	P	
713940	Fitness and Recreational Sports Centers	P	P	~~P~~	
713950	Bowling Centers	P	P		
713990	All Other Amusement and Recreation Industries (except gun and shooting clubs)	P	P		
721110	Hotels (except Casino Hotels) and Motels	P	P		
722410	Drinking Places (Alcoholic Beverages)	P**	P**		
722511	Full-Service Restaurants	P**	P**		
722513	Limited-Service Restaurants	P**	P**		
722514	Cafeterias, Grill Buffets, and Buffets	P**	P**		
722515	Snack and Non-Alcoholic Beverage Bars	P**	P**		
811430	Footwear and Leather Goods Repair	P	P		
811490	Other Personal and Household Goods Repair and Maintenance	P	P		
812111	Barber Shops	P	P		
812112	Beauty Salons	P	P		
812113	Nail Salons	P	P		
812191	Diet and Weight Reducing Centers	P	P		
812199	Other Personal Care Services (except escort services, massage parlors, steam baths, tattoo parlors, permanent makeup salons and Turkish baths)	P	P		
812922	One-Hour Photofinishing	P	P		
813930	Labor Unions and Similar Labor Organizations	P	P	P	
813940	Political Organizations	P	P	P	
813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	P	P	P	
814110	Private Households, Single-Family Residential				P
CC814111	Attached Single-Family Residential (townhouses or duplexes)				P
812930	Parking Lots and Garages	P	P	P	
813319	Other Social Advocacy Organizations	P	P	P	
813410	Civic and Social Organizations	P	P	P	
813910	Business Associations	P	P	P	
813920	Professional Organizations	P	P	P	
CC814140	High-Density Multifamily Residential (more than 20 single family units per acre)	P	P		
921110	Executive Offices	P	P	P	
921120	Legislative Bodies	P	P	P	
921130	Public Finance Activities	P	P	P	
921140	Executive and Legislative Offices, Combined	P	P	P	
921190	Other General Government Support	P	P	P	
922110	Courts	P	P	P	
922120	Police Protection	P	P	P	
922130	Legal Counsel and Prosecution	P	P	P	
922160	Fire Protection	P	P	P	
922190	Other Justice, Public Order, and Safety Activities	P	P	P	
923110	Administration of Education Programs	P	P	P	

**** Use Codes 722410, 722511,722513, 722514, 722515: only one drive through facility shall be permitted on Lot 3 and one drive through facility on Lot 12 with a single lane drive through facility subject to Site Development Plan review and no other drive through facilities shall be allowed.**

city of CREVE COEUR

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DEPARTMENT OF COMMUNITY DEVELOPMENT MEMORANDUM

Meeting Date: October 23, 2023

To: Mark Perkins, City Administrator
Mayor and City Council

Memo Prepared by: Jason W. Jaggi, AICP, Director of Community Development

Subject: **Olia Village Planned Mixed Use District—Amended Development Standards and Use Table**

Staff and the developer have made changes to the Development Standards (Exhibit B to the Rezoning Ordinance) and Use Table. These changes have been made based upon feedback received by the City Council at the October 9, 2023, meeting, as well as, continuing discussions with the developer since the last City Council meeting.

Below is a summary of the changes that have been made, as shown in the submitted redlined documents.

Development Standards

B. Sub-District Standards (Pages 1 and 2)
Maximum Building Height: The maximum building and parking garage height for Lots 1, 10 and 17, which are immediately adjacent to existing single family residential, has been lowered to 3 stories or 45-feet. This is now in line with the existing RO-Research Office district requirement for a maximum building or structure height of 45-feet with a 50-foot buffer yard.

C. Dimensional Regulations (Page 2)
Site Coverage: The rules for computing site coverage have been clarified and the maximum allowed site coverage for the entire development has been lowered from 70% to 60%. Based on a review of the site coverage calculations provided to staff, the current Site Concept Plan is showing site coverage at approximately 43%.

F. Landscape and Tree Requirements (Pages 8 and 9)
Internal Parking Lot Screening: Internal parking and loading areas are required to be screened with landscape screening as site conditions allow. Previously, internal parking and loading areas were not required to be screened

Tree Conservation: Staff is still working with the developer on the appropriate method to calculate tree removal as required by Section 410.320 of the Subdivision Code. Staff is expecting a revised tree conservation plan to be submitted for staff review prior to the meeting. Staff will update the Council if this information is provided and the calculations can be confirmed. Ultimately, the planned development process allows the City Council to modify these standards and to establish specific standards that would apply to this development. Staff recommends that if the quantity of tree removal

exceeds 50%, either individually or within tree masses, that replacement trees should then be required. A new section has been added within the development standards to require replacement of any tree removals above 50%. Trees 6-inches in diameter or greater would need to be replaced on a one-to-one (1:1) basis, except for trees over 20-inches would need to be replaced on a two-to-one (2:1) basis.

M. Miscellaneous (Page 15)
EV Charging Stations: This standard has been strengthened to require EV charging stations for review during the Site Development Plan phase.

Use Table
The following changes have been made for the allowable uses within the development:

- Research and Development uses have been removed from the Office District (Lots 10 and 17)
- Child Day Care Services have been added as a permitted use in all districts, except the residential district (Lot 16)
- Eating and Drinking Establishments (Use Codes beginning with 722) with drive throughs. Up to two drive throughs are allowed within the entire development. These drive throughs are only permitted on Lots 3 and 12, with up to one on each lot, and with a single lane configuration subject to the site development plan review process.
- Fitness Centers: This use has been removed from the allowable uses within the Office District (Lots 10 and 17). The removal of fitness centers as a primary use would not prohibit a fitness center as an accessory use within an office building to serve as an amenity for employees.

Planned Zoning Districts Review Criteria #14
This criterion requires that the development demonstrate that the projected revenues are sufficient to cover the costs for municipal services. Staff has updated the table the was previously submitted to now include the costs for trash service based on 130 townhomes. The projected cost for this service is $550,800 over a 20-year period with a 3% inflation factor. This raises the total municipal service cost over the 20-year period, including a 3% inflation factor, to slightly below $13 million. The financial model remains incomplete and, therefore, the projected revenues cannot be provided at this time.

Staff will present this information at the meeting and will be available to answer any questions that the City Council may have. The developer will present additional details at the meeting as well, including the residential buffers and the height of the proposed parking garage on Lot 4.

Olia Village
City's Projected Costs
as of September 28, 2023

	Personnel 1st Year	Maintenance 1st Year	Capital Expend. Over 20 years	20-Year Costs with 3% Inflation
Public Works Department				
1 Maintenance Worker	$76,696			$2,060,850
Construction Management for 1st Year Only		$260,000		$260,000
Annual Street Maint		$31,500		$846,417
Capital Improvements - 20 Year Costs			$2,316,606	$2,316,606
Trash and Recycling (130 townhomes)				$550,800
Total Public Works Department	$76,696	$291,500	$2,316,606	$6,034,673
Community Development Department				
1 Inspector (3 years)	$96,550			$298,426
Total Planning Department	$96,550	$0	$0	$298,426
Police Department				
2 Police Officers	$220,904			$5,935,773
1 Vehicle every 3 yrs (includes equip. & change-over)			$496,528	$496,528
Annual Vehicle Maintenance		$7,136		$191,747
Total Police Department	$220,904	$7,136	$496,528	$6,624,048
Grand Total by Category	**$394,150**	**$298,636**	**$2,813,134**	**$12,957,147**

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Annual Inflation	3%						
Inflation	1.03						
1 year Street Mainte	$31,500	$31,500	$32,445	$33,418	$34,421	$35,454	$36,517
Maintenance worker	$76,696	$76,696	$78,997	$81,367	$83,808	$86,322	$88,912
Inspector	$96,550	$96,550	$99,447	$102,430			
2 Police Officers	$220,904	$220,904	$227,531	$234,357	$241,388	$248,629	$256,088
Patrol Vehicle	$64,800	$64,800			$66,744		
Annual Vehicle Main	$7,136	$7,136	$7,350	$7,571	$7,798	$8,032	$8,273

Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
$37,613	$38,741	$39,903	$41,100	$42,333	$43,603	$44,911	$46,259	$47,647
$91,579	$94,326	$97,156	$100,071	$103,073	$106,165	$109,350	$112,631	$116,010
$263,771	$271,684	$279,835	$288,230	$296,877	$305,783	$314,956	$324,405	$334,137
$68,746			$70,809			$72,933		
$8,521	$8,776	$9,040	$9,311	$9,590	$9,878	$10,174	$10,479	$10,794

Year 16	Year 17	Year 18	Year 19	Year 20	Total
$49,076	$50,548	$52,065	$53,627	$55,235	$846,417
$119,490	$123,075	$126,767	$130,570	$134,487	$2,060,850
					$298,426
$344,161	$354,486	$365,121	$376,074	$387,357	$5,935,773
$75,121			$77,375		$496,528
$11,118	$11,451	$11,795	$12,149	$12,513	$191,747

ATTACHMENT B

All provisions of the City of Creve Coeur, MO City Code shall apply to this Planned Mixed-Use Development (PMD) District (subject to the terms thereof) except as specifically modified herein.

I SPECIFIC CRITERIA

A. PERMITTED USES

Permitted Uses within the PMD shall be as shown on Table A at the end of this Attachment B. The permitted uses are further broken down by the following sub-district categories which have been identified on the approved Site Concept Plan and further defined below in this Attachment B.

1. Sub-District Category A – Main Street Development
2. Sub-District Category B – Mixed-Used Development
3. Sub-District Category C – General Office Development
4. Sub-District Category D – Residential Development

B. SUB-DISTRICT CATEGORY STANDARDS

Within the PMD, four (4) sub-districts categories have been identified to provide varying levels of regulations. The location of each sub-district shall be as shown on the approved Site Concept Plan and have each been further defined below.

1. CATEGORY A – "Main Street" Development Pattern Building placement:
    - Building volume: Buildings may be constructed not to exceed (8) stories or (100) feet measured from the primary sidewalk entrance level. Additional lower levels accessed from the side or rear are permitted.
    - Building floor heights: Sidewalk commercial level shall be 12-30 feet, upper-level office or residential shall be 9-30 feet.
    - Projecting façade elements: Awnings, canopies, balconies, colonnades are permitted.
    - Bay windows permitted on upper stories.
    - Parking: Shall not be permitted as a primary use. Structured, public surface, or on-street parking permitted. Private off-street surface parking prohibited.

2. CATEGORY B – Mixed Use Development Pattern Building placement:
    - Building volume: Buildings may be constructed not to exceed (5) stories or (60) feet measured from the primary sidewalk entrance level. Additional lower levels accessed from the side or rear are permitted.
    - Building floor heights: First floor level shall be 12-30 feet; upper levels shall be 9-30 feet.
    - Projecting façade elements: Awnings, canopies, balconies, colonnades, porte-cocheres are permitted.
    - Bay windows permitted on upper stories.
    - Parking: Structured, public surface, on-street parking, private off-street parking permitted.

3. CATEGORY C – General Office Development Pattern Building Placement:
    - Building Volume: Buildings may be constructed not to exceed (4) stories or (70) feet measured from the primary building entrance, except for Lots 10 and 17, as identified on the Site Concept Plan, the height of buildings cannot exceed (3) stories or (50) feet. Additional lower levels accessed from the side or rear are permitted.
    - Building Floor Heights: All floor levels shall be 12-30 feet.
    - Projecting Façade Elements: Awnings, canopies, balconies, colonnades, porte-cocheres are permitted.
    - Outdoor Space: Outdoor amenity space such as patios or plazas serving building occupants are permitted.
    - Parking: Structured, public surface, on-street parking, private off-street parking permitted.

4. CATEGORY D – Residential Development Pattern Building placement:
    - Building Volume: Attached single-family dwellings may be constructed not to exceed 3 stories or (40) feet in height; detached single family dwellings may be constructed not to exceed 2 ½ stories or (35) feet in height.

C. DIMENSIONAL REGULATIONS

1. Maximum Site Coverage.

    a. Maximum site coverage shall be determined globally for the entire PMD District and shall not be calculated on an individual site/lot or sub-district basis. The total acreage used to define this calculation shall be the total PMD area less any land that has been dedicated for use as public ROW.

    b. The amount of gross site area covered by buildings and structures, surface parking, pavement for automobile circulation or permitted exterior business services, storage, merchandise display, repair or processing shall not exceed 70% of the site.

2. Maximum Floor Area Ratio (FAR).

    a. Floor Area Ratio shall be defined as the gross leasable floor area of all commercial buildings and all multifamily dwellings, and the dwelling unit floor area of all other residential buildings on any lot divided by the land area of such lots. Parking garages shall not be included in the Floor Area Ratio calculation.

    b. Maximum floor area ratio shall be determined globally for the entire PMD District and shall not be calculated on an individual site/lot or sub-district basis. The total acreage used to define this calculation shall be the total PMD area less any land that has been dedicated for use as public ROW.

        i. The Maximum Floor Area Ratio for the entire PMD District shall not exceed 0.70.

3. Lot Size Requirements:

    a. Minimum Lot Area. The permitted use of any given site or lot shall be determined by the size of the site or lot under single ownership or other common legal control as prescribed in Section 405.370(B).
    b. CATEGORY A – "Main Street" Sub-district:
        1. Minimum Lot Area. One-half (1/2) acre.
        2. Minimum Lot Width. One Hundred (100) feet.
        3. Minimum Lot Depth. One Hundred (100) feet.

    c. CATEGORY B – Mixed Use Sub-district:
        1. Minimum Lot Area. One-half (1/2) acre.
        2. Minimum Lot Width. Seventy-Five (75) feet.
        3. Minimum Lot Depth. One Hundred Fifty (150) feet.

    d. CATEGORY C – General Office Sub-district:
        1. Minimum Lot Size. One-half (1/2) acre.
        2. Minimum Lot Width. Seventy-Five (75) feet.
        3. Minimum Lot Depth. One Hundred Fifty (150) feet.

    e. CATEGORY D – Residential Sub-district:
        1. Minimum Lot Size. Eight hundred (800) square feet per lot.
        2. Minimum Lot Width. Fifteen (15) feet.
        3. Minimum Lot Depth. Forty (40) feet.

D. BULK REGULATIONS

1. Setback and Building Line Requirements within the Development (Internal):

    a. CATEGORY A – "Main Street" Sub-district:
        1. Minimum Front Yard. Zero (0) feet.
        2. Minimum Side Yard. Zero (0) feet.
        3. Minimum Rear Yard. Zero (0) feet.
        4. Buffer Yard. Not applicable internally.

    b. CATEGORY B – Mixed Use Sub-district:
        1. Minimum Front Yard. Zero (0) feet.
        2. Minimum Side Yard. Zero (0) feet.
        3. Minimum Rear Yard. Zero (0) feet.
        4. Buffer Yard. Not applicable internally.

    c. CATEGORY C – General Office Sub-district:
        1. Minimum Front Yard. Zero (0) feet.
        2. Minimum Side Yard. Zero (0) feet.
        3. Minimum Rear Yard. Zero (0) feet.
        4. Minimum Distance Between Buildings or Unit Clusters. Zero (0) feet.
        5. Buffer Yard. Not applicable internally.

d. CATEGORY D – Residential Sub-district:
    1. Minimum Front Yard. Five (5) feet.
    2. Minimum Side Yard. None or seven and a Half (7.5) feet.
    3. Minimum Rear Yard. Five (5) feet.
    4. Minimum Distance Between Buildings or Unit Clusters. Fifteen (15) feet.
    5. Buffer Yard. Not applicable internally.

2. Buffer, Setback and Building Line Requirements to Adjacent Zoning Parcels (External to the PMD District):

    a. Any tract of land site abutting or adjoining a commercial development shall not require a buffer yard. Any tract of land site abutting or adjoining a single-family residential development shall only be required to meet the following requirements below:

        ii. Provide a fifty (50) foot buffer yard on all sides of the PMD development that abut a single-family development. The buffer yard shall otherwise be as defined in amended Section 405.390 of the City of Creve Coeur's zoning ordinance.

        iii. No new commercial building may be located closer than twenty-five (25) feet to any required buffer yard.

    b. Setback and Building Line Requirements along Right-of-Ways:

        i. In every instance, the first ten (10) feet of the front yard setback measured from the right-of-way shall be provided with and maintained with sidewalks and/or landscaping including, but not limited to, deciduous street trees at regular intervals as shown on the concept plan.

        ii. No building or structure shall be closer than ten (10) feet when abutting a non-residential zoned property.

        iii. No maximum building line setback shall be enforced.

    c. Other CATEGORY D Regulations:

        1. Maximum number of units per acre. Twenty (20).
        2. Minimum dwelling unit floor area. Seven hundred fifty (750) square feet/unit.
        3. Garages. No district restrictions will be required on garage facing, recessing, architectural details, or street facing frontage.

E. PARKING AND LOADING REQUIREMENTS

1. Parking Requirements:

    a. Required parking for this entire PMD District shall be determined globally for the entire District and shall not be calculated on an individual site/lot or sub-district basis; and shall be calculated as follows:

        i. Required parking shall be calculated cumulatively per phase of development (as designated on the approved Phase Plan) based upon the sum of the square footage of individual land uses at the rate required by the City of Creve Coeur Code, less a fifteen percent (15%) reduction in the total number of spaces. Parking within the Residential Development District (CATEGORY D) shall not be provided with a fifteen percent (15%) reduction in the total number of spaces and shall adhere to the rate required by the City of Creve Coeur Code.

        ii. Required parking shall be allowed on surface parking lots, parking garages, and on-street locations.

        iii. No off-street surface parking locations will be allowed in any buffer yard or within the 10' yard setback along Right-of-Ways. Off-street surface parking locations shall be allowed in all other yards or setbacks within the development.

        iv. Joint Parking Facilities. In the case of mixed-use buildings, the parking spaces required shall be computed separately for each use except as provided in Sections 405.800(G)(3-4) and 405.820(H)(6)(b).

        v. On-street parking shall be allowed as approved by the City's Traffic Engineer and said parking shall count towards the required PMD parking noted in (i) above.

        vi. No individual lot Site Development Plan shall be approved which will result in parking provided at less than the amount set forth in prior paragraphs.

2. Loading Requirements:

    a. Purpose And Intent:

        i. It is the developers' intent to provide sufficient off-street loading areas and to ensure that such areas are located in a convenient location to the extent feasible. Loading areas shall be provided for trash collection as well as general deliveries.

        ii. The developer also acknowledges that the complexity of the proposed development will require flexibility in providing loading spaces and zones. The developer shall work with the City to find a balance of meeting the needs of the tenants and lot owners while respecting the safety and aesthetics of the traveling public. This may include actions such as restricting on-street parking during off-peak hours to allow for loading zones within on-street parking spaces to occur during early morning or late evening

hours. The developer shall work with the City to provide loading spaces and zones to meet the needs of the development.

iii. Loading areas utilized for the location of trash collection or compaction areas may coincide with the required building loading space.

b. Dimensions of Spaces:

i. Loading spaces, where designated, shall have a minimum dimension of twelve (12) feet width by thirty-five (35) feet length with a vertical clearance of at least fourteen (14) feet as shown on the approved individual lot Site Development Plan. In addition, some uses may require loading zones of larger dimension to accommodate larger tractor-trailers. These zones shall be at least sixty (60) feet in length, as shown on the approved individual lot Site Development Plan.

c. Schedule of Off-Street Loading Spaces:

i. Loading spaces and zones shall take a shared approach within Category A – Main Street, Category B – Mixed-Use, and Category C – General Commercial sub-districts. The required spaces and zones for each individual use will be determined based upon the sections below with the quantity to be provided for each lot based upon the minimum required for the highest individual use (not cumulative).

1. A combination of dedicated loading spaces and shared loading spaces / zones may be used by restricting on street parking during off peak hours to allow for loading spaces or zones within the on-street parking space areas to occur during early morning or late evening hours.

2. The required loading spaces shall be calculated based upon the maximum required uses as follows:

a. CATEGORIES A, B & C:

i. Residential & Transient Residential (Hotels, etc.) Uses. Any building containing more than fifty (50) apartment dwelling / room units shall provide one (1) loading space for each two hundred (200) units or fraction thereof.

ii. Office Uses. One (1) loading space shall be provided for each such use having greater than 6,000 square feet of gross floor space.

iii. Non-Residential or Non-Office Uses. The required loading spaces and/or zones shall be calculated upon the following table:

Floor Area (square foot)	Number of Spaces	Number of Zones
0 – 3,000	0	0
3,000 – 24,999	1	0
25,000 – 49,999	0	1
50,000 – 150,000	1	1
Each additional 150,000	1 additional	1 additional

b. CATEGORY D – Residential Sub-district: No loading spaces or zones shall be required within this sub-district.

3. The loading spaces required for Lots 8, 14 & 15 shall be shared. The existing underground tunnel network between the existing buildings to remain will provide access from each building to the existing loading docks on Lot 14. Additional loading spaces & zones may be provided to meet the requirements above on any of the 3 lots and will be shared and accessible from the existing tunnel system.

4. The loading spaces and zones shall be provided based upon the approved Site Development Plan for each individual lot.

F. LANDSCAPE AND TREE REQUIREMENTS

1. The developer shall adhere to the Resource Protection Standards (Article V) of the City of Creve Coeur Code with the following exceptions:

a. Landscaping along Main Street within the City of St. Louis water main easement shall require City of St. Louis Water Department approval.

b. All parking and/or loading spaces adjoining interior public right-of-way shall not be required to be screened.

c. In addition to any landscaped front, back or side yard areas required by this or any other Section of the City of Creve Coeur code, a minimum of ten (10) square feet of interior landscaped area shall be provided within the parking lot for each five hundred (500) square feet of paved area within any surface parking lot including parking spaces and driving aisles. The landscaping shall be in one (1) or more areas so as to minimize and reduce the apparent size of parking areas. On-street parking provided within the development shall be exempt from this requirement. Existing surface parking lots to be repurposed as part of this development shall also be exempt from this requirement, even if maintenance is to be considered for said existing lots to remain.

d. Landscape plans for each parcel shall be coordinated and consistent with a Landscape Concept Plan for the applicable Category of this ordinance. These plans should enhance the pedestrian experience, complement architectural features, provide shade, and screen utility areas.

e. All medians greater than 4’ in width (3’ of plant-able space) within the development are required to be landscaped and irrigated and will be maintained by the developer.

f. All existing surface parking lots to remain on Lots 9, 13, & 15 shall not be required to meet Article V of the City of Creve Coeur Code. Existing surface parking lots to remain on Lot 13 shall be required to provide additional landscaping where appropriate during the Site Development Plan for that lot.

g. In order to present a healthy, neat and orderly appearance, all landscaped areas within the Main Street sub-district category, as well as Lots 1 and3 of the Mixed-Use sub-district category, the “Park” as identified on the Site Concept Plan (with the exception of back of house and service areas), and Lots 10 and 17 within the General Office sub-district category shall be provided with an installed, operated and maintained underground irrigation system. All other landscaped areas outside of these areas shall be landscaped with plant materials adapted to the region and not requiring irrigation to thrive unless proposed plant selections deem irrigation necessary.

h. All landscaped areas in parking areas or adjacent to parking areas or loading areas, or that can be encroached upon by a motor vehicle, shall be provided with adequate, vehicular deterrent (such as curb, bollard, wheel stop, or other design alternative to be approved by the Director of Public Works) to restrict the destruction of the landscape areas by vehicles.

G. SIGN REQUIREMENTS

1. Signs shall be permitted in accordance with a Comprehensive Plan of signage subject to the recommendation of the Planning and Zoning Commission and approval of the City Council in accordance with Section 405.955 of the Creve Coeur Sign Regulations. The Comprehensive Plan for signage shall show the location, size, height, extent and design of all proposed signs.

H. LIGHT REQUIREMENTS

1. Provide a lighting plan in accordance with the City of Creve Coeur Code for each phase of the PMD District as a component of the Site Development Plan submission.
2. All lighting proposed on lots within the development that are immediately adjacent to existing single family residential zoning districts (currently shown on the Site Concept Plan as Lots 10 & 17) shall provide occupancy sensors and full cut-off/shielded fixtures. The maximum light pole height within any surface or structured parking lots adjacent to existing single family districts is 16-feet.

3. Individual Lighting Plans, including fixture types, shall be consistent with a Lighting Fixture Plan for the applicable category in this ordinance. The proposed Lighting Fixture Plan must provide for consistent and complementary fixture designs and styles throughout the PMD District.

I. ARCHITECTURAL REQUIREMENTS

1. For individual lot developments only, the developer shall submit a design package including, but not limited to, architectural elevations, colored renderings and building materials. The proposed package shall give consideration to creating a visually appealing development pattern consistent with the intent and purpose of this PMD District. Architectural information is to be reviewed and approved by the Planning and Zoning Commission.

2. Building facades should be articulated by using color, arrangement or change in materials to emphasize the façade elements. The planes of the exterior walls may be varied in height, depth or direction. Extremely long facades shall be designed with sufficient building articulation and landscaping to avoid a monotonous or overpowering appearance.

3. Building finish material types in Olia Village shall be generally specified as any combination of white, off-white, light grey, wood grain, or light beige. Accents are acceptable as dark grey, black, or dark bronze. Red, orange, or yellow brick or other bold color finish materials are prohibited. Masonry and glass are preferred. Metal, cementitious siding, and EFIS should not be used as the primary material on the building.

4. Trash enclosures: The location, material, and elevation of any trash enclosure will be as approved on the Site Development Plan. Trash receptacles shall be located indoors or be enclosed with an eight (8) foot high sight-proof enclosure with materials that match the adjacent structures and complemented by adequate landscaping as approved on the individual lot-specific landscape plans.

5. Mechanical equipment placed on the ground shall be adequately screened with six (6) foot high sight proof enclosures or to a height equal to the height of the equipment (whichever is greater).

6. Rooftop mechanical equipment shall be screened on roofs with architecturally designed, fully enclosed screening materials that complement the building design at a height equal to or greater than the height of the equipment.

7. Flat roof surfaces below 5 stories shall incorporate ballast, green roof, artificial turf, or medium tone colored membrane to reduce daytime glare for upper-level tenants in adjacent buildings.

J. ACCESS/ACCESS MANAGEMENT

1. Street and drives related to this development shall be designed and located as directed by the Department of Public Works.

2. The location of public streets within the PMD District shall be determined by the Site Concept Plan.

3. The location of lot access points shall be determined by individual lot-specific Site Development Plans within the PMD District.

4. Access to the development from external roadways shall be as shown on the Site Concept Plan and as directed by the City of Creve Coeur, the Missouri Department of Transportation, and St. Louis County Department of Transportation, as applicable.

5. Adequate sight distance shall be provided. If adequate sight distance cannot be provided at the access location(s), acquisition of right-of-way, reconstruction of pavement and other off-site improvements may be required to provide the required sight distance as required by the City of Creve Coeur and the agency in control of the right of way off which the access is proposed.

6. Driveway access to internal streets shall comply with City Code.

7. No construction-related parking shall be permitted within right-of-way or on an existing roadway. All construction related to parking shall be confined to the development's boundary.

8. Any improvements within the Missouri Department of Transportation (MoDOT) right-of-way will require a permit from MoDOT. The entrance geometries and drainage design shall be in accordance with MoDOT standards.

9. Any request to install a gate in this development must be approved by the City of Creve Coeur and the agency in control of the right-of-way off of which the entrance is constructed. No gate installation will be permitted on public right-of-way.

    a. If a gate is allowed to be installed on a street in the development, the street(s) within the development or that portion of the development that is gated shall be private.

K. PUBLIC/PRIVATE ROAD IMPROVEMENTS, INCLUDING PEDESTRIAN CIRCULATION

1. Approvals are to be obtained from the City of Creve Coeur Department of Public Works and/or the Missouri Department of Transportation as applicable.

2. The National Association of City Transportation Officials (NACTO) has an Urban Street Design Guide. All intersections of Olia Village shall conform to the principles of the NACTO Urban Street Design Guide.

3. Internal streets and sidewalks shall be private unless an agreement is reached and executed between the City of Creve Coeur and Olia Village whereby the City of Creve Coeur accepts the internal streets and/or sidewalks as public. All public streets shall be designed to meet the City of Creve Coeur's Code for the Development of Streets (Section 410.240), unless otherwise described herein.

4. Provide sidewalks, conforming to Americans with Disabilities Act (ADA) standards, along all frontages of the site and along internal roadways as shown on the Site Concept Plan. The sidewalk shall provide for future connectivity to adjacent developments and/or roadway projects. The sidewalk may be located within right-of-way controlled by another agency, if

permitted by that agency, or on private property within a sidewalk, maintenance, and utility easement dedicated to the City Creve Coeur for public use.

5. Pedestrian crossings for Olive Boulevard shall be provided as required by MoDOT.

6. Mid-block crossings internal to the PMD District shall be provided as shown on the approved Site Concept Plan, or as otherwise approved by the City's Traffic Engineer.

7. Obtain approvals from the City of Creve Coeur and Missouri Department of Transportation, as necessary, for locations of proposed curb cuts and access points, areas of new dedication, and roadway improvements.

8. Additional right-of-way and road improvements shall be provided, as required by the City of Creve Coeur and/or the Missouri Department of Transportation.

9. Provide a minimum 8-foot-wide shared use path for public use which connects to the existing sidewalk in right-of-way along the south side of Olive Boulevard.

    a. The location of the shared use path within the PMD District shall be as shown in the approved Site Concept Plan.

10. Pedestrian circulation to be as shown on the approved Site Concept Plan.

11. Public Street Design Standards:

a.	Minimum Right-Of-Way	26'
b.	Maximum Grade at Centerline	10%
c.	Minimum Grade at Centerline	1.0% Concrete
d.	Minimum Pavement Width (Back-to-Back of Curb)	26'
e.	Minimum Site Distance at Crest of Curve	150'
f.	Minimum Horizontal Radius of Centerline	150'
g.	Minimum Horizontal Tangent Distance Between Reverse Curves	None
h.	Sidewalks	As shown on approved Site Concept Plan
i.	Curb & Gutter	Vertical Or Lip (Rolled) Concrete

12. Public Street Pavement Standards:

    a. Concrete = minimum 8 inches on 4-inch compacted crushed limestone (typ. 1" minus rock)

13. Private Street Design Standards:

a.	Minimum Right-Of-Way	N/A
b.	Maximum Grade at Centerline	10%
c.	Minimum Grade at Centerline	1.0% Asphalt / 1.0% Concrete
d.	Minimum Pavement Width (Back-to-Back of Curb)	24’
e.	Minimum Site Distance at Crest of Curve	150’
f.	Minimum Horizontal Radius of Centerline	150’
g.	Minimum Horizontal Tangent Distance Between Reverse Curves	None
h.	Sidewalks	As shown on approved Site Concept Plan
i.	Curb & Gutter	Vertical Or Lip (Rolled) Concrete

14. Private Street Pavement Standards:

    a. Asphalt or Concrete. Pavement sections to be determined based upon recommendations from Geotechnical Report prepared for this development.

L. TRAFFIC IMPACT STUDY

1. External Roadway Network:

    a. The developer shall provide a traffic impact study as directed by the City of Creve Coeur & the Missouri Department of Transportation for impacts to the existing adjacent public roadway network. The scope of the study shall include external circulation and may be limited to specific impacts, such as the need for additional lanes, entrance configuration, geometries, sight distance, traffic signal modifications or other improvements required, as long as the density of the proposed development remains consistent with the Site Concept Plan. The proposed trip generations included as part of this study shall be used as a baseline for the overall development of the PMD District and shall not be reviewed or required to be adhered to for each individual lot development. Should the actual trip generations for the entire PMD District increase by more than 10% from the density assumed in the traffic impact study approved by MoDOT within five (5) years of the initial approved Site Concept Plan, an updated traffic study may be required by the City of Creve Coeur.

2. Internal Roadway Network:

    a. Both the City and the developer acknowledge that this development will include a built environment that is meant to encourage pedestrian activity and improve pedestrian mobility. This approach will include intentional roadway & sidewalk design geometries to be established to promote pedestrian access over vehicular where possible, while respecting the safety of both pedestrians and vehicles as well as emergency personnel. This will include a design which considers how people interact with the space to increase access for all community members, including ADA compliancy. As such, a comprehensive

traffic impact study including traffic counts, trip generations, signal warrants, accessory warrants, etc. for the internal roadway network will not be required. Approval will be required by the City's Traffic Engineer, which may include more detailed analysis of isolated locations.

M. MISCELLANEOUS

1. Kiosks are allowed in the PMD District provided they do not impede pedestrian traffic on the sidewalk and meet ADA accessibility requirements. Kiosks can be an arrangement of mobile units, fixed units, or a mixture of both joined together to form a structure not to exceed 100 sq. feet. Uses within the kiosk will be the approved uses in this Attachment A. Locations and numbers of kiosks shall be as approved on the Site Concept Plan for the PMD District.

2. Loading docks, overhead doors and service entries will be permitted only on the side or rear of a tenant space. Deliveries shall be made on the side or rear of a tenant space with the exception of designated street delivery and loading areas as approved on the Site Concept Plan.

3. The height of retaining walls required for the development shall conform to the approved Site Concept Plan or Site Development Plan corresponding with each phase, as appropriate.

4. Stream Buffer Protection Ordinance Requirements:

    a. Stream bank shall be defined as the "ordinary high-water mark" as defined by the US Army Corps of Engineers.

    b. Existing impervious encroachments into existing Stream Buffer Protection setbacks from any existing stream shall not be required to meet the Stream Buffer Protection Regulations in Chapter 430 of the City of Creve Coeur code regardless of whether improvements are proposed to be made to said existing impervious areas. No further impervious encroachment into existing Stream Buffer setbacks will be allowed.

5. The addition of Electric Vehicle (EV) charging stations will be considered where appropriate during the Site Development Plan stage for individual lots.

6. Internal bus stops shall not be required within the development. The existing bus stop along the south side of Olive Boulevard, west of Pavilion shall be upgraded to include an architectural bus shelter meeting the following minimum criteria as acceptable to MoDOT & Metro:

N. Pre-finished or painted steel 6' x 13' bus shelter with wind screen side, rear panels and shed roof. Shelter accessories to include a coordinating bench and waste receptacle. New 7' x 14' slab to match adjacent sidewalk finish and provide flush connection. The final bus stop shelter design will follow the Site Development Plan approval process.

O. PUBLIC ART REQUIREMENTS

1. A separate public art package shall be required and follow the City of Creve Coeur review processes for public art which include review and recommendation by the City's Arts Committee to the Planning and Zoning Commission with City Council approval of public art agreements for public access easements and owner maintenance.

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT
TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	2012 NAICS Title	Zoning District - Olia PMD			
		A Main	B Mixed	C Office	D Residential
311351	Chocolate and Confectionery Manufacturing from Cacao Beans	P	P		
311811	Retail Bakeries	P	P		
311812	Commercial Bakeries	P	P		
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing	P	P		
312120	Breweries	P	P		
312140	Distilleries	P	P		
441110	New Car Dealers (No outside surface storage or display allowed)	P	P		
441228	Motorcycle, ATV, and All Other Motor Vehicle Dealers (No outside surface storage or display allowed)	P	P		
CC442100	All Drive-in and Drive Through Services (excluding Food Services)		P		
442110	Furniture Stores	P	P		
442210	Floor Covering Stores	P	P		
442291	Window Treatment Stores	P	P		
442299	All Other Home Furnishings Stores	P	P		
443141	Household Appliance Stores	P	P		
443142	Electronics Stores	P	P		
444120	Paint and Wallpaper Stores	P	P		
445110	Supermarkets and Other Grocery (except Convenience) Stores		P		
445120	Convenience Stores	P	P		
445210	Meat Markets	P	P		
445220	Fish and Seafood Markets	P	P		
445230	Fruit and Vegetable Markets	P	P		
445291	Baked Goods Stores	P	P		
445292	Confectionery and Nut Stores	P	P		
445299	All Other Specialty Food Stores	P	P		
445310	Beer, Wine, and Liquor Stores	P	P		
446110	Pharmacies and Drug Stores	P	P		
446120	Cosmetics, Beauty Supplies and Perfume Stores	P	P		
446130	Optical Goods Stores	P	P		
446191	Food (Health) Supplement Stores	P	P		
446199	All Other Health and Personal Care Stores	P	P		
448110	Men's Clothing Stores	P	P		
448120	Women's Clothing Stores	P	P		
448130	Children's and Infants' Clothing Stores	P	P		
448140	Family Clothing Stores	P	P		
448150	Clothing Assessories Stores	P	P		
448190	Other Clothing Stores	P	P		
448210	Shoe Stores	P	P		
448310	Jewelry Stores	P	P		
448320	Luggage and Leahter Goods Stores	P	P		
451110	Sporting Goods Stores (except those exclusively engaged in the sale of firearms and ammunition)	P	P		
451120	Hobby, Toy, and Game Stores	P	P		
451130	Sewing, Needlework, and Piece Goods Stores	P	P		
451140	Musical Instrument and Supplies Stores	P	P		
451211	Book Stores	P	P		
451212	News Dealers and Newsstands	P	P		
452111	Department Stores (except Discount Department Stores)		P		
452112	Discount Department Stores		P		
452910	Warehouse Clubs and Supercenters		P		
452990	All Other General Merchandise Stores	P	P		
453110	Florists	P	P		
453210	Office Supplies and Stationary Stores	P	P		
453220	Gift, Novelty, and Souvenir Stores	P	P		
453310	Used Merchandise Stores (No building materials, outside sales, exchange or drop-off of used goods)	P	P		
453910	Pet and Pet Supplies Stores	P	P		
453920	Art Dealers	P	P		
453991	Tobacco Stores	P	P		
CC453999	Comprehensive or Medical Marijuana Dispensary Facility as defined under Section 405.120, including Microbusiness Marijuana Dispensary Facility	P	P		
492210	Local Messengers and Local Delivery	P	P		
512240	Sound Recording Industries	P	P	P	
512290	Other Sound Recording Industries	P	P	P	

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT
TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	2012 NAICS Title	Zoning District - Olia PMD			
		A Main	B Mixed	C Office	D Residential
515111	Radio Networks	P	P	P	
518210	Data Processing, Hosting, and Related Services	P*	P	P	
519110	News Syndicates	P*	P	P	
519120	Libraries and Archives	P	P	P	
519130	Internet Publishing and Broadcasting and Web Search Portals	P*	P	P	
519190	All Other Information Services	P*	P	P	
521110	Monetary Authorities-Central Bank	P	P	P	
522110	Commercial Banking	P	P	P	
522120	Savings Institutions	P	P	P	
522130	Credit Unions	P	P	P	
522190	Other Depository Credit Intermediation	P	P	P	
522210	Credit Card Issuing	P	P	P	
522220	Sales Financing	P	P	P	
522291	Consumer Landing	P	P	P	
522292	Real Estate Credit	P	P	P	
522293	International Trade Financing	P	P	P	
522294	Secondary Market Financing	P	P	P	
522310	Mortgage and Non-Mortgage Loan Brokers	P*	P	P	
522320	Financial Transactions Processing, Reserve and Clearinghouse Activities	P	P	P	
523110	Investment Banking and Securities Dealing	P*	P	P	
523120	Securities Brokerage	P*	P	P	
523130	Commodity Contracts Dealing	P*	P	P	
523140	Commodity Contracts Brokerage	P*	P	P	
523210	Securities and Commodity Exchanges	P*	P	P	
523910	Miscellaneous Intermediation	P*	P	P	
523920	Portfolio Management	P	P	P	
523930	Investment Advice	P	P	P	
523991	Trust, Fiduciary, and Custody Activities	P	P	P	
523999	Miscellaneous Financial Investment Activities	P	P	P	
524113	Direct Life Insurance Carriers	P	P	P	
524114	Direct Health and Medical Insurance Carriers	P	P	P	
524126	Direct Property and Casualty Insurance Carriers	P	P	P	
524127	Direct Title Insurance Carriers	P	P	P	
524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	P	P	P	
524130	Reinsurance Carriers	P*	P	P	
524210	Insurance Agencies and Brokerages	P	P	P	
524291	Claims Adjusting	P*	P	P	
524292	Third Party Administration of Insurance and Pension Funds	P*	P	P	
524298	All Other Insurance Related Activities	P	P	P	
525110	Pension Funds	P*	P	P	
525120	Health and Welfare Funds	P*	P	P	
525190	Other Insurance Funds	P*	P	P	
525910	Open-End Investment Funds	P*	P	P	
525920	Trusts, Estates, and Agency Accounts	P*	P	P	
525990	Other Financial Vehicles	P*	P	P	
531110	Lessors of Non-Residential Buildings and Dwellings	P	P	P	
531120	Lessors of Non-Residential Buildings (except Miniwarehouses)	P	P	P	
531190	Lessors of Other Real Estate Property	P	P	P	
531210	Offices of Real Estate Agents and Brokers	P	P	P	
531311	Residential Property Managers	P	P	P	
531312	Non-Residential Property Managers	P	P	P	
531320	Offices of Real Estate Appraisers	P	P	P	
531390	Other Activities Related to Real Estate	P	P	P	
531311	Residential Property Managers	P	P	P	
531312	Non-Residential Property Managers	P	P	P	
531320	Offices of Real Estate Appraisers	P	P	P	
531390	Other Activities Related to Real Estate	P	P	P	
532210	Consumer Electronics and Appliances Rental	P	P		
532220	Formal Wear and Costume Rental	P	P		
532230	Video Tape and Disc Rental	P	P		
532291	Home Health Equipment Rental	P	P		
541110	Offices of Lawyers	P	P	P	
541120	Office of Notaries	P	P	P	
541191	Title Abstract and Settlement Offices	P	P	P	
541199	All Other Legal Services	P	P	P	
541211	Offices of Certified Public Accountants	P	P	P	
541213	Tax Preparation Services	P	P	P	
541214	Payroll Services	P*	P	P	
541219	Other Accounting Services	P*	P	P	

* Use shall note be permitted in the street facing ground floor within Main Street District

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT
TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	2012 NAICS Title	Zoning District - Olia PMD			
		A Main	B Mixed	C Office	D Residential
541310	Architectural Services	P	P	P	
541320	Landscape Architectural Services	P	P	P	
541330	Engineering Services	P	P	P	
541340	Drafting Services	P	P	P	
541350	Building Inspection Services	P	P	P	
541360	Geophysical Surveying and Mapping Services	P	P	P	
541370	Surveying and Mapping (except Geophysical) Services	P	P	P	
541380	Testing Laboratories	P*	P	P	
541410	Interior Design Services	P	P	P	
541420	Industrial Design Services	P	P	P	
541430	Graphic Design Services	P	P	P	
541490	Other Specialized Design Services	P	P	P	
541511	Custom Computer Programming Services	P	P	P	
541512	Computer Systems Design Services	P	P	P	
541513	Computer Facilities Management Services	P	P	P	
541519	Other Computer Related Services	P	P	P	
541611	Administrative Management and General Management Consulting Services	P	P	P	
541612	Human Resources Consulting Services	P	P	P	
541613	Marketing Consulting Services	P	P	P	
541614	Process, Physical Distribution, and Logistics Consulting Services	P	P	P	
541618	Other Management Consulting Services	P	P	P	
541620	Environmental Consulting Services	P	P	P	
541690	Other Scientific and Technical Consulting Services	P	P	P	
541711	Research and Development in Biotechnology	P*	P		
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	P*	P		
541720	Research and Development in the Social Sciences and Humanities	P*	P		
541810	Advertising Agencies	P	P	P	
541820	Public Relations Agencies	P	P	P	
541830	Media Buying Agencies	P	P	P	
541840	Media Representatives	P	P	P	
541850	Outdoor Advertising	P	P	P	
541860	Direct Mail Advertising	P	P	P	
541870	Advertising Material Distribution Services	P	P	P	
541890	Other Services Related to Advertising	P	P	P	
541910	Marketing Research and Public Opinion Polling	P	P	P	
541921	Photography Studios, Portrait	P	P	P	
541922	Commercial Photography	P	P	P	
541930	Translation and Interpretation Services	P	P	P	
541940	Veterinary Services	P	P	P	
541990	All Other Professional, Scientific, and Technical Services	P	P	P	
551111	Offices of Bank Holding Companies	P*	P	P	
551112	Offices of Other Holding Companies	P*	P	P	
551114	Corporate, Subsidiary, and Regional Managing Offices	P*	P	P	
CC561100	Business Enterprise Center (as defined in Chapter 405.120, Definition of Terms)	P	P	P	
561110	Office Administrative Services	P	P	P	
561210	Facilities Support Services	P	P	P	
561311	Employment Placement Agencies	P	P	P	
561312	Executive Search Services	P	P	P	
561320	Temporary Help Services	P	P	P	
561330	Professional Employer Organizations	P	P	P	
561410	Document Preparation Services	P*	P	P	
561421	Telephone Answering Service	P*	P	P	
561422	Telemarketing Bureaus and Other Contact Centers	P*	P	P	
561431	Private Mail Centers	P	P	P	
561439	Other Business Service Centers (including Copy Shops)	P	P	P	
561440	Collection Agencies	P*	P	P	
561450	Credit Bureaus	P*	P	P	
561491	Repossession Services	P*	P	P	
561492	Court Reporting and Stenotype Services	P*	P	P	
561499	All Other Business Support Services	P	P	P	
561510	Travel Agencies	P	P	P	
561520	Tour Operators	P	P	P	
561591	Convention and Visitors Bureaus	P	P	P	
561599	All Other Travel Arrangement and Reservation Services	P	P	P	
621111	Offices of Physicians (except Mental Health Specialists)	P	P	P	
621112	Offices of Physicians, Mental Health Specialists	P	P	P	
621210	Offices of Dentists	P	P	P	

* Use shall note be permitted in the street facing ground floor within Main Street District

OLIA VILLAGE PLANNED MIXED-USE DEVELOPMENT
TABLE A - PERMITTED USES

P = Permitted Use					
Use Code	**2012 NAICS Title**	**Zoning District - Olia PMD**			
		A Main	**B Mixed**	**C Office**	**D Residential**
621310	Offices of Chiropractors	P	P	P	
621320	Offices of Optometrists	P	P	P	
621330	Offices of Mental Health Practioners (except Physicians)	P	P	P	
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists	P	P	P	
621391	Office of Podiatrists	P	P	P	
621399	Offices of All Other Miscellaneous Health Practitioners	P	P	P	
621410	Family Planning Centers			P	
621420	Outpatient Mental Health and Substance Abuse Centers			P	
621491	HMO Medical Centers			P	
621492	Kidney Dialysis Centers			P	
621493	Freestanding Ambulatory Surgical and Emergency Centers			P	
621498	All Other Outpatient Care Centers			P	
621511	Medical Laboratories			P	
621512	Diagnostic Imaging Centers			P	
621610	Home Health Care Services			P	
713940	Fitness and Recreational Sports Centers	P	P	P	
713950	Bowling Centers	P	P		
713990	All Other Amusement and Recreation Industries (except gun and shooting clubs)	P	P		
721110	Hotels (except Casino Hotels) and Motels	P	P		
722410	Drinking Places (Alcoholic Beverages)	P	P		
722511	Full-Service Restaurants (with drive-thru only permitted in Mixed District)	P	P		
722513	Limited-Service Restaurants (with drive-thru only permitted in Mixed District)	P	P		
722514	Cafeterias, Grill Buffets, and Buffets (with drive-thru only permitted in Mixed District)	P	P		
722515	Snack and Non-Alcoholic Beverage Bars (with drive-thru only permitted in Mixed District)	P	P		
811430	Footwear and Leather Goods Repair	P	P		
811490	Other Personal and Household Goods Repair and Maintenance	P	P		
812111	Barber Shops	P	P		
812112	Beauty Salons	P	P		
812113	Nail Salons	P	P		
812191	Diet and Weight Reducing Centers	P	P		
812199	Other Personal Care Services (except escort services, massage parlors, steam baths, tattoo parlors, permanent makeup salons and Turkish baths)	P	P		
812922	One-Hour Photofinishing	P	P		
813930	Labor Unions and Similar Labor Organizations	P	P	P	
813940	Political Organizations	P	P	P	
813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	P	P	P	
814110	Private Households, Single-Family Residential				P
CC814111	Attached Single-Family Residential (townhouses or duplexes)				P
CC814120	Low-Density Multifamily Residential (up to 6 single family units per acre)	P			
CC814130	Medium-Density Multifamily Residential (up to 20 single family units per acre)	P			
812930	Parking Lots and Garages	P	P	P	
813319	Other Social Advocacy Organizations	P	P	P	
813410	Civic and Social Organizations	P	P	P	
813910	Business Associations	P	P	P	
813920	Professional Organizations	P	P	P	
CC814140	High-Density Multifamily Residential (more than 20 single family units per acre)	P	P		
921110	Executive Offices	P	P	P	
921120	Legislative Bodies	P	P	P	
921130	Public Finance Activities	P	P	P	
921140	Executive and Legislative Offices, Combined	P	P	P	
921190	Other General Government Support	P	P	P	
922110	Courts	P	P	P	
922120	Police Protection	P	P	P	
922130	Legal Counsel and Prosecution	P	P	P	
922160	Fire Protection	P	P	P	
922190	Other Justice, Public Order, and Safety Activities	P	P	P	
923110	Administration of Education Programs	P	P	P	

SITE CONCEPT PLAN
OLIA VILLAGE

CREVE COEUR, MO

A TRACT OF LAND BEING PART OF LOTS 9, 10, 11 AND 12 OF MAJOR THOMAS SUBDIVISION
SITUATED IN THE SOUTHWEST QUARTER AND THE NORTHWEST QUARTER OF SECTION 1
TOWNSHIP 45 NORTH, RANGE 5 EAST, CITY OF CREVE COEUR, ST. LOUIS COUNTY, MISSOURI

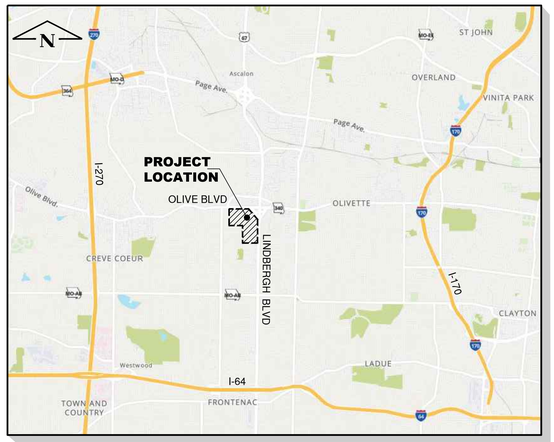
SEPTEMBER 26, 2023

SITE INFORMATION

SITE ACREAGE	=	95.8 AC ±
SITE ADDRESS	=	10300 OLIVE BOULEVARD, CREVE COEUR, MO 63141
OWNER	=	10300 OLIVE, LLC
LOCATOR NUMBER	=	17M420026
EXISTING ZONING	=	RO - RESEARCH & PARK DISTRICT
PROPOSED ZONING	=	PMD - PLANNED MIXED-USE DEVELOPMENT
CITY	=	CREVE COEUR, MO
ZIP CODE	=	63141
FEMA FLOOD MAP	=	29189C0191K (REVISED 2/4/2015) (ZONE X) 29189C0192K (REVISED 2/4/2015) (ZONE X)
WUNNENBERG MAP	=	PAGE 24, SECTIONS 17T & 18T
SCHOOL DISTRICT	=	LADUE SCHOOL DISTRICT
FIRE DISTRICT	=	CREVE COEUR FIRE DISTRICT
WATER SHED	=	RIVER DES PERES WATERSHED, DEER CREEK SUB-SHED
SEWER DISTRICT	=	METROPOLITAN ST. LOUIS SEWER DISTRICT
CABLE SERVICE	=	CHARTER COMMUNICATIONS
ELECTRIC SERVICE	=	AMEREN MISSOURI
GAS SERVICE	=	SPIRE ENERGY
PHONE SERVICE	=	AT&T
WATER SERVICE	=	MISSOURI AMERICAN WATER COMPANY
WATER SERVICE	=	CITY OF ST. LOUIS WATER DEPARTMENT (TRANSMISSION MAINS)
BUILDING TYPE	=	N/A (NO BUILDINGS PROPOSED)
BLDG. CONST. TYPE	=	N/A (NO BUILDINGS PROPOSED)

OWNER / DEVELOPER :

10300 OLIVE, LLC
1034 S. BRENTWOOD, SUITE 2300 PH-1D
ST. LOUIS, MO 63117
MATT PFUND
(618) 692-9502



VICINITY MAP
(NOT TO SCALE)

SHEET INDEX

C-100	TITLE SHEET
C-101	SITE OVERVIEW
C-102	PARCEL PLAN
C-103	SETBACK & BUFFER PLAN
C-104	PHASING PLAN
C-105	GRADING PLAN
C-106	UTILITY & DRAINAGE PLAN
C-107	STREET PLAN
C-108	PEDESTRIAN PLAN
C-109	SITE SECTIONS
A-101	ARCHITECTURAL SITE PLAN
A-102	BIRD'S EYE VIEW
A-103.1-4	SITE LIGHTING
A-104	ELEVATIONS
A-105	MATERIALS
A-106	RENDERED VIEW
LD-100	TREE PRESERVATION PLAN
L-140	OVERALL CONCEPT PLANTING PLAN
L-141	ENLARGEMENT PLANTING PLANS

FULL BUILD-OUT SITE CALCULATION NOTES

1. GROSS FLOOR AREA RATIO (FAR) = 0.59
2. IMPERVIOUS LAND COVERAGE SUMMARY:
   IMPERVIOUS = 51.3 AC (53.6%)
   PERVIOUS = 44.5 AC (46.4%)
   TOTAL SITE = 95.8 AC (100%)
3. LAND SUMMARY :
   LOT ACREAGE = 64.7 AC
   COMMON GROUND = 25.3 AC
   PUBLIC ROADWAY = 5.8 AC
   TOTAL SITE = 95.8 AC

UTILITY NOTE :

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND INFORMATION, AND, THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NON-EXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE FACILITIES, STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS. THE UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319 RSMo.

DISCLAIMER :

CRAWFORD, MURPHY & TILLY, INC. AND THE UNDERSIGNED ENGINEER HAVE NO RESPONSIBILITY FOR SERVICES PROVIDED BY OTHERS TO IMPLEMENT THE IMPROVEMENTS SHOWN ON THIS PLAN AND ALL OTHER DRAWINGS WHERE THE UNDERSIGNED ENGINEER'S SEAL APPEARS. THE CONSTRUCTION MEANS AND METHODS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND CONTRACTOR. CRAWFORD, MURPHY & TILLY, INC. HAS NO RESPONSIBILITY TO VERIFY FINAL IMPROVEMENTS AS SHOWN ON THIS PLAN UNLESS SPECIFICALLY ENGAGED AND AUTHORIZED TO DO SO BY THE OWNER OR CONTRACTOR.

PREPARED BY:
CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-CONCEPT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	---

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SHEET TITLE

TITLE SHEET

C-100

SHEET OF --

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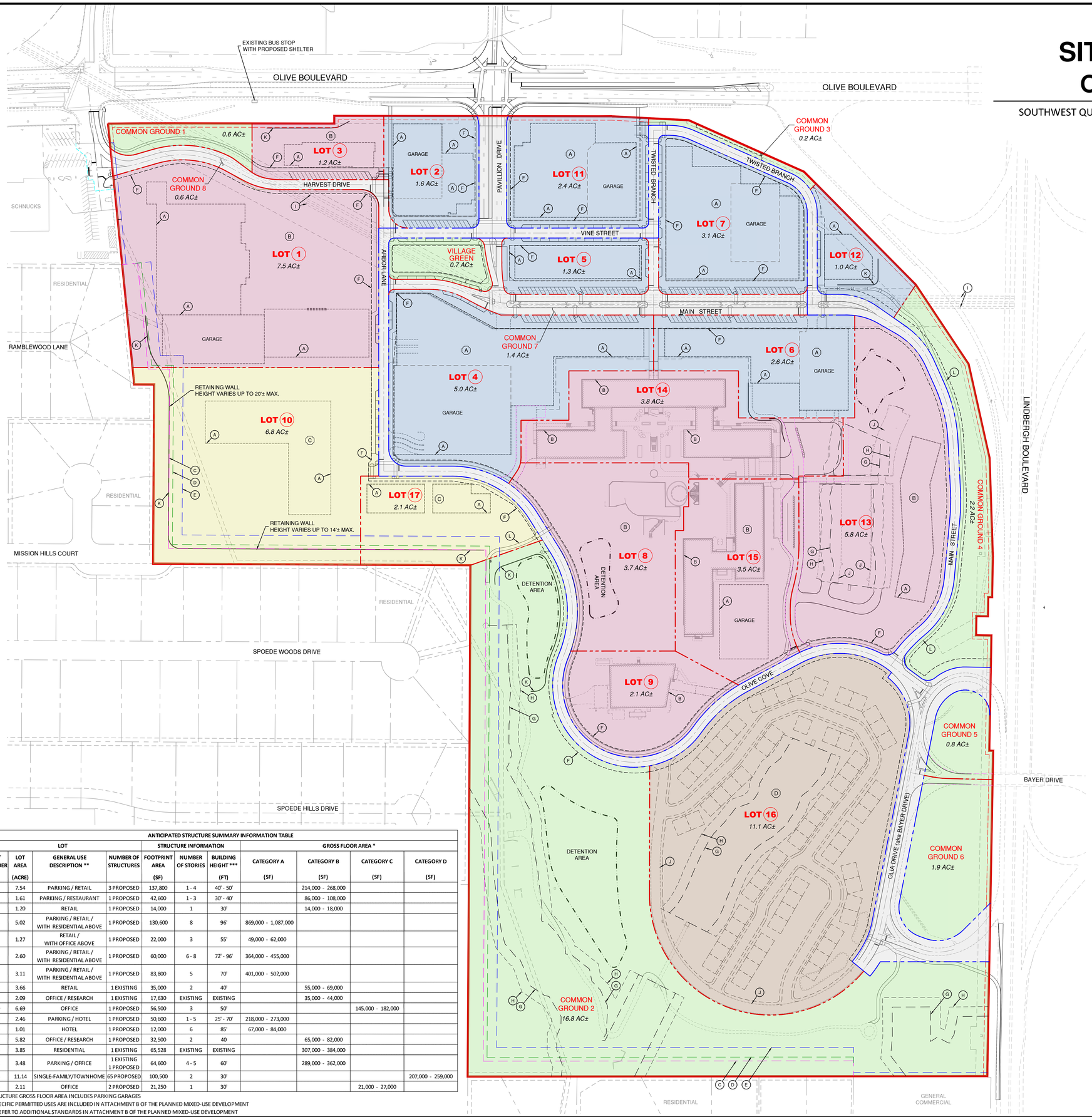
Date: Tuesday, September 26, 2023 5:32:21 AM

SITE OVERVIEW
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT
- (A) CATEGORY A - MAIN STREET DEVELOPMENT
- (B) CATEGORY B - MIXED USE DEVELOPMENT
- (C) CATEGORY C - GENERAL OFFICE DEVELOPMENT
- (D) CATEGORY D - RESIDENTIAL DEVELOPMENT

KEYNOTES

- (A) CONCEPTUAL BUILDING FOOTPRINT (TYP)
- (B) EXISTING BUILDING TO REMAIN AND BE REPURPOSED (TYP)
- (C) 40' RESIDENTIAL BUFFER YARD (TYP)
- (D) 10' RESIDENTIAL BUILDING SETBACK (BEYOND BUFFER)
- (E) 35' COMMERCIAL BUILDING SETBACK (BEYOND BUFFER)
- (F) 10' MINIMUM PROPOSED ROADWAY IMPROVEMENT MAINTENANCE UTILITY SEWER SIDEWALK EASEMENT (PRIMUSSE)
- (G) 50' NATURAL VEGETATION STREAM BUFFER
- (H) 25' NO-IMPERVIOUS STREAM BUFFER
- (I) EXISTING STL WATER CO. WATERMAIN CONDUITS
- (J) EXISTING PARKING LOT / DRIVE TO REMAIN
- (K) PROPOSED SITE RETAINING WALL (TYP) MECHANICALLY STABILIZED EARTH OR BLOCK GRAVITY WALL (TO BE DETERMINED UPON FINAL DESIGN)
- (L) PROPOSED WALKING TRAIL OR SIDEWALK (TYP) SEE PEDESTRIAN MOBILITY PLAN

ANTICIPATED STRUCTURE SUMMARY INFORMATION TABLE

LOT				STRUCTURE INFORMATION			GROSS FLOOR AREA *			
LOT NUMBER	LOT AREA (ACRE)	GENERAL USE DESCRIPTION **	NUMBER OF STRUCTURES	FOOTPRINT AREA (SF)	NUMBER OF STORIES	BUILDING HEIGHT *** (FT)	CATEGORY A (SF)	CATEGORY B (SF)	CATEGORY C (SF)	CATEGORY D (SF)
#1	7.54	PARKING / RETAIL	3 PROPOSED	137,800	1 - 4	40' - 50'		214,000 - 268,000		
#2	1.61	PARKING / RESTAURANT	1 PROPOSED	42,600	1 - 3	30' - 40'		86,000 - 108,000		
#3	1.20	RETAIL	1 PROPOSED	14,000	1	30'		14,000 - 18,000		
#4	5.02	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	130,600	8	96'	869,000 - 1,087,000			
#5	1.27	RETAIL / WITH OFFICE ABOVE	1 PROPOSED	22,000	3	55'	49,000 - 62,000			
#6	2.60	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	60,000	6 - 8	72' - 96'	364,000 - 455,000			
#7	3.11	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	83,800	5	70'	401,000 - 502,000			
#8	3.66	RETAIL	1 EXISTING	35,000	2	40'		55,000 - 69,000		
#9	2.09	OFFICE / RESEARCH	1 EXISTING	17,630	EXISTING	EXISTING		35,000 - 44,000		
#10	6.69	OFFICE	1 PROPOSED	56,500	3	50'			145,000 - 182,000	
#11	2.46	PARKING / HOTEL	1 PROPOSED	50,600	1 - 5	25' - 70'	218,000 - 273,000			
#12	1.01	HOTEL	1 PROPOSED	12,000	6	85'	67,000 - 84,000			
#13	5.82	OFFICE / RESEARCH	1 PROPOSED	32,500	2	40		65,000 - 82,000		
#14	3.85	RESIDENTIAL	1 EXISTING	65,528	EXISTING	EXISTING		307,000 - 384,000		
#15	3.48	PARKING / OFFICE	1 EXISTING 1 PROPOSED	64,600	4 - 5	60'		289,000 - 362,000		
#16	11.14	SINGLE-FAMILY/TOWNHOME	65 PROPOSED	100,500	2	30'				207,000 - 259,000
#17	2.11	OFFICE	2 PROPOSED	21,250	1	30'			21,000 - 27,000	

* STRUCTURE GROSS FLOOR AREA INCLUDES PARKING GARAGES
** SPECIFIC PERMITTED USES ARE INCLUDED IN ATTACHMENT B OF THE PLANNED MIXED-USE DEVELOPMENT
*** REFER TO ADDITIONAL STANDARDS IN ATTACHMENT B OF THE PLANNED MIXED-USE DEVELOPMENT

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Date: Tuesday, September 26, 2023 3:59:44 AM

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

N

100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-CONCEPT-PLAN.DWG
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DRAWN BY:	JFM
CHECKED BY:	CJS
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SHEET TITLE

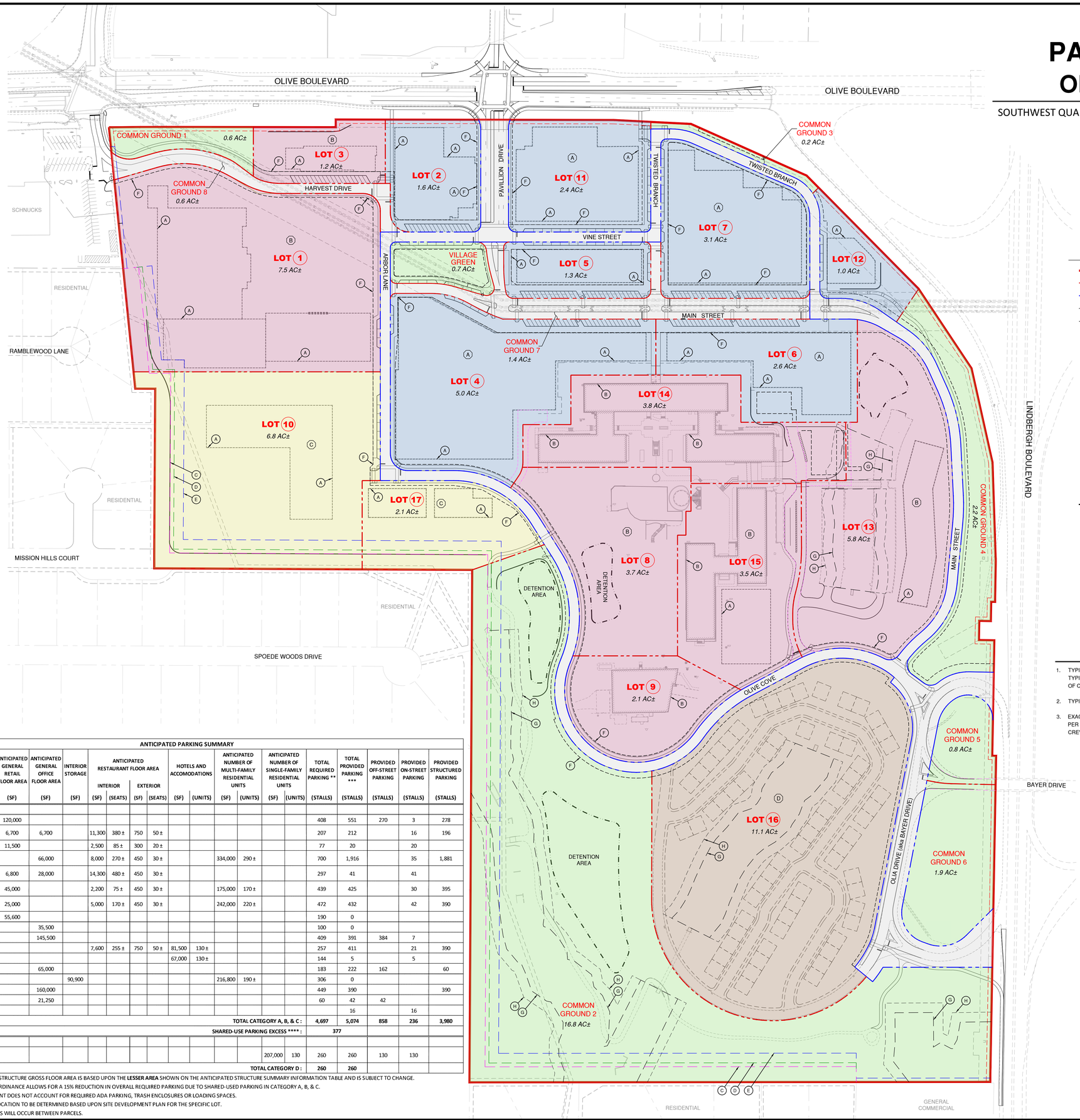
SITE OVERVIEW

C-101

SHEET - OF --

PARCEL PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT
- (A) CATEGORY A - MAIN STREET DEVELOPMENT
- (B) CATEGORY B - MIXED USE DEVELOPMENT
- (C) CATEGORY C - GENERAL OFFICE DEVELOPMENT
- (D) CATEGORY D - RESIDENTIAL DEVELOPMENT

KEYNOTES

- (A) CONCEPTUAL BUILDING FOOTPRINT (TYP)
- (B) EXISTING BUILDING TO REMAIN AND BE REPURPOSED (TYP)
- (C) 40' RESIDENTIAL BUFFER YARD (TYP)
- (D) 10' RESIDENTIAL BUILDING SETBACK (BEYOND BUFFER)
- (E) 35' COMMERCIAL BUILDING SETBACK (BEYOND BUFFER)
- (F) 10' SETBACK (TYP)
- (G) 50' NATURAL VEGETATION BUFFER
- (H) 25' NO-IMPERVIOUS BUFFER

PARKING NOTES

1. TYPICAL PERPINDICULAR PARKING STALLS ARE 9' WIDE x 19' LONG. TYPICAL ANGLED PARKING (60°) STALLS ARE 9' WIDE x 21' LONG TO FACE OF CURB (LENGTH MEASURED PERPINDICULAR TO FACE OF CURB).
2. TYPICAL PARALLEL PARKING STALLS ARE 9' WIDE x 23' LONG.
3. EXACT NUMBER AND LOCATION OF ADA STALLS TO BE DETERMINED PER THE FINAL LOT LAYOUT AND WILL MEET THE REQUIREMENTS OF CREVE COEUR AND FEDERAL ACCESSIBILITY DESIGN STANDARDS.

ANTICIPATED PARKING SUMMARY

LOT	GENERAL USE DESCRIPTION	ANTICIPATED GENERAL RETAIL FLOOR AREA (SF)	ANTICIPATED GENERAL OFFICE FLOOR AREA (SF)	INTERIOR STORAGE (SF)	ANTICIPATED RESTAURANT FLOOR AREA INTERIOR (SF)	INTERIOR (SEATS)	EXTERIOR (SF)	EXTERIOR (SEATS)	HOTELS AND ACCOMODATIONS (SF)	(UNITS)	ANTICIPATED NUMBER OF MULTI-FAMILY RESIDENTIAL UNITS (UNITS)	ANTICIPATED NUMBER OF SINGLE-FAMILY RESIDENTIAL UNITS (UNITS)	TOTAL REQUIRED PARKING ** (STALLS)	TOTAL PROVIDED PARKING *** (STALLS)	PROVIDED OFF-STREET PARKING (STALLS)	PROVIDED ON-STREET PARKING (STALLS)	PROVIDED STRUCTURED PARKING (STALLS)
CATEGORY A, B, & C																	
#1	RETAIL	120,000											408	551	270	3	278
#2	RESTAURANT / RETAIL / OFFICE	6,700	6,700		11,300	380 ±	750	50 ±					207	212		16	196
#3	RESTAURANT / RETAIL	11,500			2,500	85 ±	300	20 ±					77	20		20	
#4	RETAIL / RESIDENTIAL / MULTI-FAMILY		66,000		8,000	270 ±	450	30 ±			334,000	290 ±	700	1,916		35	1,881
#5	RETAIL / RESTAURANT / OFFICE	6,800	28,000		14,300	480 ±	450	30 ±					297	41		41	
#6	RETAIL / RESTAURANT / MULTI-FAMILY	45,000			2,200	75 ±	450	30 ±			175,000	170 ±	439	425		30	395
#7	RETAIL / RESTAURANT / MULTI-FAMILY	25,000			5,000	170 ±	450	30 ±			242,000	220 ±	472	432		42	390
#8	RETAIL	55,600											190	0			
#9	OFFICE / RESEARCH		35,500										100	0			
#10	OFFICE		145,500										409	391	384	7	
#11	HOTEL & ACCOMODATIONS				7,600	255 ±	750	50 ±	81,500	130 ±			257	411		21	390
#12	HOTEL & ACCOMODATIONS								67,000	130 ±			144	5		5	
#13	OFFICE / RESEARCH		65,000										183	222	162		60
#14	STORAGE / MULTI-FAMILY			90,900							216,800	190 ±	306	0			
#15	OFFICE		160,000										449	390			390
#17	OFFICE		21,250										60	42	42		
--	VILLAGE GREEN													16		16	
													TOTAL CATEGORY A, B, & C :	**4,697**	**5,074**	**858**	**236**	**3,980**
													SHARED-USE PARKING EXCESS ** :**	**377**			
CATEGORY D																	
#16	SINGLE-FAMILY / TOWNHOME											207,000 130	260	260	130	130	
													TOTAL CATEGORY D :	**260**	**260**			

* THE ANTICIPATED NON-PARKING STRUCTURE GROSS FLOOR AREA IS BASED UPON THE **LESSER AREA** SHOWN ON THE ANTICIPATED STRUCTURE SUMMARY INFORMATION TABLE AND IS SUBJECT TO CHANGE.
** THE PROPOSED DEVELOPMENT ORDINANCE ALLOWS FOR A 15% REDUCTION IN OVERALL REQUIRED PARKING DUE TO SHARED-USED PARKING IN CATEGORY A, B, & C.
*** TOTAL PROVIDED PARKING COUNT DOES NOT ACCOUNT FOR REQUIRED ADA PARKING, TRASH ENCLOSURES OR LOADING SPACES.
EXACT PARKING COUNTS AND LOCATION TO BE DETERMINED BASED UPON SITE DEVELOPMENT PLAN FOR THE SPECIFIC LOT.
**** SHARED PARKING AGREEMENTS WILL OCCUR BETWEEN PARCELS.

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CONSULTANTS:

SITE CONCEPT PLAN

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100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	!SITE-CONCEPT-PLAN.DWG
DESIGNED BY:	TME/JFM
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SHEET TITLE

PARCEL PLAN

C-102

SHEET - OF --

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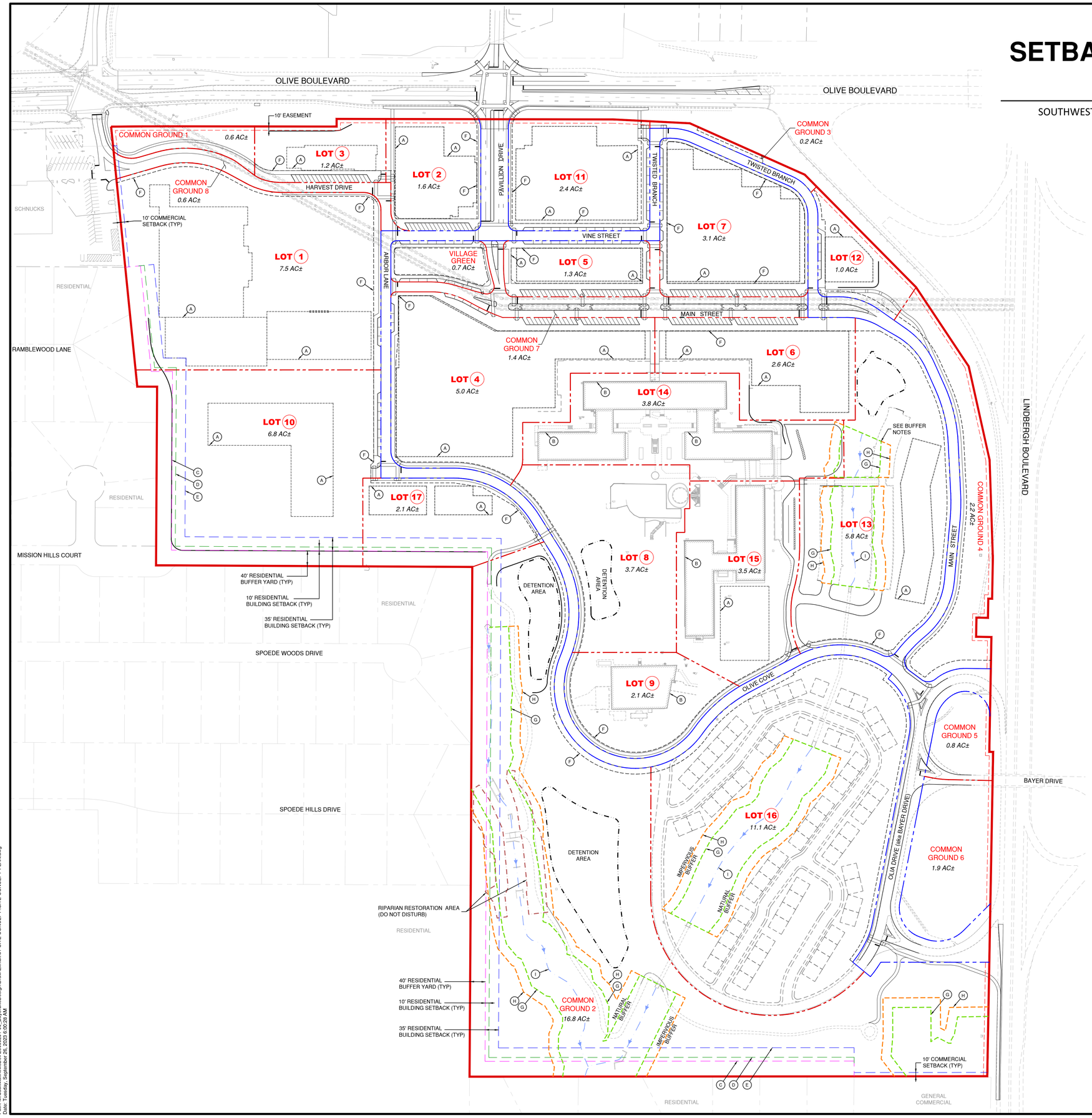
SETBACK & BUFFER PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT
- PROPOSED BUILDING SETBACK

KEYNOTES

- (A) CONCEPTUAL BUILDING FOOTPRINT (TYP)
- (B) EXISTING BUILDING TO REMAIN AND BE REPURPOSED (TYP)
- (C) 40' RESIDENTIAL BUFFER YARD (TYP)
- (D) 10' RESIDENTIAL BUILDING SETBACK (BEYOND BUFFER)
- (E) 35' COMMERCIAL BUILDING SETBACK (BEYOND BUFFER)
- (F) 10' MINIMUM PROPOSED ROADWAY IMPROVEMENT MAINTENANCE UTILITY SEWER SIDEWALK EASEMENT (PRIMUSSE)
- (G) 50' NATURAL VEGETATION BUFFER
- (H) 25' NO-IMPERVIOUS BUFFER
- (I) EXISTING STREAM TO REMAIN

BUFFER NOTES

1. EXISTING TRAILS AND PAVEMENTS WITHIN NATURAL OR IMPERVIOUS BUFFER LIMITS ARE ALLOWED TO REMAIN.
2. ANY NEW OR IMPROVED PAVEMENTS SHALL NOT ENCROACH INTO NATURAL OR IMPERVIOUS BUFFER LIMITS FURTHER THAN EXISTING PAVEMENT LIMITS.

SETBACK AND BUFFER REQUIREMENTS

SETBACK AND BUILDING LINE REQUIREMENTS WITHIN THE DEVELOPMENT (INTERNAL):

CATEGORY A – " MAIN STREET" SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY B – MIXED USE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY C – GENERAL OFFICE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - ZERO (0) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY D – RESIDENTIAL SUB-DISTRICT:
1. MINIMUM FRONT YARD - FIVE (5) FEET
2. MINIMUM SIDE YARD - NONE OR SEVEN AND A HALF (7.5) FEET
3. MINIMUM REAR YARD - FIVE (5) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - FIFTEEN (15) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

SETBACK AND BUILDING LINE REQUIREMENTS TO ADJACENT PARCELS:

RESIDENTIAL :
1. REQUIRED BUFFER YARD - FORTY (40) FEET
2. MINIMUM RESIDENTIAL BUILDING SETBACK - TEN (10) FEET
3. MINIMUM COMMERCIAL BUILDING SETBACK - THIRTY-FIVE (35) FEET BEYOND BUFFER YARD

NON-RESIDENTIAL :
1. MINIMUM BUILDING SETBACK - TEN (10) FEET

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CONSULTANTS:

SITE CONCEPT PLAN

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100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
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PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
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SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

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DESIGNED BY:	TME/JFM
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SHEET TITLE

SETBACK & BUFFER PLAN

C-103

SHEET - OF --

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PHASING PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO

OLIVE BOULEVARD
OLIVE BOULEVARD
LINDBERGH BOULEVARD
SCHNUCKS
RESIDENTIAL
RAMBLEWOOD LANE
RESIDENTIAL
MISSION HILLS COURT
RESIDENTIAL
SPOEDE WOODS DRIVE
SPOEDE HILLS DRIVE
RESIDENTIAL
RESIDENTIAL
GENERAL COMMERCIAL

COMMON GROUND 1 — 0.6 AC±
COMMON GROUND 8 — 0.6 AC±
HARVEST DRIVE
LOT 1 — 7.5 AC±
LOT 3 — 1.2 AC±
LOT 2 — 1.6 AC±
PAVILION DRIVE
LOT 11 — 2.4 AC±
TWISTED BRANCH
TWISTED BRANCH
COMMON GROUND 3 — 0.2 AC±
LOT 7 — 3.1 AC±
VINE STREET
VILLAGE GREEN — 0.7 AC±
LOT 5 — 1.3 AC±
LOT 12 — 1.0 AC±
ARBOR LANE
MAIN STREET
COMMON GROUND 7 — 1.4 AC±
LOT 4 — 5.0 AC±
LOT 6 — 2.6 AC±
LOT 14 — 3.8 AC±
LOT 10 — 6.8 AC±
LOT 17 — 2.1 AC±
LOT 13 — 5.8 AC±
COMMON GROUND 4 — 2.2 AC±
MAIN STREET
DETENTION AREA
DETENTION AREA
LOT 8 — 3.7 AC±
LOT 15 — 3.5 AC±
LOT 9 — 2.1 AC±
OLIVE COVE
COMMON GROUND 5 — 0.8 AC±
BAYER DRIVE
LOT 16 — 11.1 AC±
OLIA DRIVE (aka BAYER DRIVE)
COMMON GROUND 6 — 1.9 AC±
DETENTION AREA
COMMON GROUND 2 — 16.8 AC±

LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- (I) PROPOSED DEVELOPMENT PHASE I
- (II) PROPOSED DEVELOPMENT PHASE II
- (III) PROPOSED DEVELOPMENT PHASE III
- (IV) PROPOSED DEVELOPMENT PHASE IV
- (V) PROPOSED DEVELOPMENT PHASE V

DEVELOPMENT PHASING

PHASE I: SITE CLEARING, MASS GRADING, SITE UTILITIES, ROADWAY CONSTRUCTION (OCTOBER 2023 - JULY 2025)

PHASE II: BUILDING CONSTRUCTION ON LOTS 1, 2, 3, 4, 5, 6, 8, 9, 14 & 15 COMMON AREA DEVELOPMENTS (JANUARY 2024 - JULY 2026)

PHASE III: BUILDING CONSTRUCTION ON LOTS 7, 11 & 10 (JANUARY 2025 - DECEMBER 2026)

PHASE IV: BUILDING CONSTRUCTION ON LOTS 12, 13 & 17 (JANUARY 2026 - DECEMBER 2027)

PHASE V: BUILDING CONSTRUCTION ON LOT 16 (JANUARY 2025 - DECEMBER 2028)

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LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

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100' 50' 0' 100' 200'
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STATE OF MISSOURI
TODD MATTHEW EHLEN
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OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

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SHEET TITLE

PHASING PLAN

C-104

SHEET - OF --

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GRADING PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO

OLIVE BOULEVARD
OLIVE BOULEVARD
HARVEST DRIVE
PAVILION DRIVE
TWISTED BRANCH
TWISTED BRANCH
VINE STREET
MAIN STREET
ARBOR LANE
SECTION A-A
SECTION B-B
A-A C-109
B-B C-109
RAMBLEWOOD LANE
MISSION HILLS COURT
SPOEDE WOODS DRIVE
SPOEDE HILLS DRIVE
LINDBERGH BOULEVARD
MAIN STREET
OLIVE COVE
OLIA DRIVE (aka BAYER DRIVE)
BAYER DRIVE
DETENTION AREA
DETENTION AREA
DETENTION AREA

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- 660 EXISTING CONTOUR
- 660 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- CONCEPTUAL BLDG FOOTPRINT

KEYNOTES

- (A) PROPOSED STORM SEWER (TYP)
- (B) PROPOSED SITE RETAINING WALL (TYP)
- (C) 50' NATURAL VEGETATION BUFFER

PREPARED BY:

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Crawford, Murphy & Tilly

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SHEET TITLE

GRADING PLAN

C-105

SHEET - OF --

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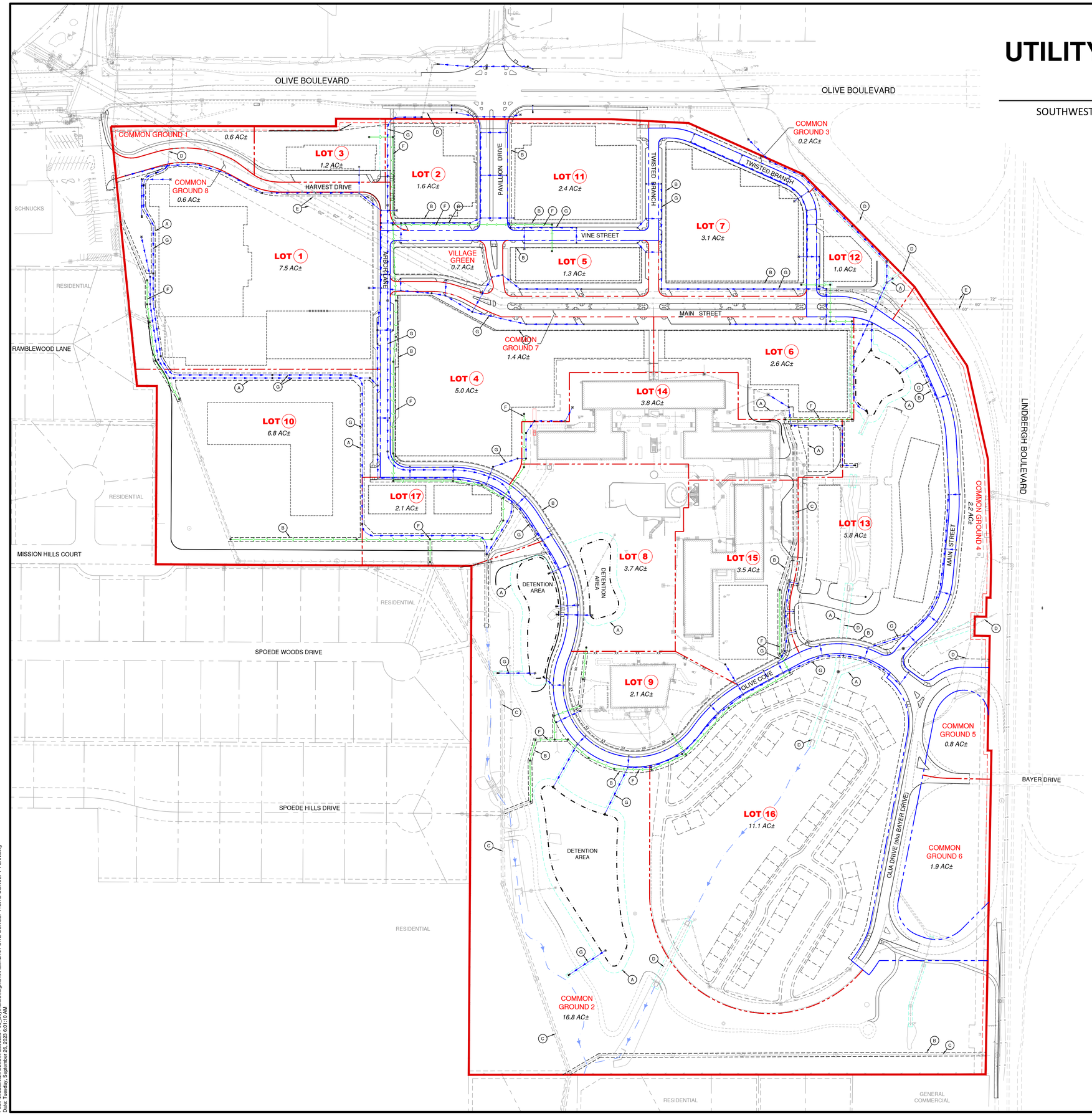
Date: Tuesday, September 26, 2023 5:00:52 AM

UTILITY & DRAINAGE PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT

KEYNOTES

- (A) DRAINAGE EASEMENT (TYP)
- (B) UTILITY EASEMENT (TYP)
- (C) EXISTING SANITARY SEWER
- (D) EXISTING STORM DRAINAGE SYSTEM
- (E) EXISTING STL WATER CO. WATERMAIN CONDUITS
- (F) PROPOSED SANITARY SEWER (TYP)
- (G) PROPOSED STORM DRAINAGE SYSTEM (TYP)

PRELIMINARY BUILDOUT STORMWATER CALCULATIONS

PRE-DEVELOPED RUNOFF

TOTAL AREA	=	227.90 ac
WEIGHTED "CN" VALUE	=	81.59
AVERAGE "TC" VALUE	=	19.86 min
TOTAL FLOW	=	1,260± cfs

POST-DEVELOPED RUNOFF

TOTAL AREA	=	227.90 ac
WEIGHTED "CN" VALUE	=	86.54
AVERAGE "TC" VALUE	=	16.34 min
TOTAL FLOW	=	1,478± cfs

DIFFERENTIAL RUNOFF

PRE-DEVELOPED	=	1,260± cfs
POST-DEVELOPED	=	1,478± cfs
DIFFERENTIAL FLOW	=	+218± cfs

100-YEAR, 24-HOUR PEAK FLOW RATE COMPARISON

PRE-DEVELOPED	=	404± cfs
POST-DEVELOPED	=	1,142± cfs
DIFFERENTIAL FLOW	=	-55± cfs

THIS PROJECT HAS BEEN SUBMITTED TO MSD FOR CONCEPTUAL REVIEW (23CNCPB-00003).

ALL STORM SEWER AND DETENTION FACILITY CALCULATIONS AND REPORTS WILL BE SUBMITTED TO MSD AND CITY OF CREVE COEUR FOR FINAL APPROVAL PRIOR TO CONSTRUCTION.

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SHEET TITLE

UTILITY & DRAINAGE PLAN

C-106

SHEET - OF --

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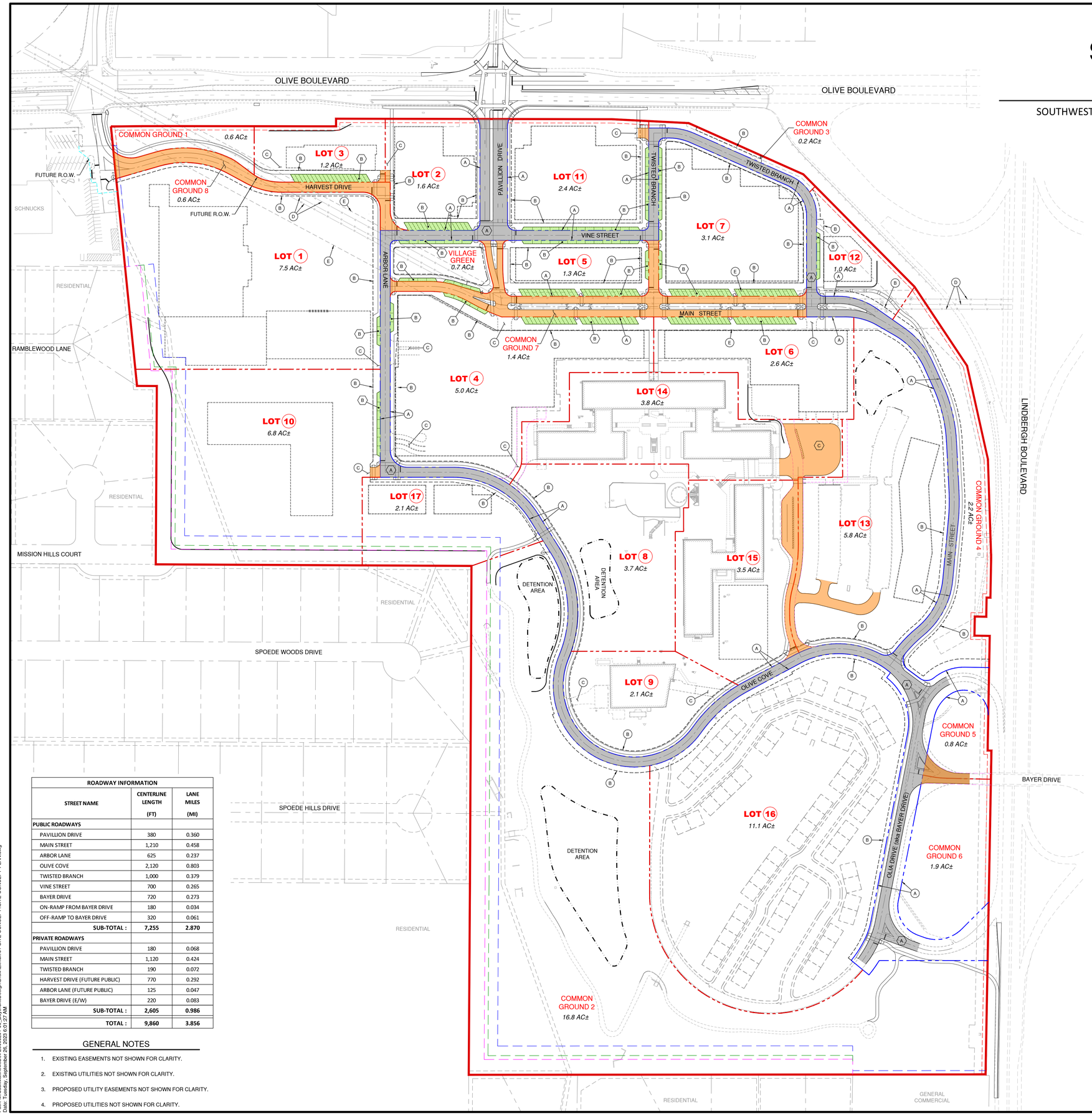
Date: Tuesday, September 26, 2023 5:01:10 AM

STREET PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



ROADWAY INFORMATION		
STREET NAME	CENTERLINE LENGTH (FT)	LANE MILES (MI)
PUBLIC ROADWAYS		
PAVILLION DRIVE	380	0.360
MAIN STREET	1,210	0.458
ARBOR LANE	625	0.237
OLIVE COVE	2,120	0.803
TWISTED BRANCH	1,000	0.379
VINE STREET	700	0.265
BAYER DRIVE	720	0.273
ON-RAMP FROM BAYER DRIVE	180	0.034
OFF-RAMP TO BAYER DRIVE	320	0.061
SUB-TOTAL :	**7,255**	**2.870**
PRIVATE ROADWAYS		
PAVILLION DRIVE	180	0.068
MAIN STREET	1,120	0.424
TWISTED BRANCH	190	0.072
HARVEST DRIVE (FUTURE PUBLIC)	770	0.292
ARBOR LANE (FUTURE PUBLIC)	125	0.047
BAYER DRIVE (E/W)	220	0.083
SUB-TOTAL :	**2,605**	**0.986**
TOTAL :	**9,860**	**3.856**

GENERAL NOTES

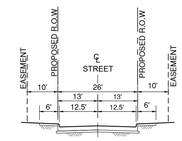
1. EXISTING EASEMENTS NOT SHOWN FOR CLARITY.
2. EXISTING UTILITIES NOT SHOWN FOR CLARITY.
3. PROPOSED UTILITY EASEMENTS NOT SHOWN FOR CLARITY.
4. PROPOSED UTILITIES NOT SHOWN FOR CLARITY.

LEGEND

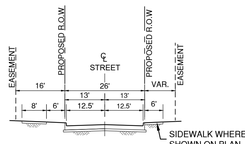
- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED R.I.M.U.S.S. EASEMENT
- (A) PROPOSED ROADWAY (WITHIN RIGHT-OF-WAY)
- (B) PROPOSED ON-STREET PARKING (WITHIN EASEMENT)
- (C) PROPOSED PRIVATE ROADWAY

KEYNOTES

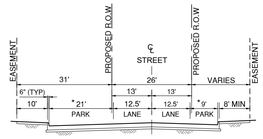
- (A) PROPOSED RIGHT-OF-WAY
- (B) PROPOSED ROADWAY IMPROVEMENT, MAINTENANCE, UTILITY, SEWER, SIDEWALK (R.I.M.U.S.S.) EASEMENT
- (C) CONCEPTUAL FUTURE ENTRANCE
- (D) EXISTING STL WATER MAIN CONDUITS
- (E) EXISTING STL WATER MAIN EASEMENT



TYPICAL SECTION #1
STANDARD STREET SECTION

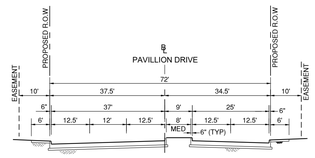


TYPICAL SECTION #2
OLIVE COVE

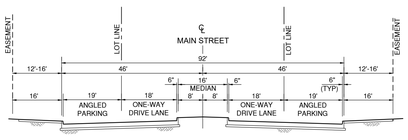


* PARKING VARIES:
9' PARALLEL PARKING
21' ANGLED PARKING

TYPICAL SECTION #3
STANDARD STREET SECTION
WITH ADJACENT PARKING



TYPICAL SECTION #4
PAVILLION DRIVE ENTRANCE



TYPICAL SECTION #5
MAIN STREET (MEDIAN SECTION)

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

SCALE IN FEET

CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	!SITE-CONCEPT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	--
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SHEET TITLE

STREET PLAN

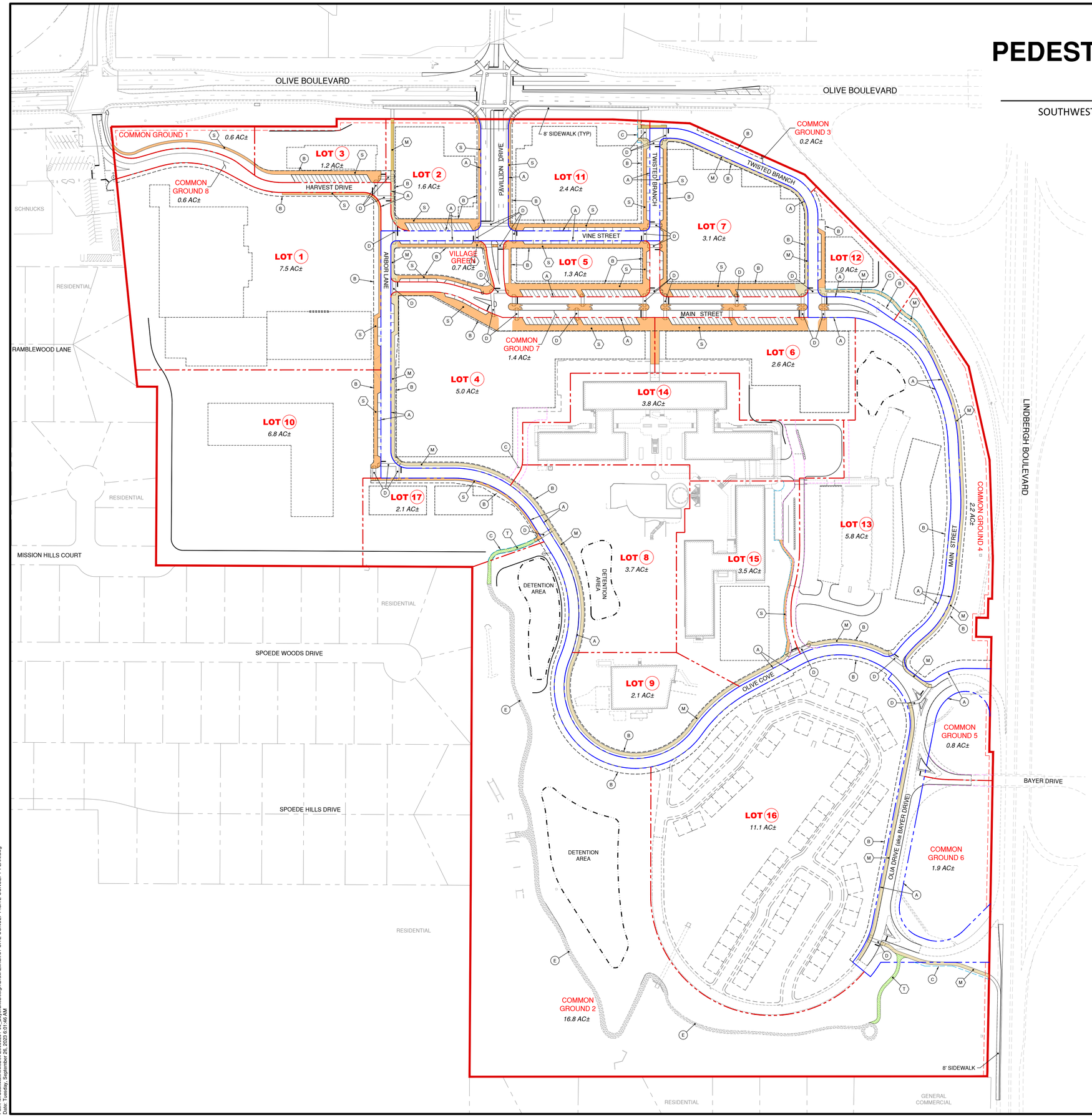
C-107

SHEET - OF --

Path: M:\Jack\Matthew\Dev\23005201-00_BayerSiteDesign\Draw\Exhibit\01-!SITE-CONCEPT\!SITE-CONCEPT-PLAN.dwg
Date: Tuesday, September 26, 2023 5:01:27 PM

PEDESTRIAN MOBILITY PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT
- ROADWAY STRIPING - STOP BAR
- ROADWAY STRIPING - CROSSWALK
- (S) PROPOSED CONCRETE SIDEWALK (WITHIN EASEMENT)
- (M) PROPOSED CONCRETE MULTI-USE SIDEWALK 8' MIN WIDE (WITHIN EASEMENT)
- (T) PROPOSED 8' WIDE NATURAL AGGREGATE TRAIL (WITHIN EASEMENT ON NON-COMMON AREAS)

KEYNOTES

- (A) PROPOSED RIGHT-OF-WAY
- (B) PROPOSED ROADWAY IMPROVEMENT, MAINTENANCE, UTILITY, SEWER, SIDEWALK (R.I.M.U.S.S.) EASEMENT
- (C) PROPOSED SIDEWALK EASEMENT
- (D) PROPOSED CROSSWALK
- (E) EXISTING AGGREGATE TRAIL TO REMAIN (WIDTH VARIES APPROXIMATELY 8' TO 12')

PEDESTRIAN MOBILITY INFORMATION

LOCATION	STANDARD SIDEWALK LENGTH (FT)	NATURAL TRAIL LENGTH (FT)	8' MULTI-USE SIDEWALK (FT)
PAVILLION DRIVE	840		
MAIN STREET	2,160		
MAIN STREET (EAST LEG)			1,245
HARVEST DRIVE	1,040		
ARBOR LANE	815		700
OLIVE COVE	505		2,010
TWISTED BRANCH	1,040		670
VINE STREET	1,190		
OLIA DRIVE (AKA BAYER DRIVE)			690
(TO) LINDBERGH BLVD			300
WEST / SOUTH TRAIL (PROPOSED)		400	
WEST / SOUTH TRAIL (EXISTING)		2,210	
SUB-TOTAL :	**7,590**	**2,610**	**5,615**
TOTAL SIDEWALK / TRAIL (FT) :		**15,815**	
TOTAL SIDEWALK / TRAIL (MI) :		**3.0**	

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

N

100' 50' 0' 100' 200'

SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-CONCEPT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	---
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SHEET TITLE

PEDESTRIAN PLAN

C-108

SHEET - OF --

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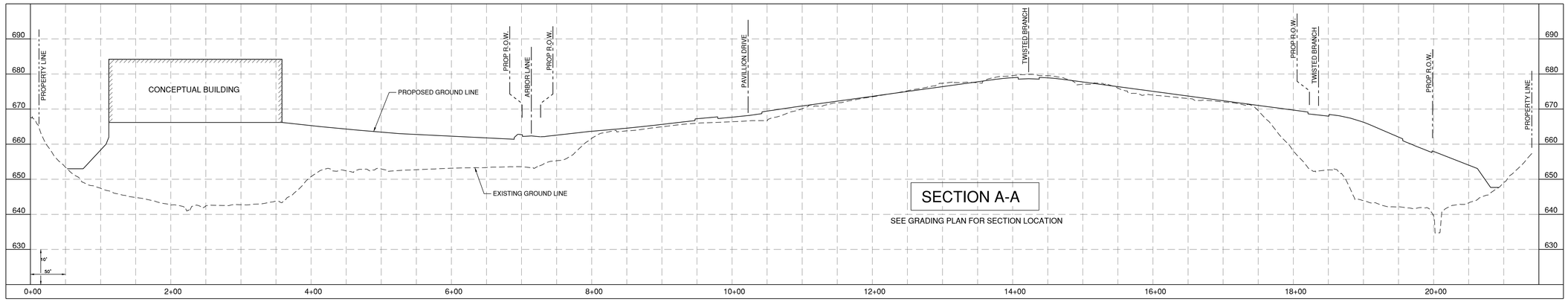
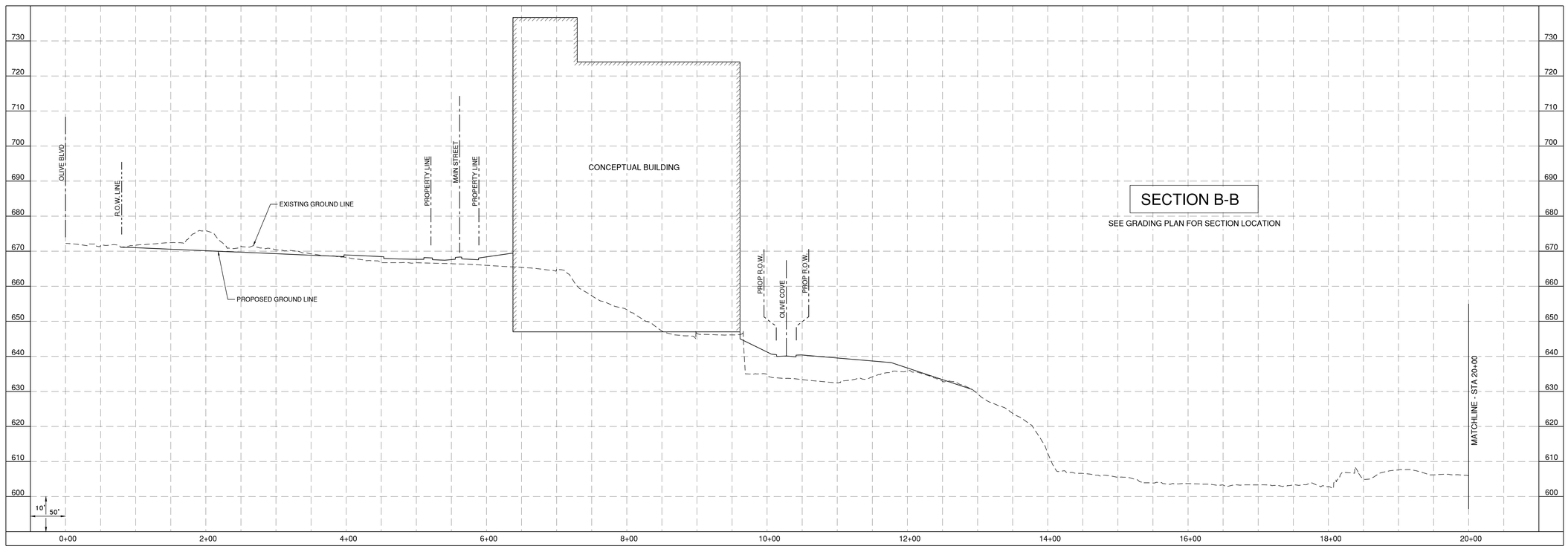


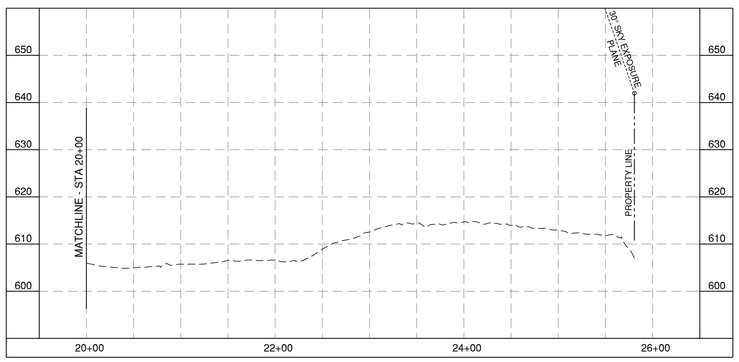
SECTION A-A

SEE GRADING PLAN FOR SECTION LOCATION



SECTION B-B

SEE GRADING PLAN FOR SECTION LOCATION



PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER

09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-CONCEPT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	---
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SHEET TITLE

SITE SECTIONS

C-109

SHEET - OF --

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ARCHITECTURAL SITE PLAN

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
REGISTERED ARCHITECT
09.25.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
CAD DWG FILE:	GRAY RENDERINGS A.DWG
DESIGNED BY:	TDH/BKP
DRAWN BY:	TDH
CHECKED BY:	
APPROVED BY:	

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SHEET TITLE

ARCH SITE PLAN

A-101

SHEET OF

IF A SEAL IS PRESENT ON THIS SHEET IT WAS BEEN ELECTRONICALLY SEALED AND DATED.

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Date: Monday, September 25, 2023 11:14:13 AM

BIRDS EYE VIEW LOOKING SOUTHWEST

Note:

Conceptual renderings are for illustrative purposes only and final renderings will be submitted as part of the Site Development Plan application for each phase.

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
09.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
CAD DWG FILE:	GRAY RENDERINGS A.DWG
DESIGNED BY:	TDH/BKP
DRAWN BY:	TDH
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APPROVED BY:	
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SHEET TITLE

BIRDS EYE VIEW

A-102

SHEET 2 OF 6

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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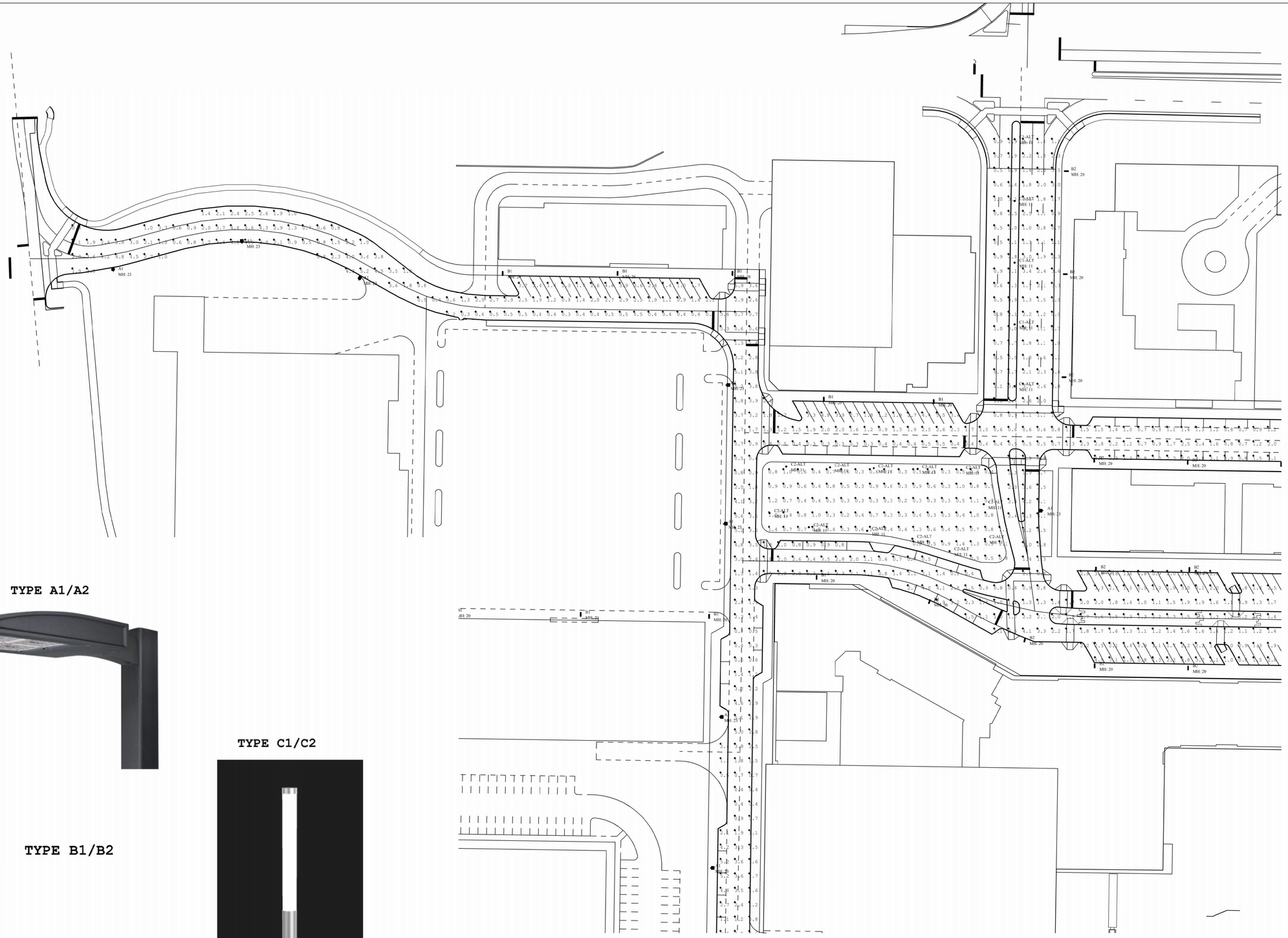
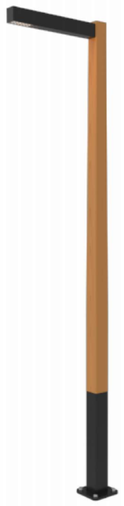


TYPE A1/A2

TYPE B1/B2



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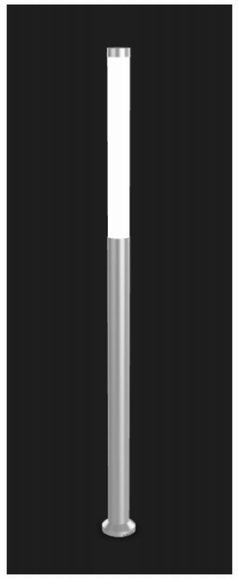

OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
08.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO: 22478.00
CAD DWG FILE: GRAY RENDERINGS A.DWG
DESIGNED BY: TDH/BKP
DRAWN BY: TDH
CHECKED BY:
APPROVED BY:
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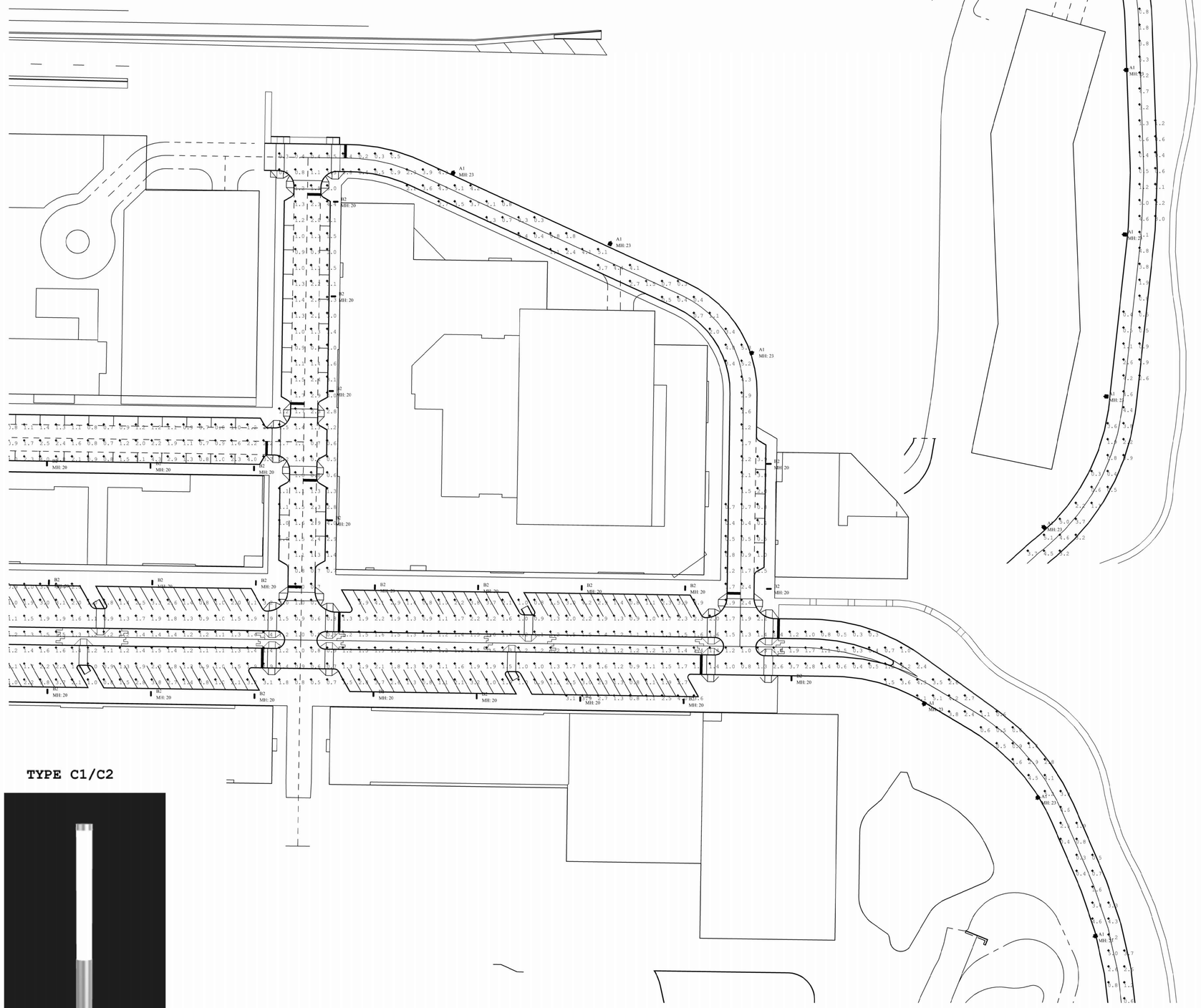
SHEET TITLE

SITE LIGHTING

A-103.1

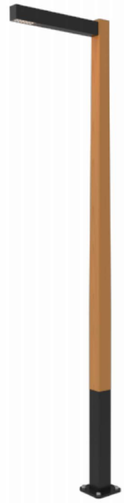
SHEET OF

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED



TYPE A1/A2

TYPE B1/B2



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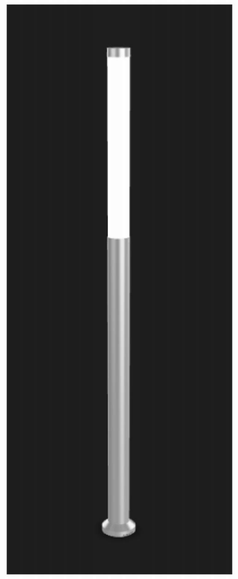

OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOMAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
09.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO: 22478.00
CAD DWG FILE: GRAY RENDERINGS A.DWG
DESIGNED BY: TDH/BKP
DRAWN BY: TDH
CHECKED BY:
APPROVED BY:
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SHEET TITLE

SITE LIGHTING

A-103.2

SHEET OF

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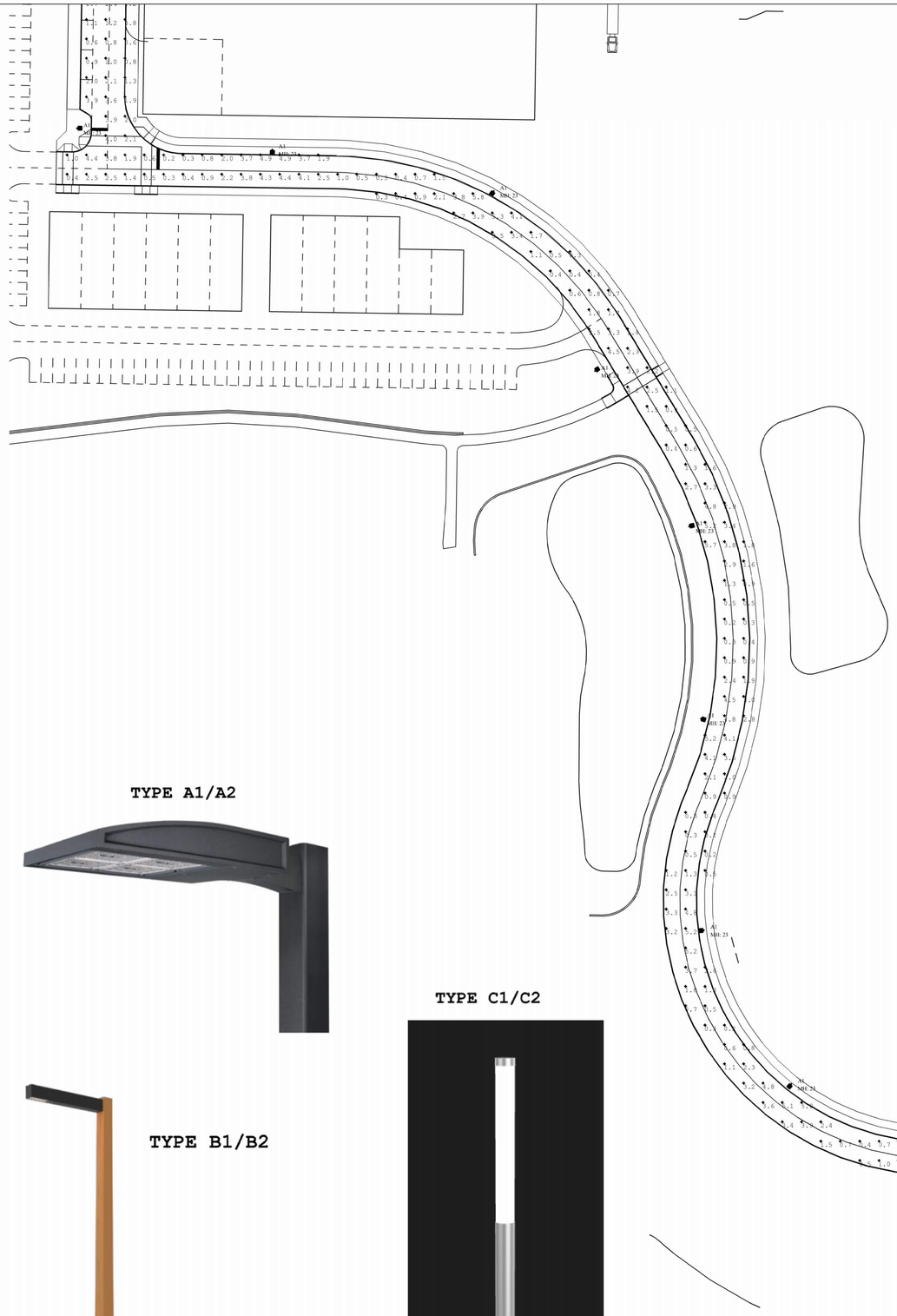

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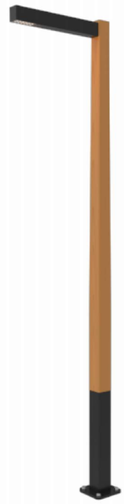
TYPE B1/B2



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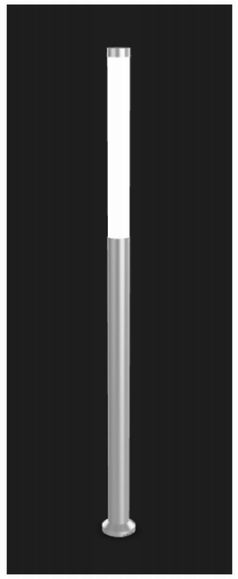

OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
REGISTERED ARCHITECT
09.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
CAD DWG FILE:	GRAY RENDERINGS A.DWG
DESIGNED BY:	TDH/BKP
DRAWN BY:	TDH
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SHEET TITLE

SITE LIGHTING

A-103.3

SHEET OF

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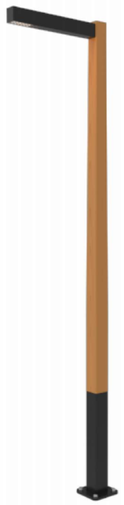
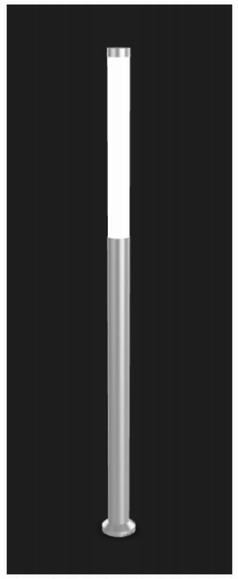
TYPE A1/A2

TYPE B1/B2



TYPE C1/C2



OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
08.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
CAD DWG FILE:	GRAY RENDERINGS A.DWG
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SHEET TITLE

SITE LIGHTING

A-103.4

SHEET OF

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SOUTH ELEVATION OF LOT 5

EAST ELEVATION OF LOT 5

NORTH ELEVATION OF LOT 6

NORTH ELEVATION OF LOT 4

Note:

Conceptual Elevations are for illustrative purposes only and final elevations will be submitted as part of the Site Development Plan application for each phase.

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOMAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
09.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

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LINDBERGH & OLIVE BLVD

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THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
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MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
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SHEET TITLE

ELEVATIONS

A-104

SHEET 4 OF 6

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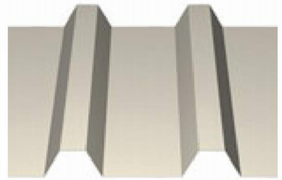
Date: Wednesday, August 9, 2023 10:07:40 AM

FIBER CEMENT PANEL

FIBER CEMENT PANEL



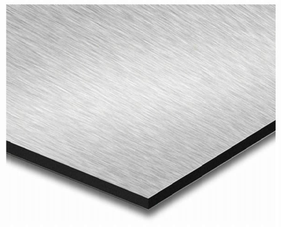
METAL PANEL

METAL PANEL

BRICK

STONE

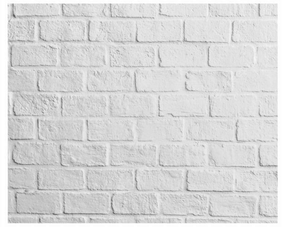
COMPOSITE METAL PANEL



COMPOSITE METAL PANEL

BRICK

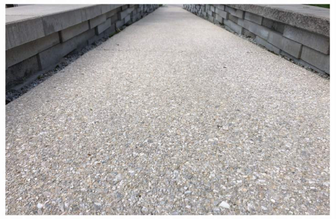
BRICK



BRICK

WOOD PHENOLIC PANEL

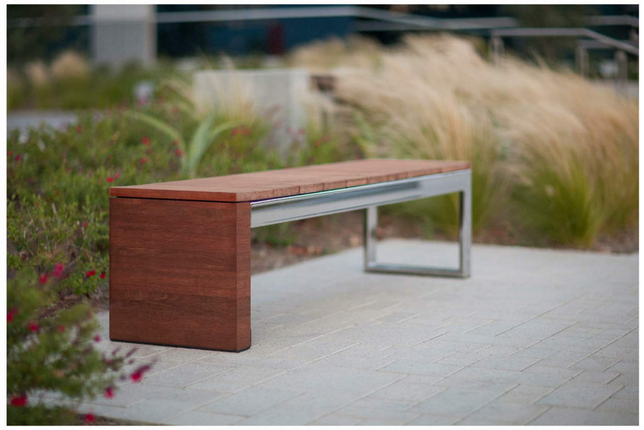
ARCHITECTURAL MATERIALS



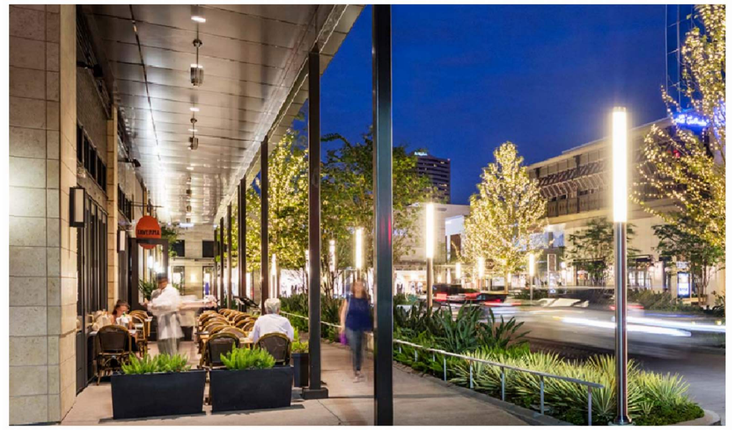
EXPOSED AGGREGATE SURFACES

PAVERS

PLANTERS



BENCHES



LANDSCAPE RAILS

SITE FURNISHINGS AND MATERIALS

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
REGISTERED ARCHITECT
09.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
CAD DWG FILE:	GRAY RENDERINGS A.DWG
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SHEET TITLE

MATERIALS

A-105

SHEET 5 OF 6

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Date: Wednesday, August 9, 2023 10:08:40 AM

VIEW LOOKING WEST DOWN MAIN STREET

Note:

Conceptual Elevations are for illustrative purposes only and final elevations will be submitted as part of the Site Development Plan application for each phase.

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
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SEPTEMBER 26, 2023

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SHEET TITLE

RENDERED VIEW

A-106

SHEET 6 OF 6

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Date: Wednesday, August 9, 2023 10:05:35 AM

GENERAL NOTE
1. TREES SHOWN TO BE REMOVED AND TO REMAIN ARE BASED ON CONCEPTUAL SITE DESIGN AND GRADING DRAWINGS DATED 9/13/23 AND ARE SUBJECT TO CHANGE

LEGEND

TREE OR TREE MASS TO REMAIN (50%)

TREE OR TREE MASS TO BE REMOVED (50%)

NOTE:
TREE SYMBOLS REPRESENT ONE 6" OR LARGER DIA. TREE. SOME TREE MASSES TOO DENSE TO SURVEY INDIVIDUAL TREES. QUANTITY OF TREES IN THESE MASSES ESTIMATED BASED ON DENSITY OF SURVEYABLE WOODED AREAS.

A TREE PRESERVATION PLAN
SCALE: 1"=100'

Graphic Scale: 1" = 100'
0' 50' 100' 200' 300'

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1-800-344-7483
MISSOURI ONE-CALL SYSTEM INC.
MODOT (314) 340-4100

NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY IN EVENTS OF DISCREPANCIES, OMISSIONS, AND/OR CONFLICTS IN THE DRAWINGS OR SPECIFICATIONS. THE CONTRACTOR IS NOT AUTHORIZED TO SCALE THE DRAWINGS. ALL QUESTIONS IN REFERENCE TO CONTRACT DOCUMENTS SHALL BE IMMEDIATELY DIRECTED TO THE LANDSCAPE ARCHITECT.

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION
4	9/26/23	LANDSCAPE CONCEPT PLANS
3	9/13/23	LANDSCAPE CONCEPT PLANS
2	8/11/23	LANDSCAPE CONCEPT PLANS
1	7/21/23	LANDSCAPE CONCEPT PLANS

PROJECT NO:	23005201-00
CAD DWG FILE:	21585.01_SHEETS_GENERAL.DWG
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SHEET TITLE

TREE PRESERVATION PLAN

LD-100

SHEET 1 OF

Path: N:\04_Projects\21585_Olia Village\21585.01_Olia Village Schematic Design\02_Production\04_Auto\CAD\21585.01_Sheets_General.dwg
Date: Tuesday, September 26, 2023 3:43:43 PM

LEGEND

EXISTING VEGETATION

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

ORNAMENTAL LANDSCAPE PLANTINGS
COMBINATION OF SHRUB, PERENNIAL, AND GROUNDCOVER SPECIES ADAPTED TO REGIONAL CLIMATE AND SITE CONDITIONS. NATIVE PLANT MATERIAL TO BE UTILIZED WHERE APPROPRIATE. 39NORTH GREAT STREETS PLAN PLANT PALETTE WILL BE USED AS A REFERENCE WHEN DETERMINING FINAL PLANT MATERIAL

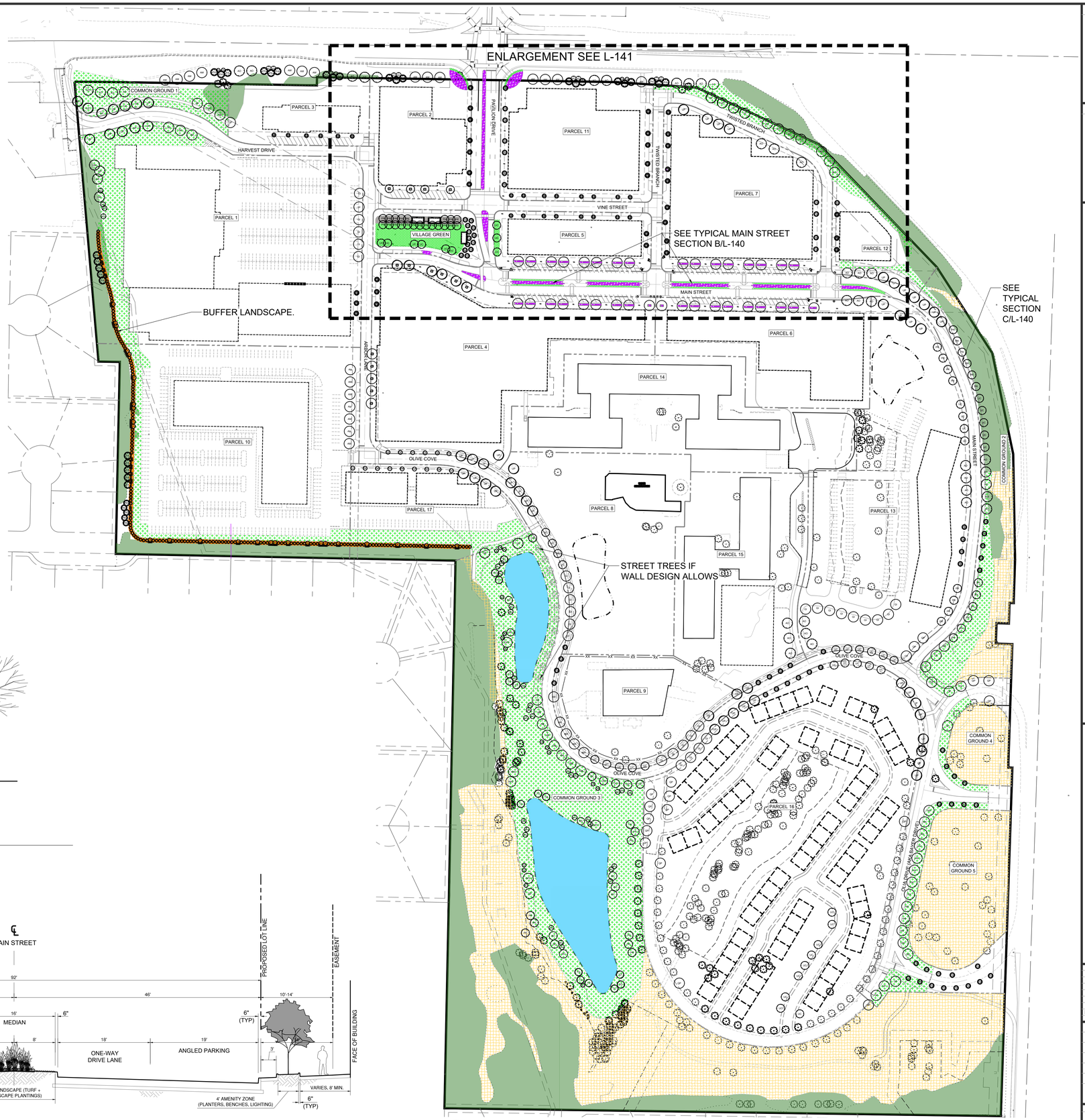
BUFFER PLANTING
PLANTING BUFFER TO CONSIST OF COMBINATION OF EVERGREEN TREES AND SHRUBS

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

PROPOSED TREES

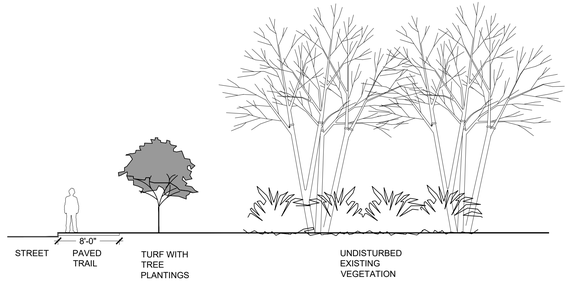
EXISTING TREES TO REMAIN

NOTES
1. TREES AND LIGHTING WITHIN CITY OF ST. LOUIS EASEMENT REQUIRES CITY APPROVAL
2. ACTUAL PLANTING AND LIGHTING DESIGN MAY VARY FROM THESE CONCEPT PLANS
3. PROPOSED LANDSCAPING MATERIALS AND LAYOUT SHOWN IN MODOT RIGHT-OF-WAY ARE SUBJECT TO MODOT REVIEW AND APPROVAL, AS WELL AS A MAINTENANCE AGREEMENT BETWEEN MODOT AND OWNER.
4. STREET TREES SHOWN ALONG PAVILION DRIVE, TWISTED BRANCH DRIVE, AN VINE STREET MAY REQUIRE ADA ACCESSIBLE TREE GRATES OR TREE PLANTING WELLS, DEPENDING ON AVAILABLE SIDEWALK WIDTH FROM BACK OF CURB TO BUILDING FACADE IN ORDER TO MAINTAIN ACCESSIBLE WALKING PATHS FREE OF OBSTRUCTIONS.
5. IRRIGATION WILL BE PROVIDED TO NEW LANDSCAPE BEDS AND TO STREET TREES INSTALLED WITHIN MAIN STREET AREA AND PARK. A WATER LINE WILL BE INSTALLED TO THE MEDIAN IN OLIVE WEST OF PAVILION.
6. ALL DISTURBED AREAS NOT OTHERWISE IMPROVED SHALL RECEIVE SEEDED TURF GRASS.
7. ALL LANDSCAPE SHALL COMPLY WITH THE REQUIREMENTS DETAILED IN ATTACHMENT B.

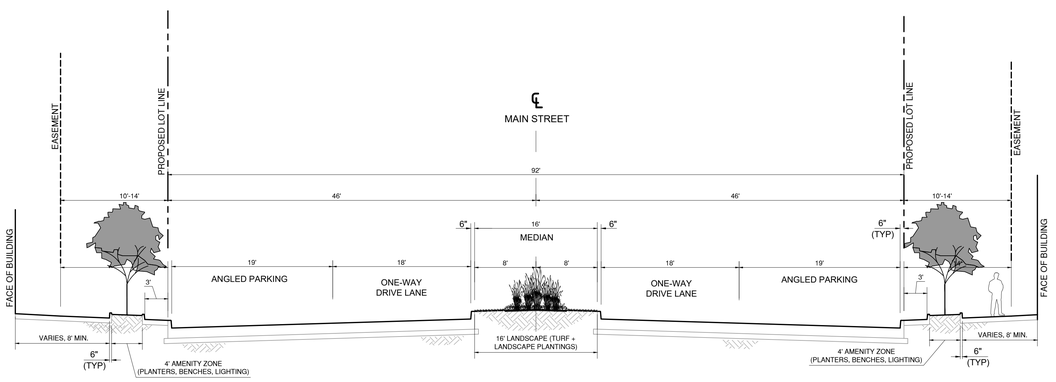


A OVERALL PLANTING PLAN
SCALE: 1"=100'

Graphic Scale: 1" = 100'
0' 50' 100' 200' 300'



C TYPICAL SECTION
SCALE: 1"=8'



B TYPICAL SECTION - MAIN STREET (MEDIAN SECTION)
SCALE: 1"= 8' HORIZONTAL, 1"= 4' VERTICAL

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MODOT (314) 340-4100

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PREPARED BY:
CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:
SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

STATE OF MISSOURI
BONNIE C. ROY
2009014763
LANDSCAPE ARCHITECT

9/26/23
Bonnie C. Roy
Landscape Architect MO
#LA-2009014763

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

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4	9/26/23	LANDSCAPE CONCEPT PLANS
3	9/13/23	LANDSCAPE CONCEPT PLANS
2	8/11/23	LANDSCAPE CONCEPT PLANS
1	7/21/23	LANDSCAPE CONCEPT PLANS

PROJECT NO:	23005201-00
CAD DWG FILE:	21585.01_SHEETS_PLANTING.DWG
DESIGNED BY:	WH
DRAWN BY:	MB/ZTS
CHECKED BY:	BR
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SHEET TITLE
OVERALL CONCEPT PLANTING PLAN

L-140
SHEET OF

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Date: Tuesday, September 26, 2023 3:47:17 PM

NOTES
1. TREES AND LIGHTING WITHIN CITY OF ST. LOUIS EASEMENT REQUIRES CITY APPROVAL
2. ACTUAL PLANTING AND LIGHTING DESIGN MAY VARY FROM THESE CONCEPT PLANS
3. STREET TREES SHOWN ALONG PAVILION DRIVE, TWISTED BRANCH DRIVE, AN VINE STREET MAY REQUIRE ADA ACCESSIBLE TREE GRATES OR TREE PLANTING WELLS, DEPENDING ON AVAILABLE SIDEWALK WIDTH FROM BACK OF CURB TO BUILDING FACADE IN ORDER TO MAINTAIN ACCESSIBLE WALKING PATHS FREE OF OBSTRUCTIONS

PARCEL 2
PARCEL 11
PARCEL 7
PARCEL 5
PARCEL 12
PAVILION DRIVE
TWISTED BRANCH
VINE STREET
MAIN STREET
ARBOR LANE
SEE VILLAGE GREEN PLANTING PLAN ENLARGEMENT B/L-141

A MAIN STREET PLANTING PLAN
SCALE: 1"=40'

Graphic Scale: 1" = 40'
0' 20' 40' 80' 120'

LEGEND

EXISTING VEGETATION

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

ORNAMENTAL LANDSCAPE PLANTINGS
COMBINATION OF SHRUB, PERENNIAL, AND GROUNDCOVER SPECIES ADAPTED TO REGIONAL CLIMATE AND SITE CONDITIONS. NATIVE PLANT MATERIAL TO BE UTILIZED WHERE APPROPRIATE. 39NORTH GREAT STREETS PLAN PLANT PALETTE WILL BE USED AS A REFERENCE WHEN DETERMINING FINAL PLANT MATERIAL

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

PROPOSED ORNAMENTAL AND CANOPY TREES

EXISTING TREES TO REMAIN

NOTES
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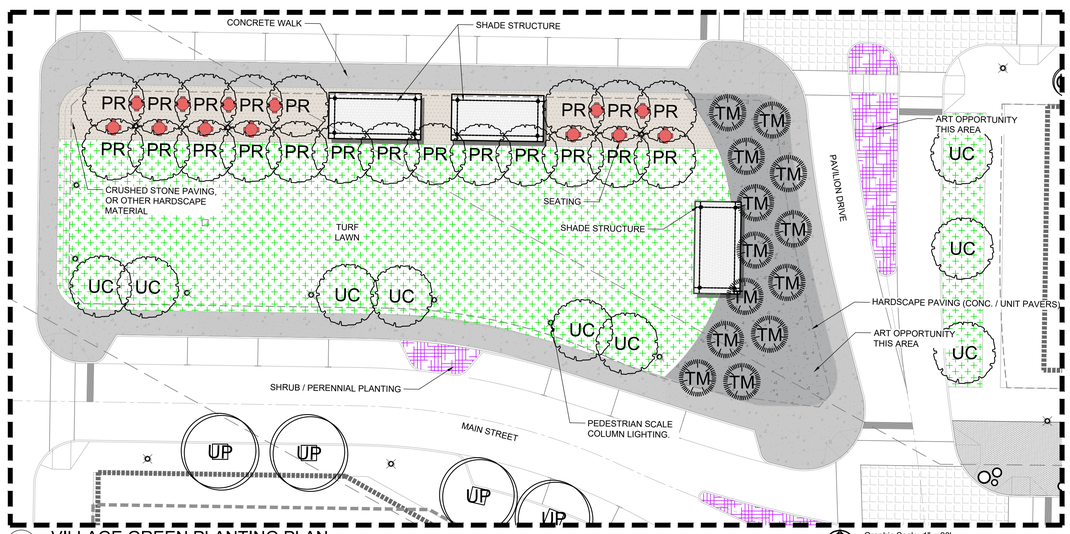

B VILLAGE GREEN PLANTING PLAN
SCALE: 1"=20'

Graphic Scale: 1" = 20'
0' 10' 20' 40' 60'

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CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:
SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

STATE OF MISSOURI
BONNIE C. ROY
2009014763
LANDSCAPE ARCHITECT
9/26/23
Bonnie C. Roy
Landscape Architect MO
#LA-2009014763

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR
10300 OLIVE BLVD.
CREVE COEUR, MO 63141

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PROJECT NO:	23005201-00
CAD DWG FILE:	21585.01_SHEETS_PLANTING.DWG
DESIGNED BY:	WH
DRAWN BY:	MB/ZTS
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SHEET TITLE
ENLARGEMENT PLANTING PLANS

L-141
SHEET OF

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SITE DEVELOPMENT PLAN
OLIA VILLAGE - PHASE 1 DEVELOPMENT

CREVE COEUR, MO

A TRACT OF LAND BEING PART OF LOTS 9, 10, 11 AND 12 OF MAJOR THOMAS SUBDIVISION
SITUATED IN THE SOUTHWEST QUARTER AND THE NORTHWEST QUARTER OF SECTION 1
TOWNSHIP 45 NORTH, RANGE 5 EAST, CITY OF CREVE COEUR, ST. LOUIS COUNTY, MISSOURI

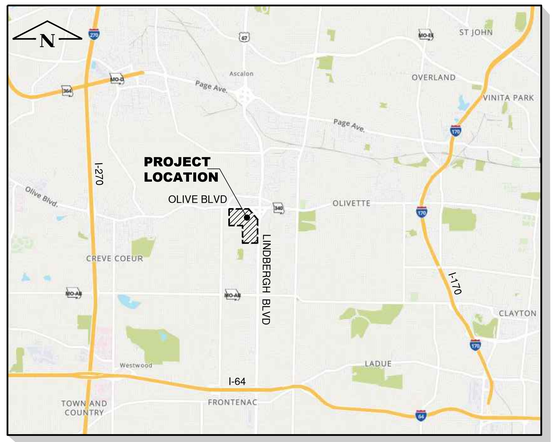
SEPTEMBER 26, 2023

SITE INFORMATION

SITE ACREAGE	=	95.8 AC ±
SITE ADDRESS	=	10300 OLIVE BOULEVARD, CREVE COEUR, MO 63141
OWNER	=	10300 OLIVE, LLC
LOCATOR NUMBER	=	17M420026
EXISTING ZONING	=	RO - RESEARCH & PARK DISTRICT
PROPOSED ZONING	=	PMD - PLANNED MIXED-USE DEVELOPMENT
CITY	=	CREVE COEUR, MO
ZIP CODE	=	63141
FEMA FLOOD MAP	=	29189C0191K (REVISED 2/4/2015) (ZONE X) 29189C0192K (REVISED 2/4/2015) (ZONE X)
WUNNENBERG MAP	=	PAGE 24, SECTIONS 17T & 18T
SCHOOL DISTRICT	=	LADUE SCHOOL DISTRICT
FIRE DISTRICT	=	CREVE COEUR FIRE DISTRICT
WATER SHED	=	RIVER DES PERES WATERSHED, DEER CREEK SUB-SHED
SEWER DISTRICT	=	METROPOLITAN ST. LOUIS SEWER DISTRICT
CABLE SERVICE	=	CHARTER COMMUNICATIONS
ELECTRIC SERVICE	=	AMEREN MISSOURI
GAS SERVICE	=	SPIRE ENERGY
PHONE SERVICE	=	AT&T
WATER SERVICE	=	MISSOURI AMERICAN WATER COMPANY
WATER SERVICE	=	CITY OF ST. LOUIS WATER DEPARTMENT (TRANSMISSION MAINS)
BUILDING TYPE	=	N/A (NO BUILDINGS PROPOSED)
BLDG. CONST. TYPE	=	N/A (NO BUILDINGS PROPOSED)

OWNER / DEVELOPER :

10300 OLIVE, LLC
1034 S. BRENTWOOD, SUITE 2300 PH-1D
ST. LOUIS, MO 63117
MATT PFUND
(618) 692-9502



VICINITY MAP
(NOT TO SCALE)

SHEET INDEX

C-100	TITLE SHEET
C-101	SITE OVERVIEW
C-102	SETBACK AND BUFFER PLAN
C-103	GRADING PLAN
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C-105	PEDESTRIAN PLAN
C-106	SITE SECTIONS
A-103.1-4	SITE LIGHTING PLAN
LD-100	TREE PRESERVATION PLAN
L-140 TO L-147	PLANTING PLAN
L-148	BUFFER PLANTING PLAN
L-150 TO L-151	PLANTING PLAN ENLARGEMENT

SITE DEVELOPMENT CALCULATION NOTES

1. GROSS FLOOR AREA RATIO (FAR) = N/A
2. IMPERVIOUS LAND COVERAGE SUMMARY:
   IMPERVIOUS = 29.4 AC (30.7%)
   PERVIOUS = 66.4 AC (69.3%)
   TOTAL SITE = 95.8 AC (100%)
3. LAND SUMMARY :
   LOT ACREAGE = 64.7 AC
   COMMON GROUND = 25.3 AC
   PUBLIC ROADWAY = 5.8 AC
   TOTAL SITE = 95.8 AC

SITE BENCHMARK :

13294 NAVD88 (SLC2011a) ELEV = 674.60 FtUS
NGVD29 ELEV = 674.91 FtUS

FOUND "SQ" ON TOP OF THE NORTH SIDE OF THE ROUND CONCRETE BASE OF A TRAFFIC SIGNAL ON A TRAFFIC ISLAND SITUATED NORTHEAST OF THE INTERSECTION OF OLIVE BOULEVARD WITH PAVILLION DRIVE, AND SOUTHWEST OF THE RIGHT TURN LANE FROM WESTBOUND OLIVE BOULEVARD ONTO NORTHBOUND PAVILLION DRIVE

SP MO EAST N=315174± E=257868±
ROUGH NAD 83 LAT=38.673342° ± (N/+) LONG=90.409581° ± (W/-)

UTILITY NOTE :

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND INFORMATION, AND, THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NON-EXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE FACILITIES, STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS. THE UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319 RSMo.

DISCLAIMER :

CRAWFORD, MURPHY & TILLY, INC. AND THE UNDERSIGNED ENGINEER HAVE NO RESPONSIBILITY FOR SERVICES PROVIDED BY OTHERS TO IMPLEMENT THE IMPROVEMENTS SHOWN ON THIS PLAN AND ALL OTHER DRAWINGS WHERE THE UNDERSIGNED ENGINEER'S SEAL APPEARS. THE CONSTRUCTION MEANS AND METHODS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND CONTRACTOR. CRAWFORD, MURPHY & TILLY, INC. HAS NO RESPONSIBILITY TO VERIFY FINAL IMPROVEMENTS AS SHOWN ON THIS PLAN UNLESS SPECIFICALLY ENGAGED AND AUTHORIZED TO DO SO BY THE OWNER OR CONTRACTOR.

PREPARED BY:
CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE DEVELOPMENT PLAN

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

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CAD DWG FILE:	ISITE-DEVELOPMENT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
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SHEET TITLE

TITLE SHEET

C-100

SHEET OF --

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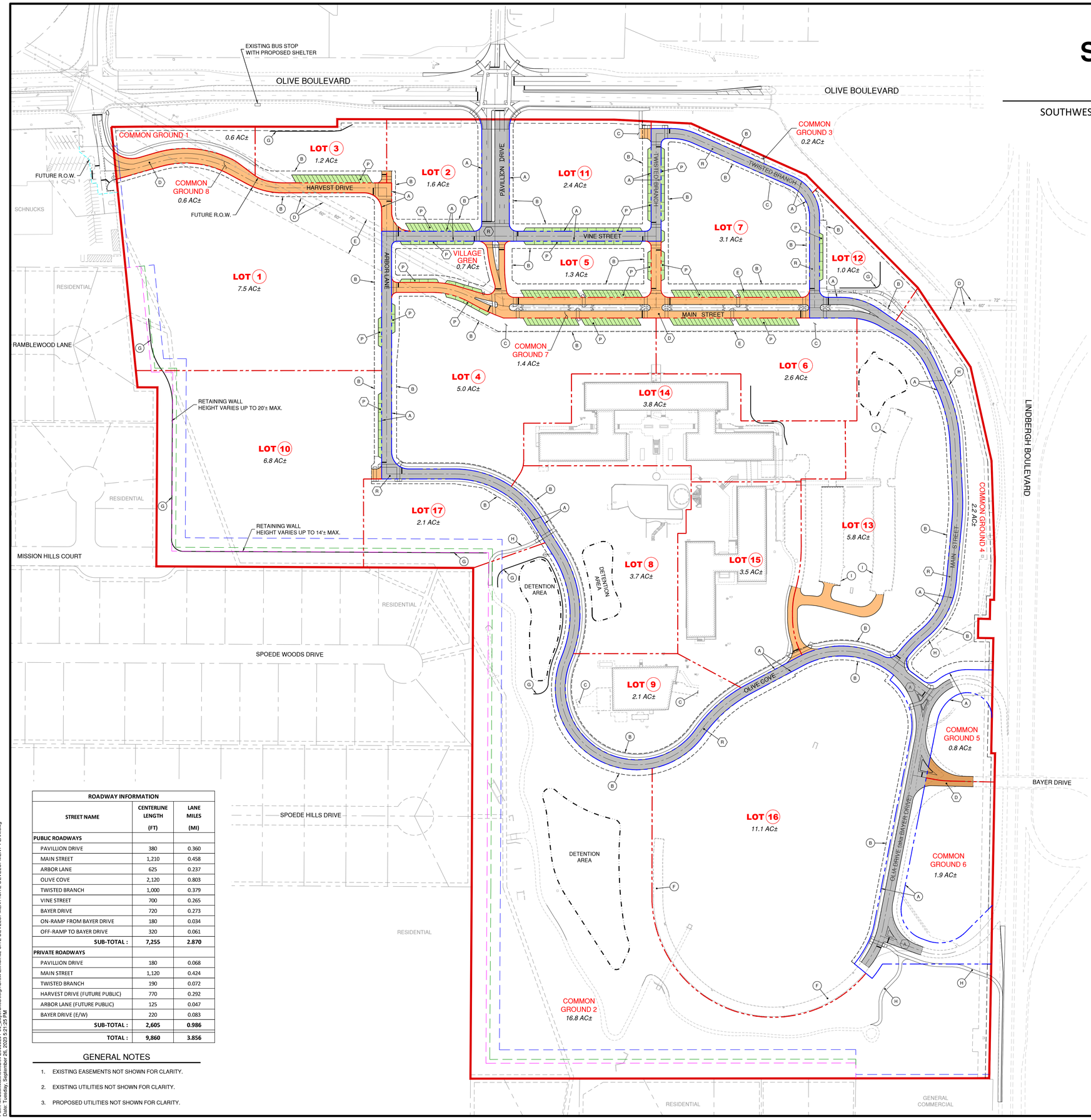
SITE OVERVIEW
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO

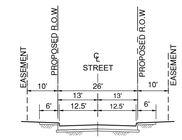


LEGEND

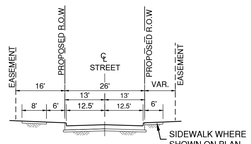
- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED R.I.M.U.S.S. EASEMENT
- (R) PROPOSED ROADWAY (WITHIN RIGHT-OF-WAY)
- (P) PROPOSED ON-STREET PARKING (WITHIN EASEMENT)
- (D) PROPOSED PRIVATE ROADWAY

KEYNOTES

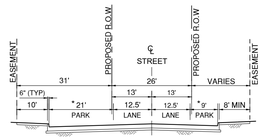
- (A) PROPOSED RIGHT-OF-WAY
- (B) PROPOSED ROADWAY IMPROVEMENT, MAINTENANCE, UTILITY, SEWER, SIDEWALK (R.I.M.U.S.S.) EASEMENT
- (C) FUTURE ENTRANCE
- (D) EXISTING STL WATER MAIN CONDUITS
- (E) EXISTING STL WATER MAIN EASEMENT
- (F) EXISTING PRIVATE DRIVE TO REMAIN
- (G) PROPOSED SITE RETAINING WALL (TYP) MECHANICALLY STABILIZED EARTH OR BLOCK GRAVITY WALL (TO BE DETERMINED UPON FINAL DESIGN)
- (H) PROPOSED WALKING TRAIL OR SIDEWALK (TYP) SEE PEDESTRIAN MOBILITY PLAN
- (I) EXISTING PARKING LOT / DRIVE TO REMAIN



TYPICAL SECTION #1
STANDARD STREET SECTION

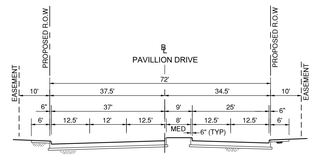


TYPICAL SECTION #2
OLIVE COVE

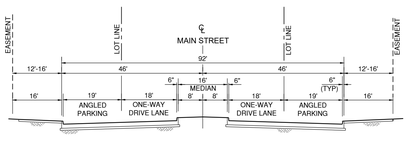


* PARKING VARIES:
9' PARALLEL PARKING
21' ANGLED PARKING

TYPICAL SECTION #3
STANDARD STREET SECTION
WITH ADJACENT PARKING



TYPICAL SECTION #4
PAVILLION DRIVE ENTRANCE



TYPICAL SECTION #5
MAIN STREET (MEDIAN SECTION)

ROADWAY INFORMATION		
STREET NAME	CENTERLINE LENGTH (FT)	LANE MILES (MI)
PUBLIC ROADWAYS		
PAVILLION DRIVE	380	0.360
MAIN STREET	1,210	0.458
ARBOR LANE	625	0.237
OLIVE COVE	2,120	0.803
TWISTED BRANCH	1,000	0.379
VINE STREET	700	0.265
BAYER DRIVE	720	0.273
ON-RAMP FROM BAYER DRIVE	180	0.034
OFF-RAMP TO BAYER DRIVE	320	0.061
SUB-TOTAL :	**7,255**	**2.870**
PRIVATE ROADWAYS		
PAVILLION DRIVE	180	0.068
MAIN STREET	1,120	0.424
TWISTED BRANCH	190	0.072
HARVEST DRIVE (FUTURE PUBLIC)	770	0.292
ARBOR LANE (FUTURE PUBLIC)	125	0.047
BAYER DRIVE (E/W)	220	0.083
SUB-TOTAL :	**2,605**	**0.986**
TOTAL :	**9,860**	**3.856**

GENERAL NOTES

1. EXISTING EASEMENTS NOT SHOWN FOR CLARITY.
2. EXISTING UTILITIES NOT SHOWN FOR CLARITY.
3. PROPOSED UTILITIES NOT SHOWN FOR CLARITY.

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE DEVELOPMENT PLAN

N

100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-DEVELOPMENT-PLAN.DWG
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DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	--
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SHEET TITLE

SITE OVERVIEW

C-101

SHEET OF --

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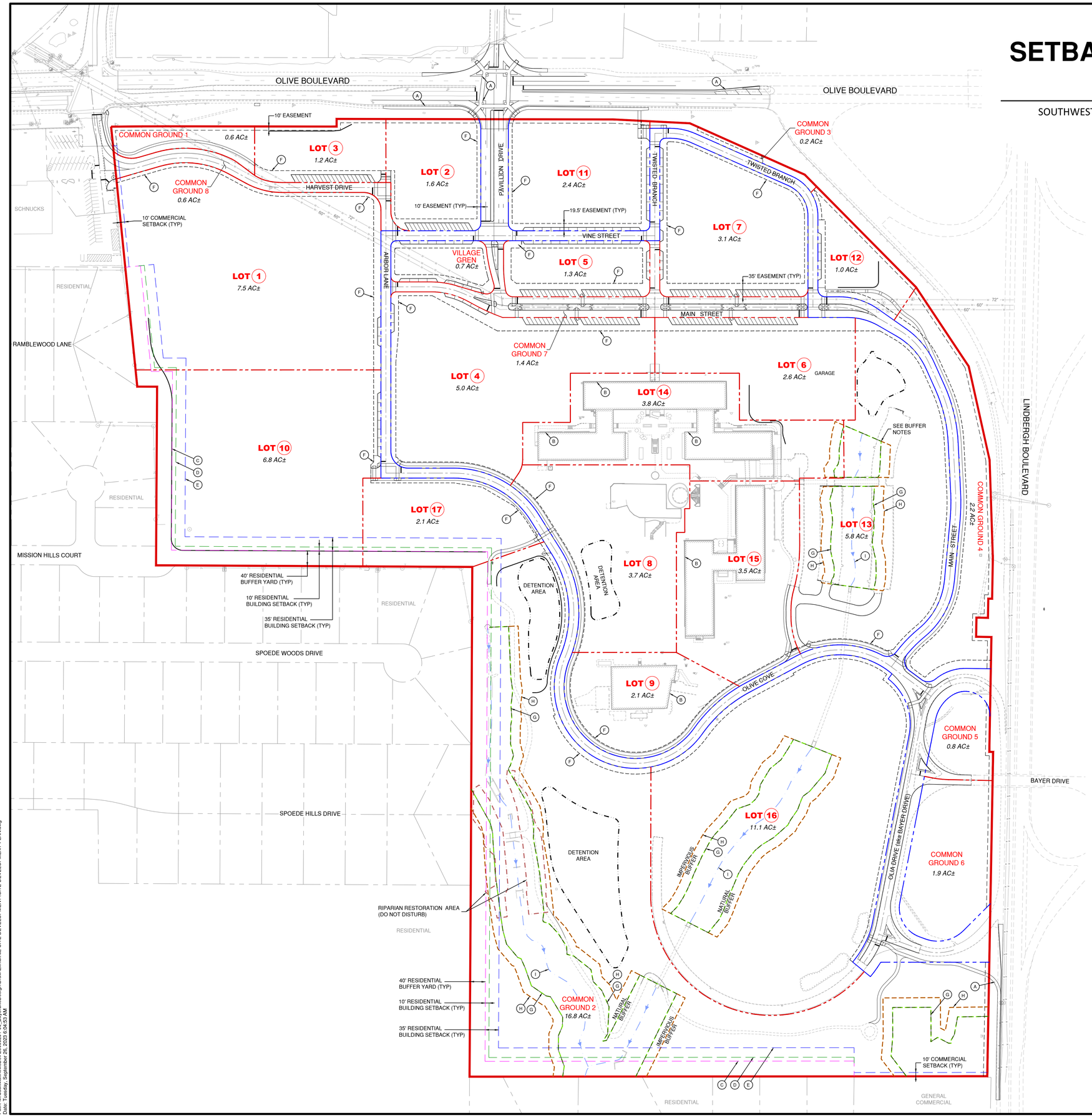
SETBACK & BUFFER PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT
- PROPOSED BUILDING SETBACK

KEYNOTES

- (A) OFF-SITE ROADWAY IMPROVEMENTS ON OLIVE BOULEVARD OR LINDBERGH BOULEVARD (TYP)
- (B) EXISTING BUILDING TO REMAIN AND BE REPURPOSED (TYP)
- (C) 40' RESIDENTIAL BUFFER YARD (TYP)
- (D) 10' RESIDENTIAL BUILDING SETBACK (BEYOND BUFFER)
- (E) 35' COMMERCIAL BUILDING SETBACK (BEYOND BUFFER)
- (F) 10' MINIMUM PROPOSED ROADWAY IMPROVEMENT MAINTENANCE UTILITY SEWER SIDEWALK EASEMENT (PRIMUSSE)
- (G) 50' NATURAL VEGETATION BUFFER
- (H) 25' NO-IMPERVIOUS BUFFER
- (I) EXISTING STREAM TO REMAIN

BUFFER NOTES

1. EXISTING TRAILS AND PAVEMENTS WITHIN NATURAL OR IMPERVIOUS BUFFER LIMITS ARE ALLOWED TO REMAIN.
2. ANY NEW OR IMPROVED PAVEMENTS SHALL NOT ENCROACH INTO NATURAL OR IMPERVIOUS BUFFER LIMITS FURTHER THAN EXISTING PAVEMENT LIMITS.

SETBACK AND BUFFER REQUIREMENTS

SETBACK AND BUILDING LINE REQUIREMENTS WITHIN THE DEVELOPMENT (INTERNAL):

CATEGORY A – " MAIN STREET" SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY B – MIXED USE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY C – GENERAL OFFICE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - ZERO (0) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY D – RESIDENTIAL SUB-DISTRICT:
1. MINIMUM FRONT YARD - FIVE (5) FEET
2. MINIMUM SIDE YARD - NONE OR SEVEN AND A HALF (7.5) FEET
3. MINIMUM REAR YARD - FIVE (5) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - FIFTEEN (15) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

SETBACK AND BUILDING LINE REQUIREMENTS TO ADJACENT PARCELS:

RESIDENTIAL :
1. REQUIRED BUFFER YARD - FORTY (40) FEET
2. MINIMUM RESIDENTIAL BUILDING SETBACK - TEN (10) FEET
3. MINIMUM COMMERCIAL BUILDING SETBACK - THIRTY-FIVE (35) FEET BEYOND BUFFER YARD

NON-RESIDENTIAL :
1. MINIMUM BUILDING SETBACK - TEN (10) FEET

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ONE MEMORIAL DRIVE, SUITE 500
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OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE DEVELOPMENT PLAN

100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	!SITE-DEVELOPMENT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	---
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SHEET TITLE

SETBACK & BUFFER PLAN

C-102

SHEET OF --

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GRADING PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO

OLIVE BOULEVARD
OLIVE BOULEVARD
HARVEST DRIVE
PAVILION DRIVE
TWISTED BRANCH
TWISTED BRANCH
VINE STREET
MAIN STREET
ARBOR LANE
SECTION A-A
SECTION B-B
A-A C-106
B-B C-106
RAMBLEWOOD LANE
MISSION HILLS COURT
SPOEDE WOODS DRIVE
SPOEDE HILLS DRIVE
LINDBERGH BOULEVARD
MAIN STREET
OLIVE COVE
OLIA DRIVE (aka BAYER DRIVE)
BAYER DRIVE
DETENTION AREA
DETENTION AREA
DETENTION AREA

LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- 660 EXISTING CONTOUR
- 660 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- CONCEPTUAL BLDG FOOTPRINT

KEYNOTES

(A) PROPOSED STORM SEWER (TYP)

(B) PROPOSED SITE RETAINING WALL (TYP)
MECHANICALLY STABILIZED EARTH OR BLOCK GRAVITY WALL
(TO BE DETERMINED UPON FINAL DESIGN)

(C) 50' NATURAL VEGETATION BUFFER

PREPARED BY:

CMT
Crawford, Murphy & Tilly

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ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

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SITE DEVELOPMENT PLAN

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100' 50' 0' 100' 200'
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SHEET TITLE

GRADING PLAN

C-103

SHEET - OF --

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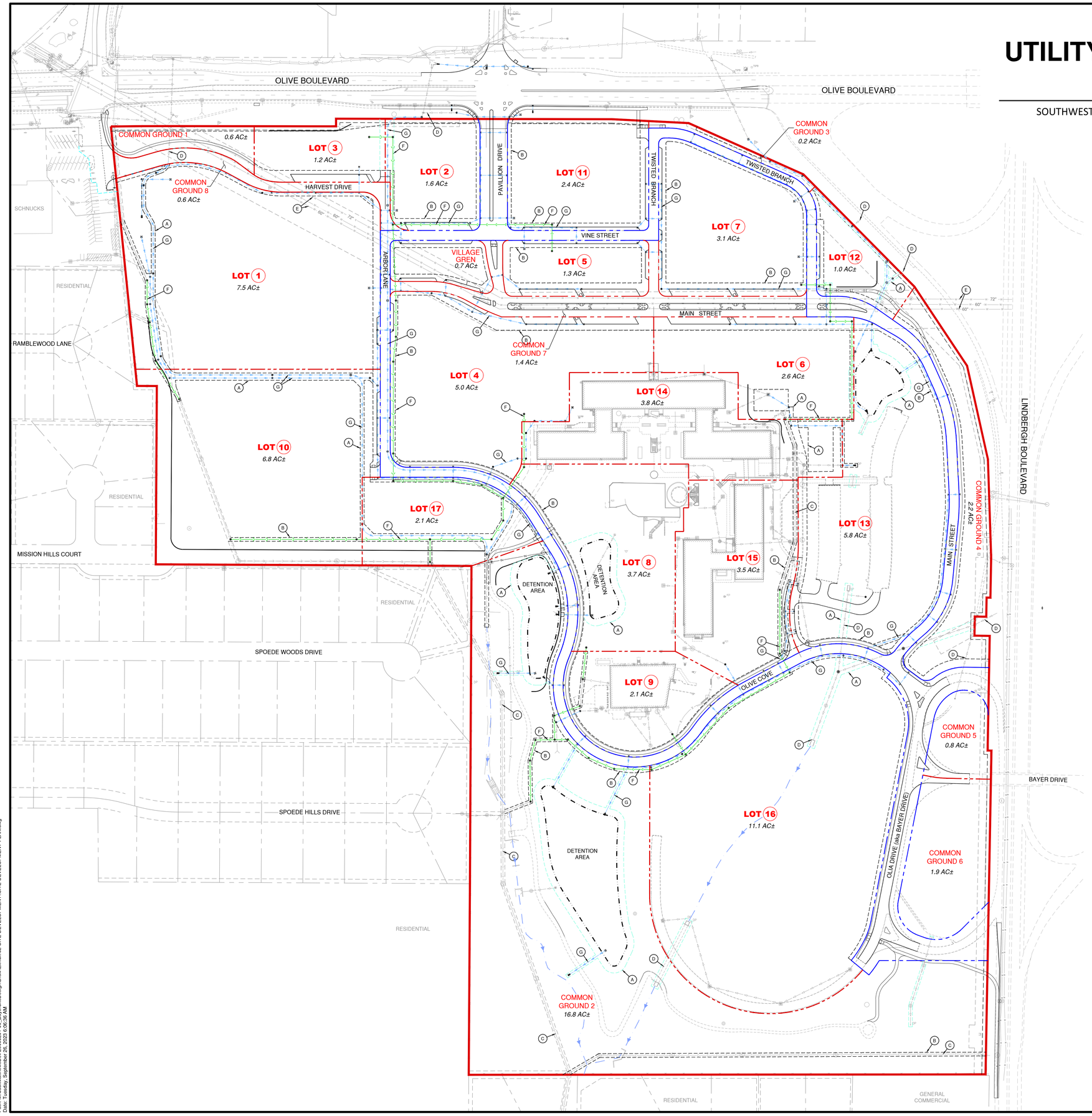
UTILITY & DRAINAGE PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED EASEMENT

KEYNOTES

- (A) DRAINAGE EASEMENT (TYP)
- (B) UTILITY EASEMENT (TYP)
- (C) EXISTING SANITARY SEWER
- (D) EXISTING STORM DRAINAGE SYSTEM
- (E) EXISTING STL WATER CO. WATERMAIN CONDUITS
- (F) PROPOSED SANITARY SEWER (TYP)
- (G) PROPOSED STORM DRAINAGE SYSTEM (TYP)

PREPARED BY:

CMT
Crawford, Murphy & Tilly

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LICENSE NO. 184-000631

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SITE DEVELOPMENT PLAN

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100' 50' 0' 100' 200'

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STATE OF MISSOURI
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SHEET TITLE

UTILITY & DRAINAGE PLAN

C-104

SHEET - OF --

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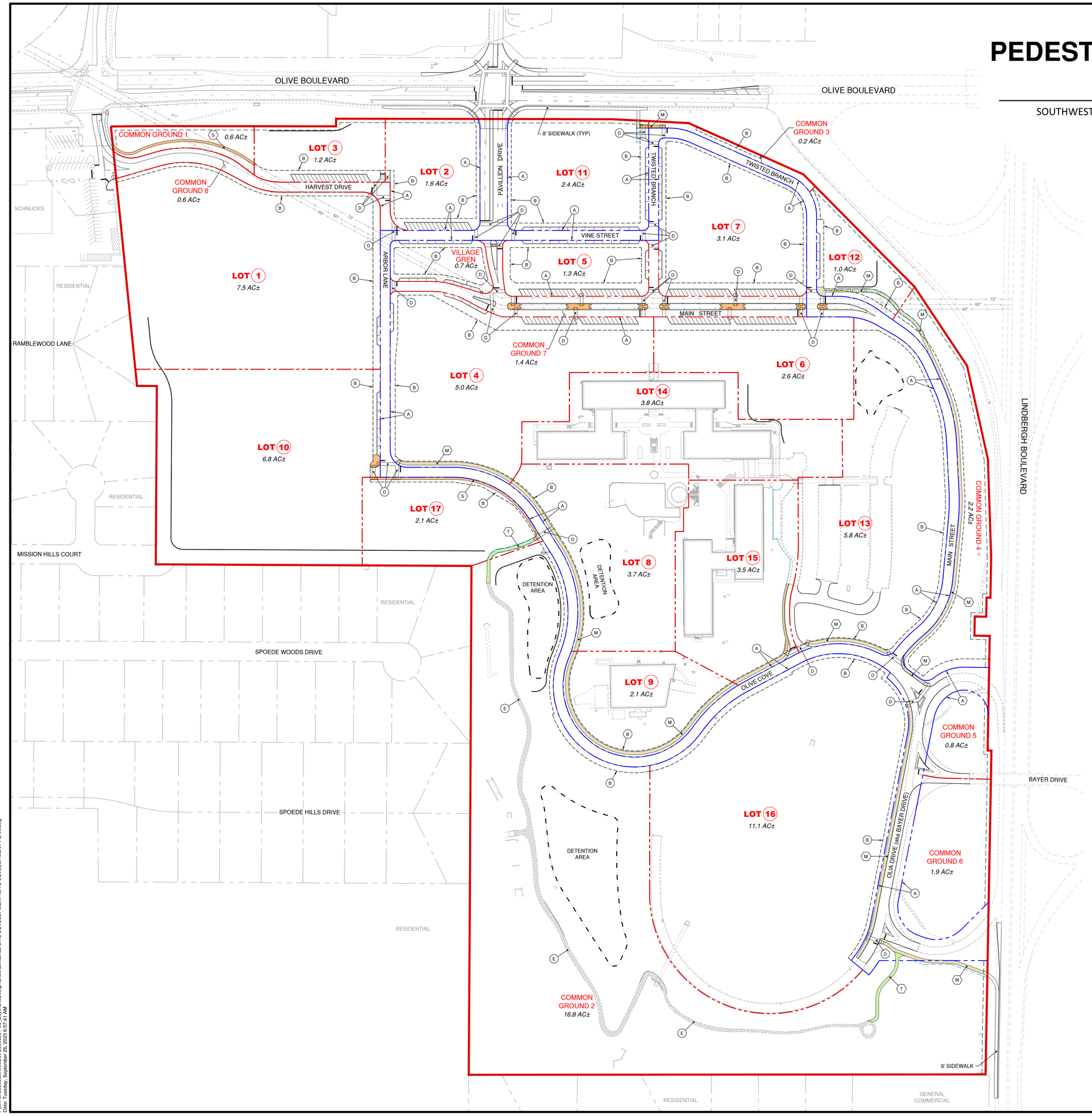
Date: Tuesday, September 26, 2023 5:06:39 AM

PEDESTRIAN MOBILITY PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT
- ROADWAY STRIPING - STOP BAR
- ROADWAY STRIPING - CROSSWALK
- (S) PROPOSED CONCRETE SIDEWALK (WITHIN EASEMENT)
- (M) PROPOSED CONCRETE MULTI-USE SIDEWALK 8' MIN WIDE (WITHIN EASEMENT)
- (T) PROPOSED 8' WIDE NATURAL AGGREGATE TRAIL (WITHIN EASEMENT ON NON-COMMON AREAS)

KEYNOTES

- (A) PROPOSED RIGHT-OF-WAY
- (B) PROPOSED ROADWAY IMPROVEMENT, MAINTENANCE, UTILITY, SEWER, SIDEWALK (R.I.M.U.S.S.) EASEMENT
- (C) PROPOSED SIDEWALK EASEMENT
- (D) PROPOSED CROSSWALK
- (E) EXISTING AGGREGATE TRAIL TO REMAIN (WIDTH VARIES APPROXIMATELY 8' TO 12')

PEDESTRIAN MOBILITY INFORMATION

LOCATION	STANDARD SIDEWALK LENGTH (FT)	NATURAL TRAIL LENGTH (FT)	8' MULTI-USE SIDEWALK (FT)
PAVILLION DRIVE			
MAIN STREET			
MAIN STREET (EAST LEG)			1,245
HARVEST DRIVE	390		
ARBOR LANE			
OLIVE COVE	2,520		
TWISTED BRANCH			
VINE STREET			
OLIA DRIVE (AKA BAYER DRIVE)			690
(TO) LINDBERGH BLVD			300
WEST / SOUTH TRAIL (PROPOSED)		400	
WEST / SOUTH TRAIL (EXISTING)		2,210	
SUB-TOTAL :	**2,910**	**2,610**	**2,235**
TOTAL SIDEWALK / TRAIL (FT) :		**7,755**	
TOTAL SIDEWALK / TRAIL (MI) :		**1.5**	

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE DEVELOPMENT PLAN

N

100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-DEVELOPMENT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	--
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2023

SHEET TITLE

PEDESTRIAN PLAN

C-105

SHEET - OF --

Path: M:\Jack\Matthew\aDwv\23005201-00_BayerSiteDesign\Draw\Exhibit\02-SITE-DEVELOPMENT\ISITE-DEVELOPMENT-PLAN.dwg
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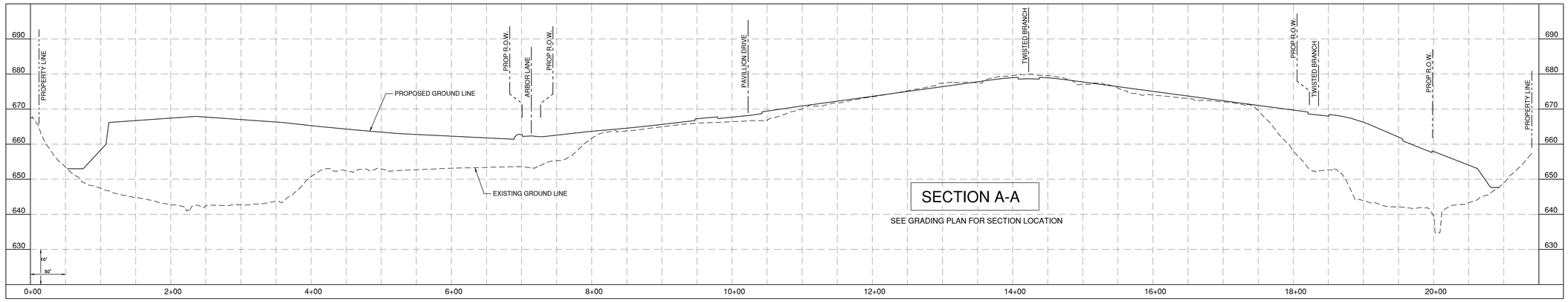
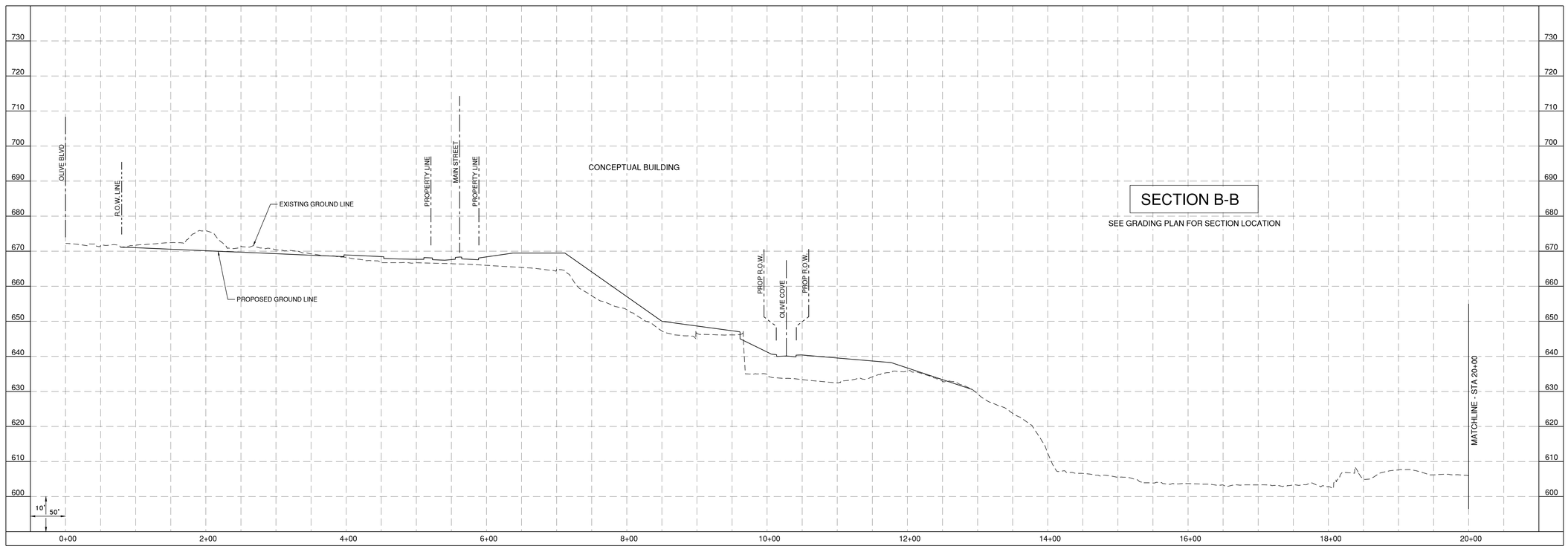


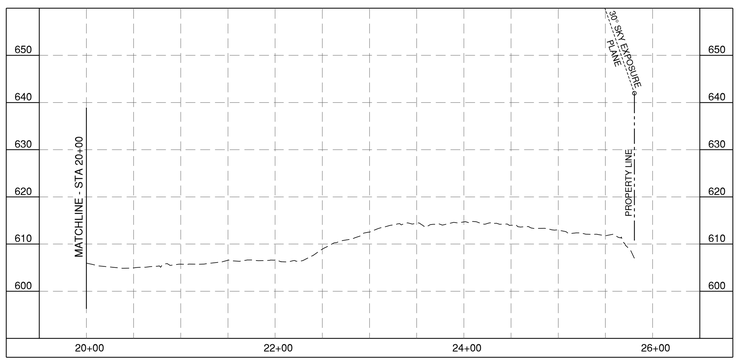
SECTION A-A

SEE GRADING PLAN FOR SECTION LOCATION



SECTION B-B

SEE GRADING PLAN FOR SECTION LOCATION



PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE DEVELOPMENT PLAN

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-DEVELOPMENT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	---
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2023

SHEET TITLE

SITE SECTIONS

C-106

SHEET - OF --

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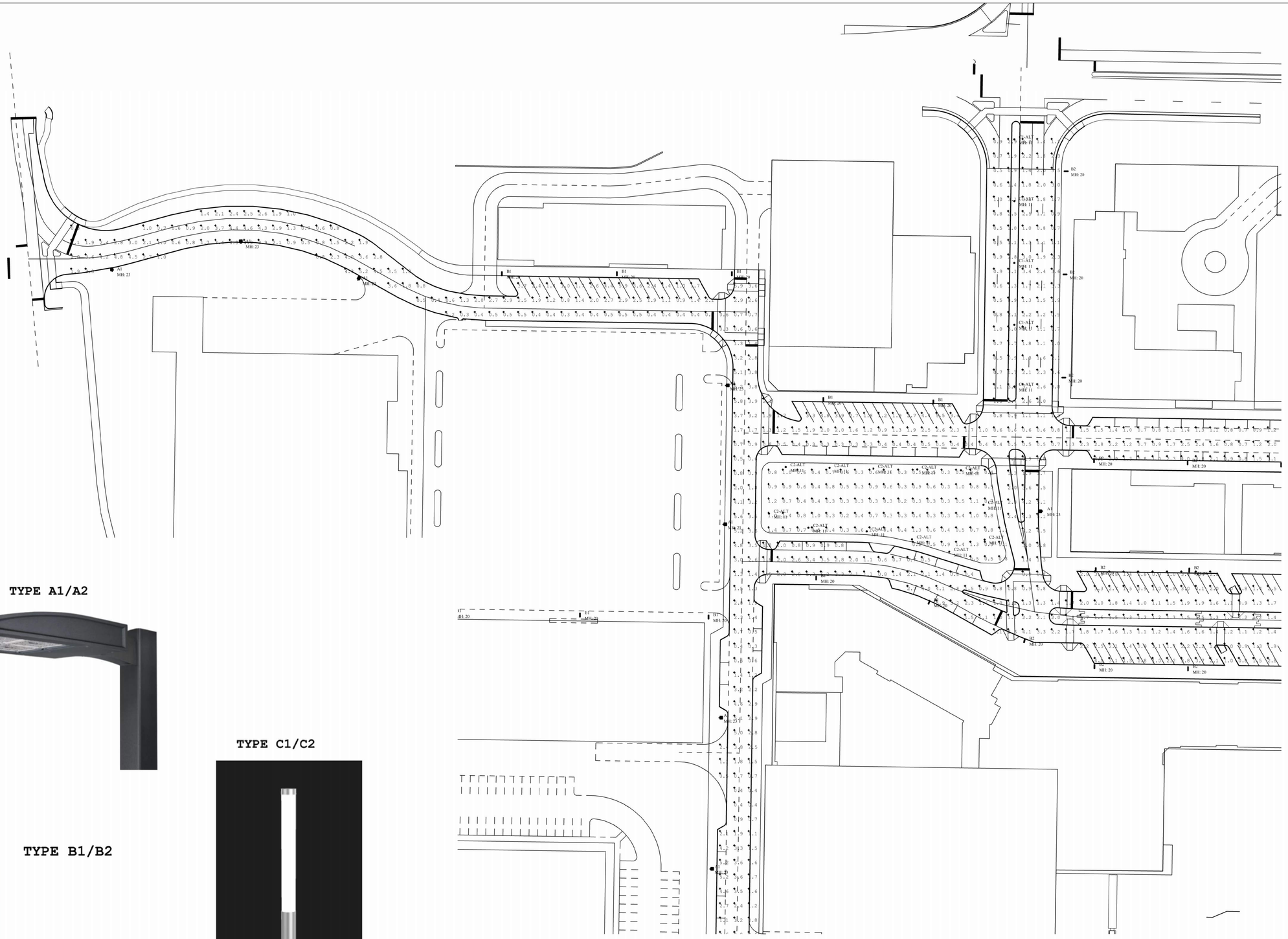
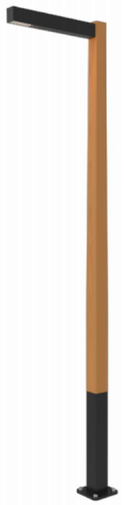


TYPE A1/A2

TYPE B1/B2



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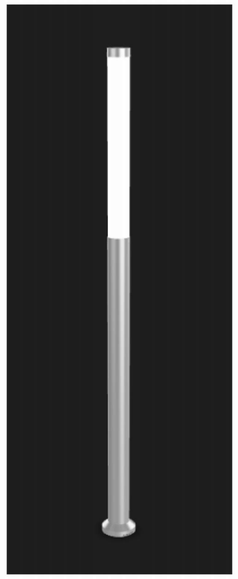


OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
08.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO: 22478.00
CAD DWG FILE: GRAY RENDERINGS A.DWG
DESIGNED BY: TDH/BKP
DRAWN BY: TDH
CHECKED BY:
APPROVED BY:

COPYRIGHT: GRAY DESIGN GROUP, INC. 2023

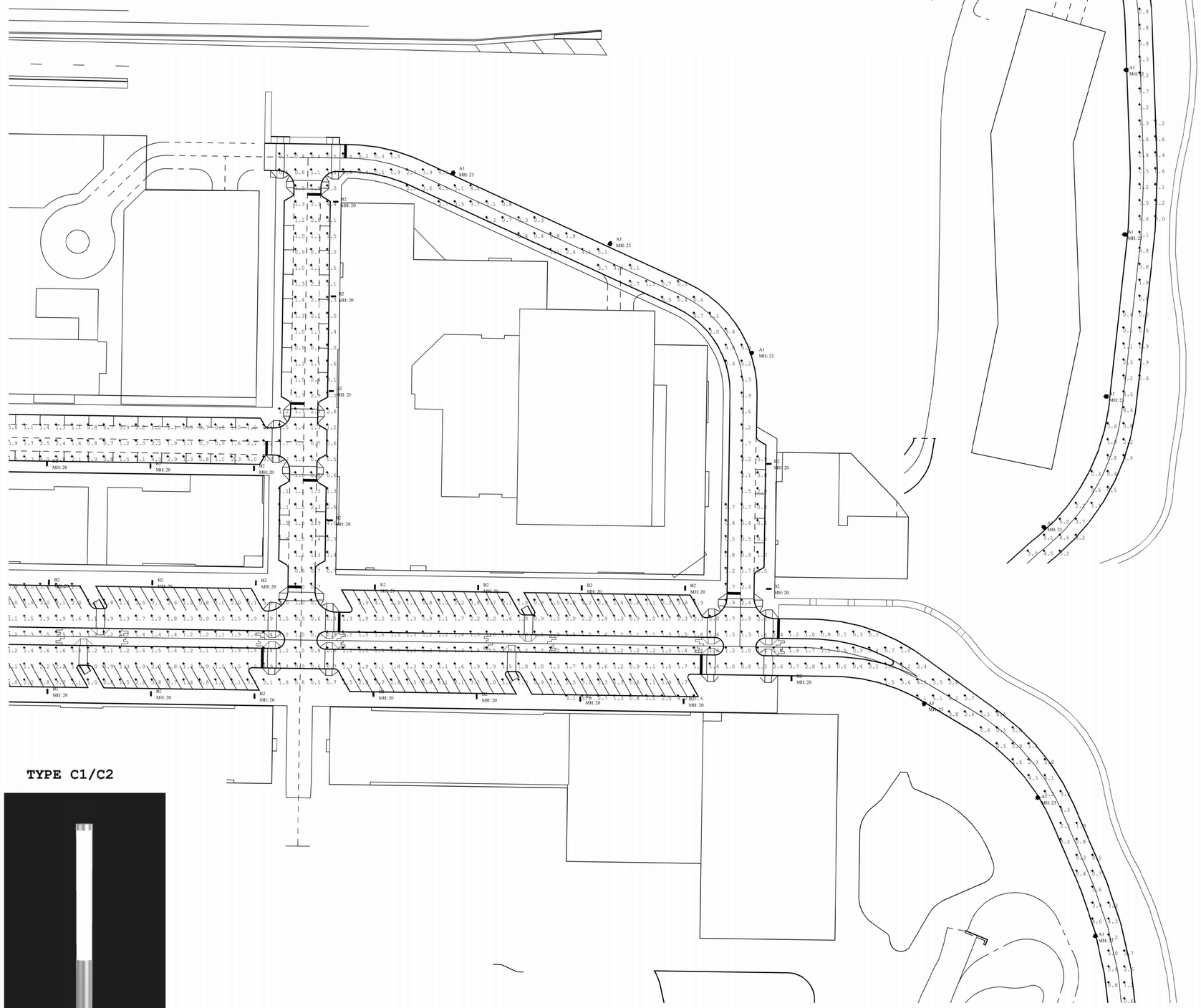
SHEET TITLE

SITE LIGHTING

A-103.1

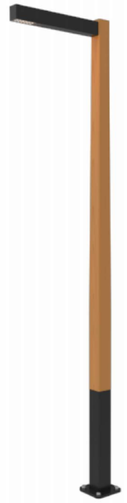
SHEET OF

A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED

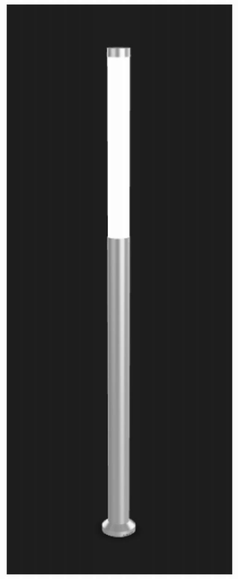


TYPE A1/A2

TYPE B1/B2



TYPE C1/C2



OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOMAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
09.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO: 22478.00
CAD DWG FILE: GRAY RENDERINGS A.DWG
DESIGNED BY: TDH/BKP
DRAWN BY: TDH
CHECKED BY:
APPROVED BY:
COPYRIGHT: GRAY DESIGN GROUP, INC. 2023

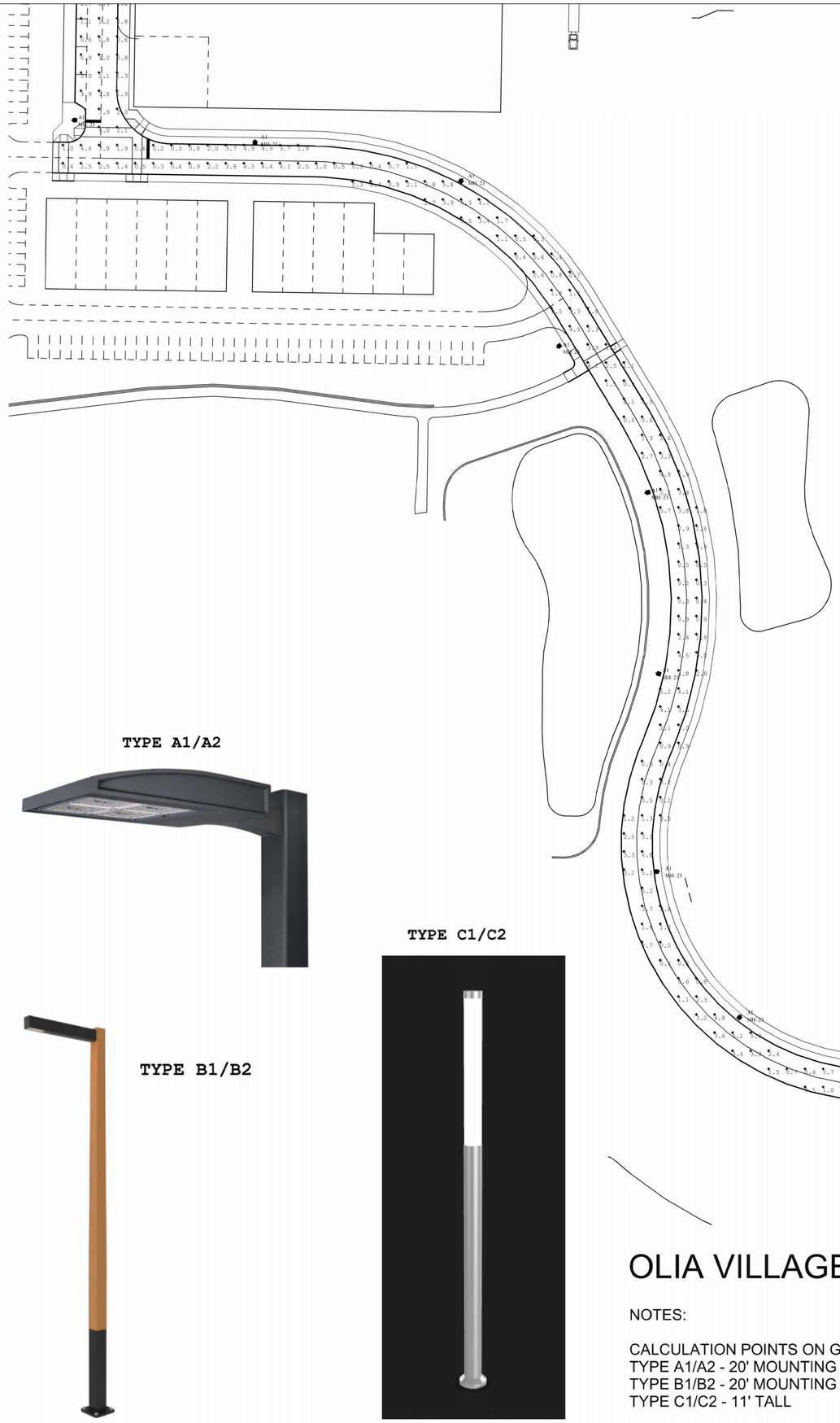
SHEET TITLE

SITE LIGHTING

A-103.2

SHEET OF

IF A SEAL IS PRESENT ON THIS SHEET IT WAS SIGNED ELECTRONICALLY SEALED AND DATED



TYPE A1/A2

TYPE B1/B2

TYPE C1/C2

OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
REGISTERED ARCHITECT
08.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
CAD DWG FILE:	GRAY RENDERINGS A.DWG
DESIGNED BY:	TDH/BKP
DRAWN BY:	TDH
CHECKED BY:	
APPROVED BY:	
COPYRIGHT:	GRAY DESIGN GROUP, INC. 2023

SHEET TITLE

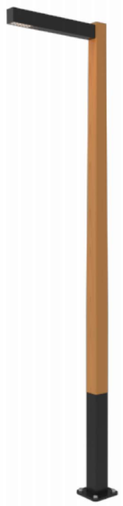
SITE LIGHTING

A-103.3

SHEET OF

IF SEAL IS PRESENT ON THIS SHEET IT WAS DIGITALLY SEALED AND DATED

TYPE A1/A2



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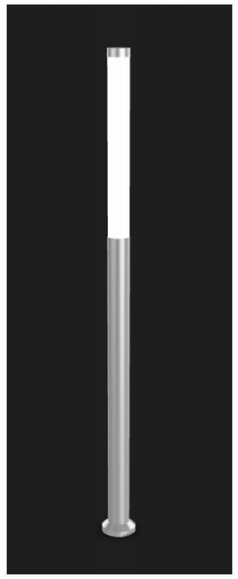

TYPE C1/C2

OLIA VILLAGE

NOTES:

CALCULATION POINTS ON GROUND
TYPE A1/A2 - 20' MOUNTING HEIGHT PLUS 3' BASE
TYPE B1/B2 - 20' MOUNTING HEIGHT
TYPE C1/C2 - 11' TALL

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	35	A1	Single	N.A.	0.912	GALN-SA3C-740-U-T3
	4	A2	Single	N.A.	0.912	GALN-SA4C-740-U-SL3
	10	B1	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-3
	31	B2	Single	N.A.	0.900	BLDM-SD-120_277-CSL-L160-40K-CRI 70-4
	5	C1-ALT	Single	N.A.	0.900	MTRCL-X-4-4B30-30-XX-UNV
	12	C2-ALT	Single	N.A.	0.900	MTRCL-X-4-1B30-30-XX-UNV

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARK	Illuminance	Fc	0.62	1.4	0.2	3.1	7.0
SITE	Illuminance	Fc	1.95	6.8	0.2	9.8	34.0

PREPARED BY:

gray

9 SUNNEN DRIVE, SUITE 110
ST. LOUIS, MO 63143
OFFICE NO. (314) 646-0400
LICENSE NO. A-2007011296

CONSULTANTS:

STATE OF MISSOURI
TOBIAS HEDDINGHAUS
NUMBER A-2007011296
ARCHITECT
08.11.2023

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	22478.00
CAD DWG FILE:	GRAY RENDERINGS A.DWG
DESIGNED BY:	TDH/BKP
DRAWN BY:	TDH
CHECKED BY:	
APPROVED BY:	

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SHEET TITLE

SITE LIGHTING

A-103.4

SHEET OF

IF A SEAL IS PRESENT ON THIS SHEET IT WAS DIGITALLY SEALED AND DATED.

GENERAL NOTE
1. TREES SHOWN TO BE REMOVED AND TO REMAIN ARE BASED ON CONCEPTUAL SITE DESIGN AND GRADING DRAWINGS DATED 9/13/23 AND ARE SUBJECT TO CHANGE

LEGEND

TREE OR TREE MASS TO REMAIN (50%)

TREE OR TREE MASS TO BE REMOVED (50%)

NOTE:
TREE SYMBOLS REPRESENT ONE 6" OR LARGER DIA. TREE. SOME TREE MASSES TOO DENSE TO SURVEY INDIVIDUAL TREES. QUANTITY OF TREES IN THESE MASSES ESTIMATED BASED ON DENSITY OF SURVEYABLE WOODED AREAS.

A TREE PRESERVATION PLAN
SCALE: 1"=100'

Graphic Scale: 1" = 100'
0' 50' 100' 200' 300'

Call Before you DIG
TOLL FREE
1-800-344-7483
MISSOURI ONE-CALL SYSTEM INC.
MODOT (314) 340-4100

NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY IN EVENTS OF DISCREPANCIES, OMISSIONS, AND/OR CONFLICTS IN THE DRAWINGS OR SPECIFICATIONS. THE CONTRACTOR IS NOT AUTHORIZED TO SCALE THE DRAWINGS. ALL QUESTIONS IN REFERENCE TO CONTRACT DOCUMENTS SHALL BE IMMEDIATELY DIRECTED TO THE LANDSCAPE ARCHITECT.

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION
4	9/26/23	LANDSCAPE CONCEPT PLANS
3	9/13/23	LANDSCAPE CONCEPT PLANS
2	8/11/23	LANDSCAPE CONCEPT PLANS
1	7/21/23	LANDSCAPE CONCEPT PLANS

PROJECT NO:	23005201-00
CAD DWG FILE:	21585.01_SHEETS_GENERAL.DWG
DESIGNED BY:	WH
DRAWN BY:	MB/ZTS
CHECKED BY:	BR
APPROVED BY:	BR
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2023

SHEET TITLE

TREE PRESERVATION PLAN

LD-100

SHEET 1 OF

Path: N:\04_Projects\21585_Olia Village\21585.01_Olia Village Schematic Design\02_Production\04_Auto\CAD\21585.01_Sheets_General.dwg
Date: Tuesday, September 26, 2023 3:43:43 PM

LEGEND

EXISTING VEGETATION

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

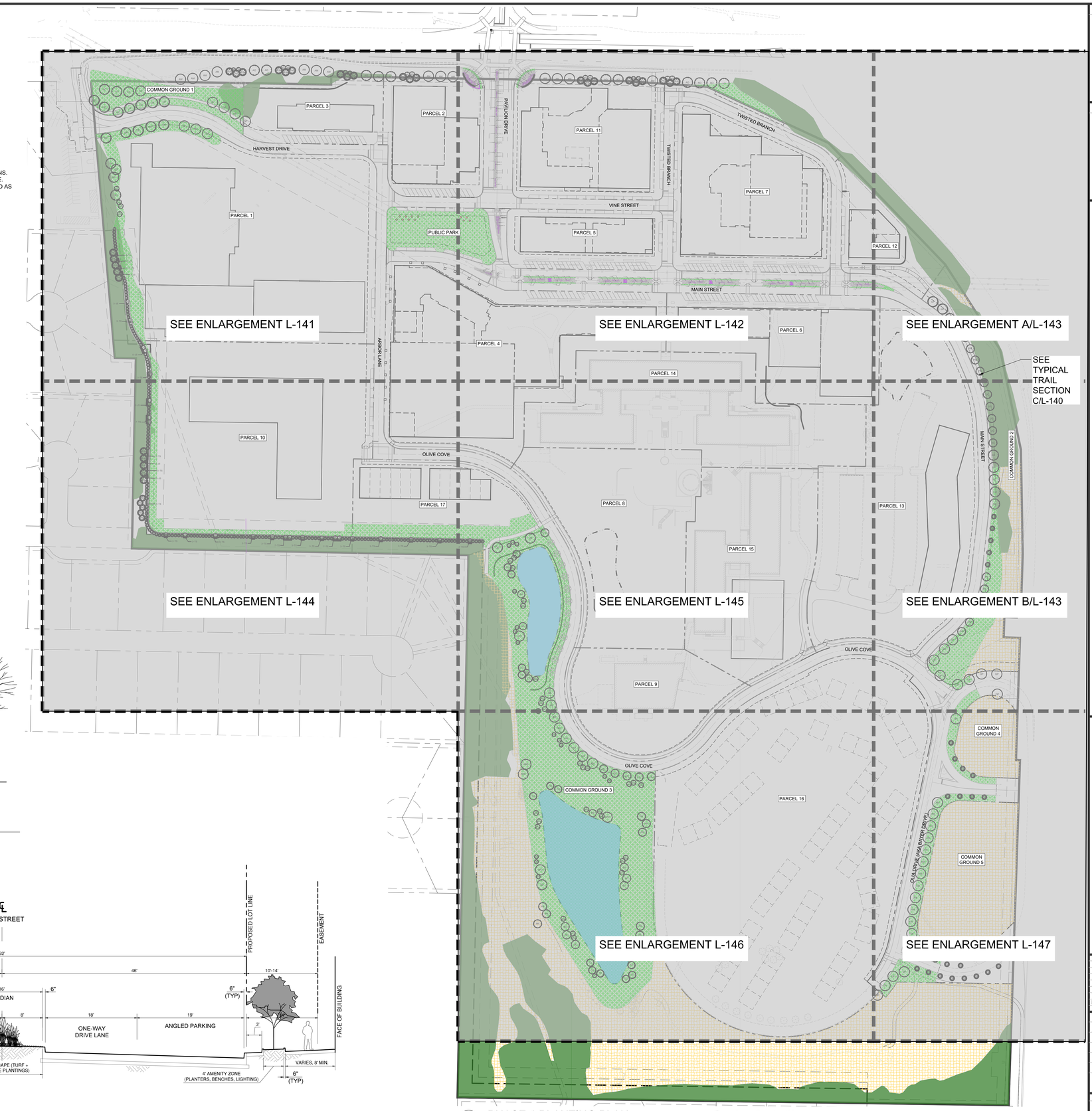
ORNAMENTAL LANDSCAPE PLANTINGS
COMBINATION OF SHRUB, PERENNIAL, AND GROUNDCOVER SPECIES ADAPTED TO REGIONAL CLIMATE AND SITE CONDITIONS. NATIVE PLANT MATERIAL TO BE UTILIZED WHERE APPROPRIATE. 39NROTH GREAT STREETS PLAN PLANT PALETTE WILL BE USED AS A REFERENCE WHEN DETERMINING FINAL PLANT MATERIAL

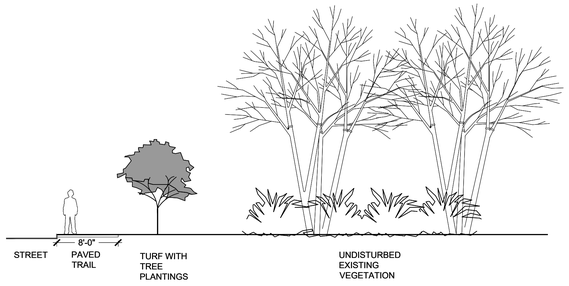
EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

PROPOSED TREES

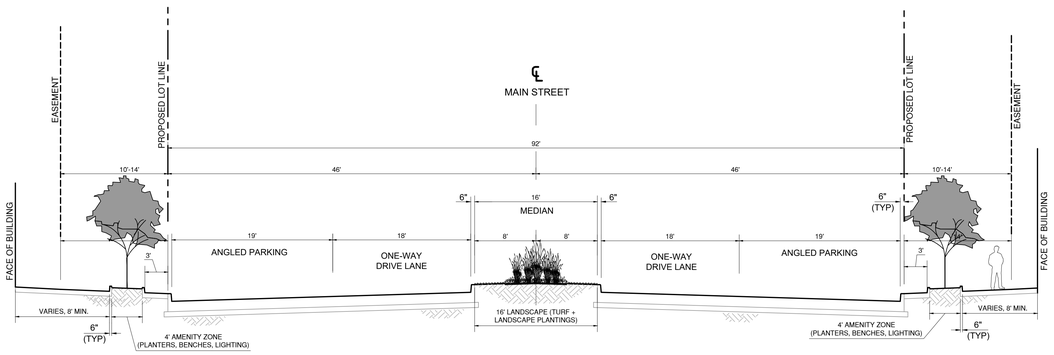
EXISTING TREES TO REMAIN

NOTES
1. TREES AND LIGHTING WITHIN CITY OF ST. LOUIS EASEMENT REQUIRES CITY APPROVAL.
2. IRRIGATION WILL BE PROVIDED TO NEW LANDSCAPE BEDS. A WATER LINE WILL BE INSTALLED TO THE MEDIAN IN OLIVE WEST OF PAVILION.
3. ALL DISTURBED AREAS NOT OTHERWISE IMPROVED SHALL RECEIVE SEEDED TURF GRASS.
4. ALL LANDSCAPE SHALL COMPLY WITH THE REQUIREMENTS DETAILED IN ATTACHMENT B.
5. SEE SHEET L-147 FOR OVERALL PLANTING SCHEDULE





C TYPICAL TRAIL SECTION
SCALE: 1"=8'



B TYPICAL SECTION - MAIN STREET (MEDIAN SECTION)
SCALE: 1"= 8' HORIZONTAL, 1"= 4' VERTICAL

A PHASE 1 PLANTING PLAN
SCALE: 1"=100'

Graphic Scale: 1" = 100'
0' 50' 100' 200' 300'

Call Before you DIG
TOLL FREE
1-800-344-7483
MISSOURI ONE-CALL SYSTEM INC.
MODOT (314) 340-4100

NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY IN EVENTS OF DISCREPANCIES, OMISSIONS, AND/OR CONFLICTS IN THE DRAWINGS OR SPECIFICATIONS. THE CONTRACTOR IS NOT AUTHORIZED TO SCALE THE DRAWINGS. ALL QUESTIONS IN REFERENCE TO CONTRACT DOCUMENTS SHALL BE IMMEDIATELY DIRECTED TO THE LANDSCAPE ARCHITECT.

PREPARED BY:
CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:
SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

BONNIE C. ROY — STATE OF MISSOURI — LANDSCAPE ARCHITECT — 2005014763
9/26/23
Bonnie C. Roy
Landscape Architect MO
#LA-2005014763

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT
LINDBERGH & OLIVE BLVD
OLIA VILLAGE
THE HEART OF CREVE COEUR
10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION
3	9/26/23	PHASE 1 Resubmittal
2	9/13/23	PHASE 1 Resubmittal
1	8/11/23	PHASE 1 LANDSCAPE DEVELOPMENT PLANS

PROJECT NO:	23005201-00
CAD DWG FILE:	21585.01_SHEETS_PLANTING_PHASE 1.DWG
DESIGNED BY:	WH
DRAWN BY:	MB/ZTS
CHECKED BY:	BR
APPROVED BY:	BR
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SHEET TITLE
PHASE 1 PLANTING PLAN

L-140
SHEET OF

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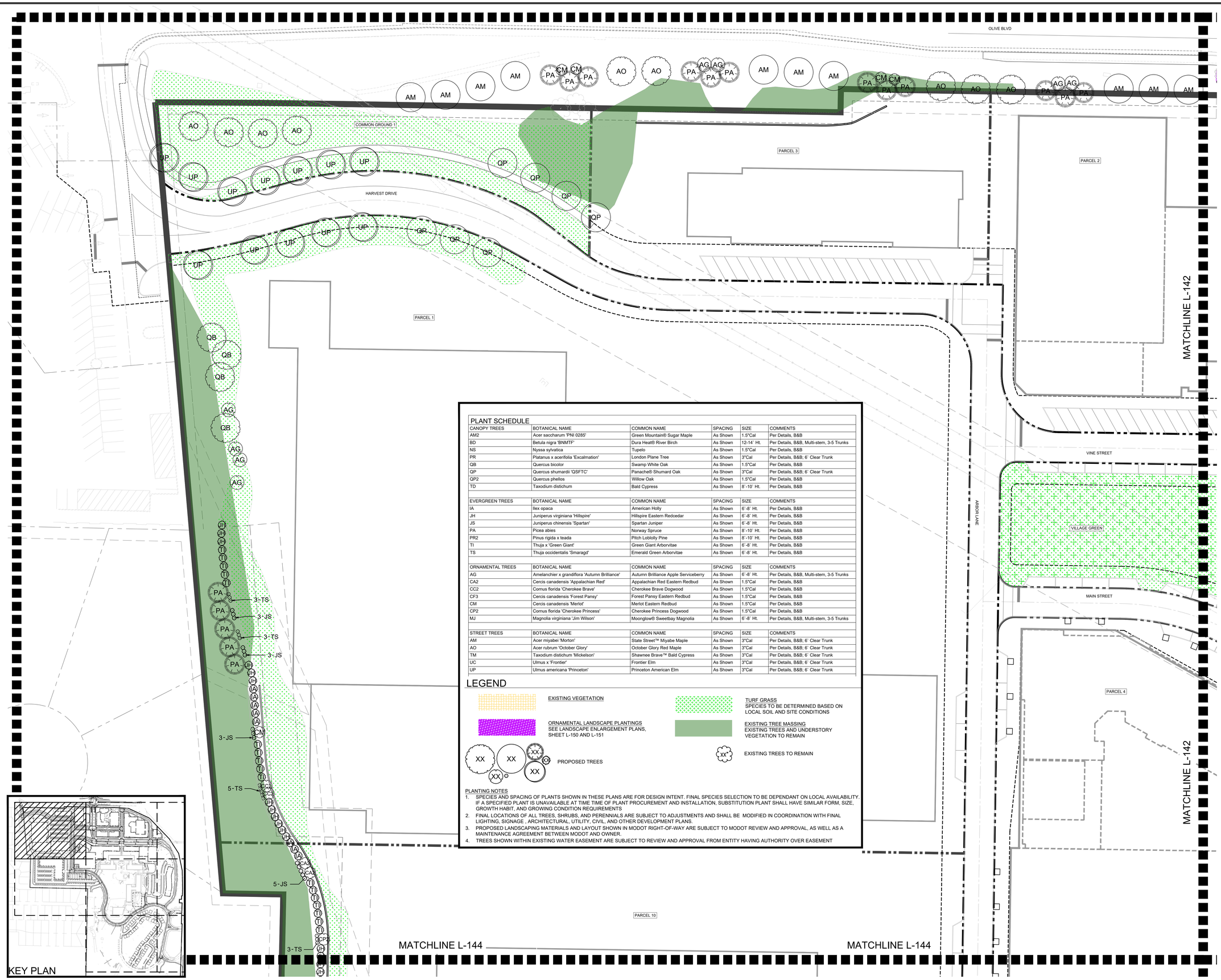

PLANT SCHEDULE					
CANOPY TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AM2	Acer saccharum 'PNI 0285'	Green Mountain® Sugar Maple	As Shown	1.5"Cal	Per Details, B&B
BD	Betula nigra 'BNMTF'	Dura Heat® River Birch	As Shown	12-14' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
NS	Nyssa sylvatica	Tupelo	As Shown	1.5"Cal	Per Details, B&B
PR	Platanus x acerifolia 'Excalmation'	London Plane Tree	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
QB	Quercus bicolor	Swamp White Oak	As Shown	1.5"Cal	Per Details, B&B
QP	Quercus shumardii 'QSFTC'	Panache® Shumard Oak	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
QP2	Quercus phellos	Willow Oak	As Shown	1.5"Cal	Per Details, B&B
TD	Taxodium distichum	Bald Cypress	As Shown	8'-10' Ht.	Per Details, B&B
EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
IA	Ilex opaca	American Holly	As Shown	6'-8' Ht.	Per Details, B&B
JH	Juniperus virginiana 'Hillspire'	Hillspire Eastern Redcedar	As Shown	6'-8' Ht.	Per Details, B&B
JS	Juniperus chinensis 'Spartan'	Spartan Juniper	As Shown	6'-8' Ht.	Per Details, B&B
PA	Picea abies	Norway Spruce	As Shown	8'-10' Ht.	Per Details, B&B
PR2	Pinus rigida x teada	Pitch Loblolly Pine	As Shown	8'-10' Ht.	Per Details, B&B
TI	Thuja x 'Green Giant'	Green Giant Arborvitae	As Shown	6'-8' Ht.	Per Details, B&B
TS	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	As Shown	6'-8' Ht.	Per Details, B&B
ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AG	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Apple Serviceberry	As Shown	6'-8' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
CA2	Cercis canadensis 'Appalachian Red'	Appalachian Red Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CC2	Cornus florida 'Cherokee Brave'	Cherokee Brave Dogwood	As Shown	1.5"Cal	Per Details, B&B
CF3	Cercis canadensis 'Forest Pansy'	Forest Pansy Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CM	Cercis canadensis 'Merlot'	Merlot Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CP2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	As Shown	1.5"Cal	Per Details, B&B
MJ	Magnolia virginiana 'Jim Wilson'	Moonglow® Sweetbay Magnolia	As Shown	6'-8' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
STREET TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AM	Acer miyabei 'Morton'	State Street™ Miyabe Maple	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
AO	Acer rubrum 'October Glory'	October Glory Red Maple	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
TM	Taxodium distichum 'Mickelson'	Shawnee Brave™ Bald Cypress	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
UC	Ulmus x 'Frontier'	Frontier Elm	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
UP	Ulmus americana 'Princeton'	Princeton American Elm	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk

LEGEND

EXISTING VEGETATION

ORNAMENTAL LANDSCAPE PLANTINGS
SEE LANDSCAPE ENLARGEMENT PLANS, SHEET L-150 AND L-151

PROPOSED TREES

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

EXISTING TREES TO REMAIN

PLANTING NOTES

1. SPECIES AND SPACING OF PLANTS SHOWN IN THESE PLANS ARE FOR DESIGN INTENT. FINAL SPECIES SELECTION TO BE DEPENDANT ON LOCAL AVAILABILITY. IF A SPECIFIED PLANT IS UNAVAILABLE AT TIME TIME OF PLANT PROCUREMENT AND INSTALLATION, SUBSTITUTION PLANT SHALL HAVE SIMILAR FORM, SIZE, GROWTH HABIT, AND GROWING CONDITION REQUIREMENTS
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4. TREES SHOWN WITHIN EXISTING WATER EASEMENT ARE SUBJECT TO REVIEW AND APPROVAL FROM ENTITY HAVING AUTHORITY OVER EASEMENT

KEY PLAN

A PHASE 1 PLANTING PLAN - ENLARGEMENT
SCALE: 1"=30'

Graphic Scale: 1" = 30'
0' 15' 30' 60' 90'

PREPARED BY:
CMT
Crawford, Murphy & Tilly
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STATE OF MISSOURI
BONNIE C. ROY
LA-2009014763
LANDSCAPE ARCHITECT

9/26/23
Bonnie C. Roy
Landscape Architect MO
#LA-2009014763

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION
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SEE ENLARGEMENT B/L-150

SEE ENLARGEMENT A/L-150

MATCHLINE L-141

MATCHLINE A/L-143

PARCEL 2

PAVILION DRIVE

PARCEL 11

TWISTED BRANCH

PARCEL 7

PARCEL 5

PARCEL 12

AM AM AM AG AG PA PA PA AO AO CM CM PA PA PA AM PA AG AG PA PA PA AO AO AO AO

PLANT SCHEDULE

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TS	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	As Shown	6'-8' Ht.	Per Details, B&B

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CC2	Cornus florida 'Cherokee Brave'	Cherokee Brave Dogwood	As Shown	1.5"Cal	Per Details, B&B
CF3	Cercis canadensis 'Forest Pansy'	Forest Pansy Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CM	Cercis canadensis 'Merlot'	Merlot Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CP2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	As Shown	1.5"Cal	Per Details, B&B
MJ	Magnolia virginiana 'Jim Wilson'	Moonglow® Sweetbay Magnolia	As Shown	6'-8' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks

STREET TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AM	Acer miyabei 'Morton'	State Street™ Miyabe Maple	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
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TM	Taxodium distichum 'Mickelson'	Shawnee Brave™ Bald Cypress	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
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UP	Ulmus americana 'Princeton'	Princeton American Elm	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk

MAIN STREET

SEE ENLARGEMENT A/L-151

SEE ENLARGEMENT B/L-151

SEE ENLARGEMENT C/L-151

SEE ENLARGEMENT D/L-151

PARCEL 4

PARCEL 6

PARCEL 14

MATCHLINE L-145

MATCHLINE L-145

KEY PLAN

LEGEND

EXISTING VEGETATION

ORNAMENTAL LANDSCAPE PLANTINGS
SEE LANDSCAPE ENLARGEMENT PLANS, SHEET L-150 AND L-151

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

XX XX XX XX XX

PROPOSED TREES

XX*

EXISTING TREES TO REMAIN

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SCALE: 1"=30'

Graphic Scale: 1" = 30'
0' 15' 30' 60' 90'

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
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CONSULTANTS:

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STATE OF MISSOURI
BONNIE C. ROY
2009014763
LANDSCAPE ARCHITECT

9/26/23
Bonnie C. Roy
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OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

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MARK	DATE	DESCRIPTION
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PROJECT NO: 23005201-00
CAD DWG FILE: 21585.01_SHEETS_PLANTING_PHASE 1.DWG
DESIGNED BY: WH
DRAWN BY: MB/ZTS
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PHASE 1 PLANTING PLAN

L-142

SHEET OF

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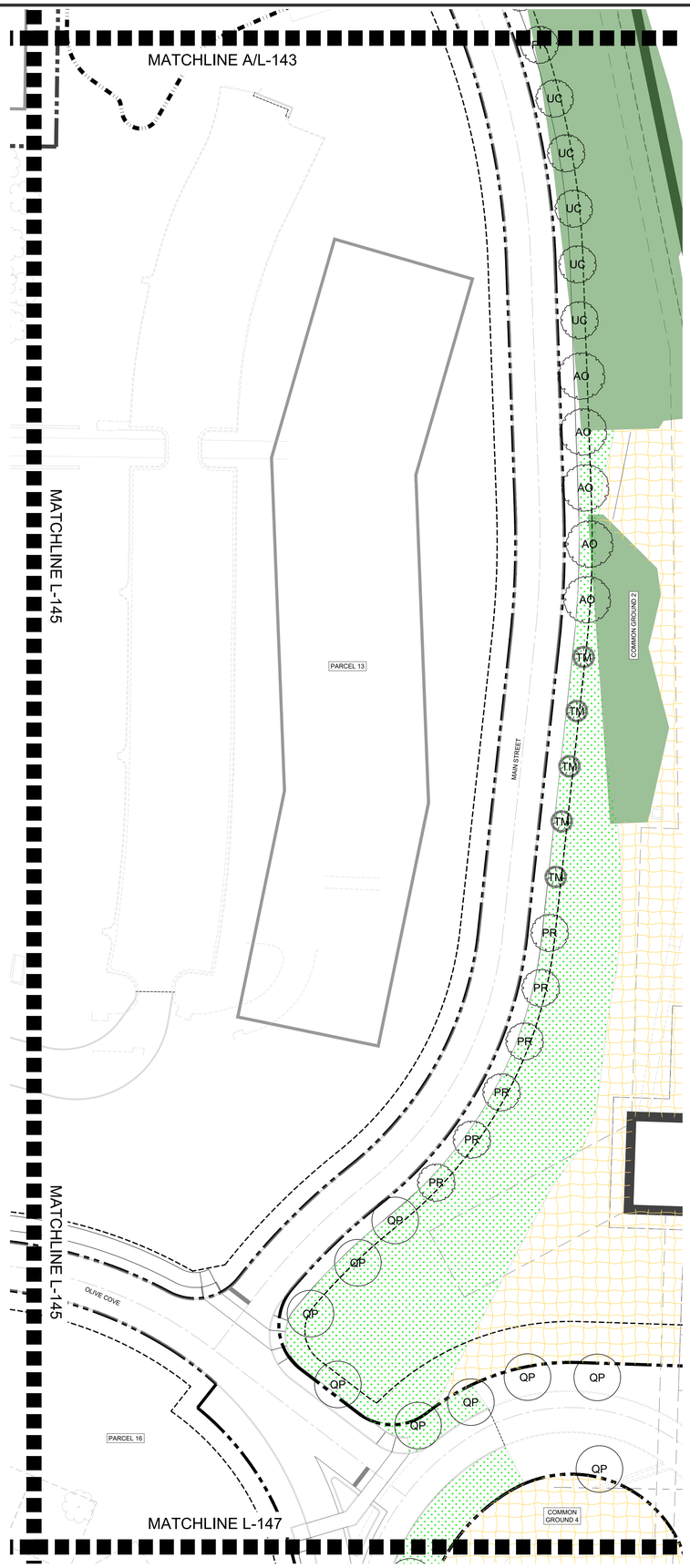

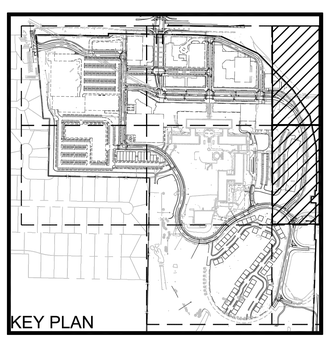

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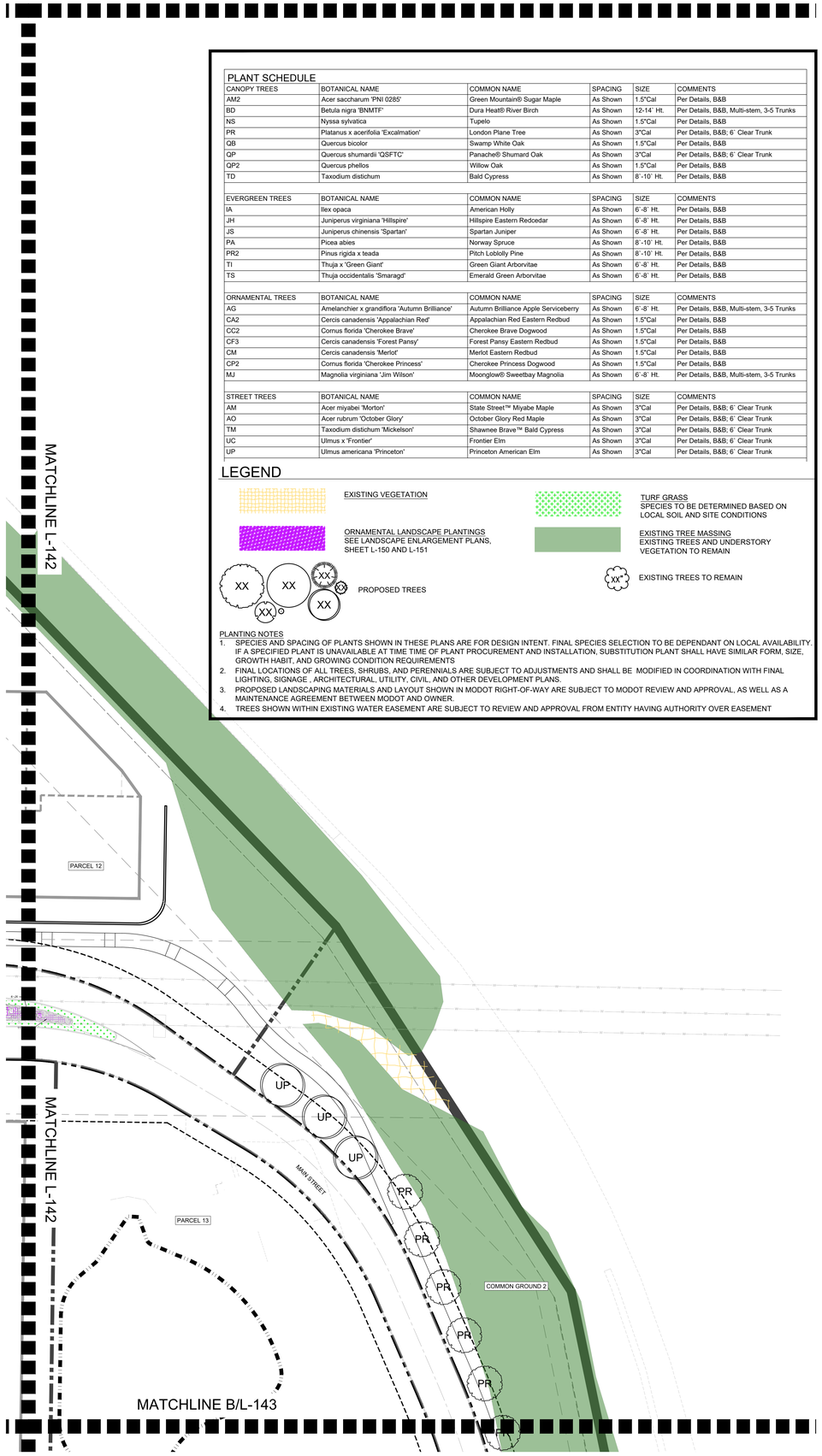

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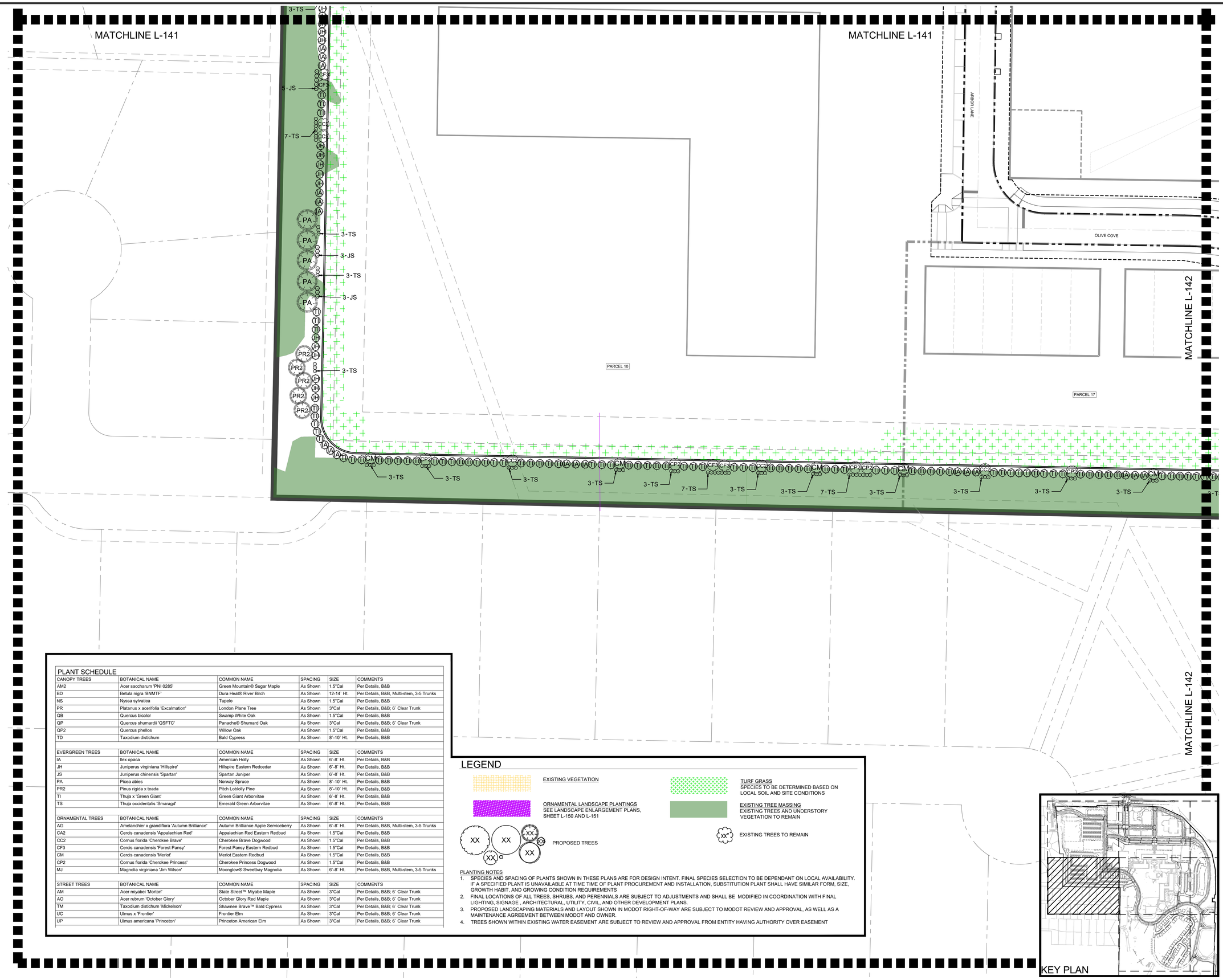

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EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
IA	Ilex opaca	American Holly	As Shown	6'-8' Ht.	Per Details, B&B
JH	Juniperus virginiana 'Hillspire'	Hillspire Eastern Redcedar	As Shown	6'-8' Ht.	Per Details, B&B
JS	Juniperus chinensis 'Spartan'	Spartan Juniper	As Shown	6'-8' Ht.	Per Details, B&B
PA	Picea abies	Norway Spruce	As Shown	8'-10' Ht.	Per Details, B&B
PR2	Pinus rigida x teada	Pitch Loblolly Pine	As Shown	8'-10' Ht.	Per Details, B&B
TI	Thuja x 'Green Giant'	Green Giant Arborvitae	As Shown	6'-8' Ht.	Per Details, B&B
TS	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	As Shown	6'-8' Ht.	Per Details, B&B
ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AG	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Apple Serviceberry	As Shown	6'-8' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
CA2	Cercis canadensis 'Appalachian Red'	Appalachian Red Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CC2	Cornus florida 'Cherokee Brave'	Cherokee Brave Dogwood	As Shown	1.5"Cal	Per Details, B&B
CF3	Cercis canadensis 'Forest Pansy'	Forest Pansy Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CM	Cercis canadensis 'Merlot'	Merlot Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CP2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	As Shown	1.5"Cal	Per Details, B&B
MJ	Magnolia virginiana 'Jim Wilson'	Moonglow® Sweetbay Magnolia	As Shown	6'-8' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
STREET TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AM	Acer miyabei 'Morton'	State Street™ Miyabe Maple	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
AO	Acer rubrum 'October Glory'	October Glory Red Maple	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
TM	Taxodium distichum 'Mickelson'	Shawnee Brave™ Bald Cypress	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
UC	Ulmus x 'Frontier'	Frontier Elm	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
UP	Ulmus americana 'Princeton'	Princeton American Elm	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk

LEGEND

EXISTING VEGETATION

ORNAMENTAL LANDSCAPE PLANTINGS
SEE LANDSCAPE ENLARGEMENT PLANS, SHEET L-150 AND L-151

PROPOSED TREES

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

EXISTING TREES TO REMAIN

PLANTING NOTES

1. SPECIES AND SPACING OF PLANTS SHOWN IN THESE PLANS ARE FOR DESIGN INTENT. FINAL SPECIES SELECTION TO BE DEPENDANT ON LOCAL AVAILABILITY. IF A SPECIFIED PLANT IS UNAVAILABLE AT TIME TIME OF PLANT PROCUREMENT AND INSTALLATION, SUBSTITUTION PLANT SHALL HAVE SIMILAR FORM, SIZE, GROWTH HABIT, AND GROWING CONDITION REQUIREMENTS
2. FINAL LOCATIONS OF ALL TREES, SHRUBS, AND PERENNIALS ARE SUBJECT TO ADJUSTMENTS AND SHALL BE MODIFIED IN COORDINATION WITH FINAL LIGHTING, SIGNAGE , ARCHITECTURAL, UTILITY, CIVIL, AND OTHER DEVELOPMENT PLANS.
3. PROPOSED LANDSCAPING MATERIALS AND LAYOUT SHOWN IN MODOT RIGHT-OF-WAY ARE SUBJECT TO MODOT REVIEW AND APPROVAL, AS WELL AS A MAINTENANCE AGREEMENT BETWEEN MODOT AND OWNER.
4. TREES SHOWN WITHIN EXISTING WATER EASEMENT ARE SUBJECT TO REVIEW AND APPROVAL FROM ENTITY HAVING AUTHORITY OVER EASEMENT

A PHASE 1 PLANTING PLAN - ENLARGEMENT
SCALE: 1"=30'

Graphic Scale: 1" = 30'
0' 15' 30' 60' 90'

PREPARED BY:
CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:
SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

STATE OF MISSOURI
BONNIE C. ROY
LA-2009014763
LANDSCAPE ARCHITECT
9/26/23
Bonnie C. Roy
Landscape Architect MO
#LA-2009014763

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION
3	9/26/23	PHASE 1 Resubmittal
2	9/13/23	PHASE 1 Resubmittal
1	8/11/23	PHASE 1 LANDSCAPE DEVELOPMENT PLANS

PROJECT NO:	23005201-00
CAD DWG FILE:	21585.01_SHEETS_PLANTING_PHASE 1.DWG
DESIGNED BY:	MH
DRAWN BY:	MB/ZTS
CHECKED BY:	BR
APPROVED BY:	BR

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SHEET TITLE
PHASE 1 PLANTING PLAN

L-144

SHEET OF

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Date: Tuesday, September 26, 2023 12:31:31 PM

MATCHLINE L-142

MATCHLINE L-142

PARCEL 4

PARCEL 14

PARCEL 6

MATCHLINE L-144

OLIVE DOVE

PARCEL 17

PARCEL 8

PARCEL 13

MATCHLINE B/L-143

PARCEL 15

MATCHLINE L-144

COMMON GROUND 3

MATCHLINE B/L-143

PARCEL 9

MATCHLINE L-146

MATCHLINE L-146

KEY PLAN

LEGEND

EXISTING VEGETATION

ORNAMENTAL LANDSCAPE PLANTINGS
SEE LANDSCAPE ENLARGEMENT PLANS, SHEET L-150 AND L-151

PROPOSED TREES

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

EXISTING TREES TO REMAIN

PLANTING NOTES

1. SPECIES AND SPACING OF PLANTS SHOWN IN THESE PLANS ARE FOR DESIGN INTENT. FINAL SPECIES SELECTION TO BE DEPENDANT ON LOCAL AVAILABILITY. IF A SPECIFIED PLANT IS UNAVAILABLE AT TIME TIME OF PLANT PROCUREMENT AND INSTALLATION, SUBSTITUTION PLANT SHALL HAVE SIMILAR FORM, SIZE, GROWTH HABIT, AND GROWING CONDITION REQUIREMENTS
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4. TREES SHOWN WITHIN EXISTING WATER EASEMENT ARE SUBJECT TO REVIEW AND APPROVAL FROM ENTITY HAVING AUTHORITY OVER EASEMENT

PLANT SCHEDULE

CANOPY TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AM2	Acer saccharum 'PNI 0285'	Green Mountain® Sugar Maple	As Shown	1.5"Cal	Per Details, B&B
BD	Betula nigra 'BNMTF'	Dura Heat® River Birch	As Shown	12-14' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
NS	Nyssa sylvatica	Tupelo	As Shown	1.5"Cal	Per Details, B&B
PR	Platanus x acerifolia 'Excalmation'	London Plane Tree	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
QB	Quercus bicolor	Swamp White Oak	As Shown	1.5"Cal	Per Details, B&B
QP	Quercus shumardii 'QSFTC'	Panache® Shumard Oak	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
QP2	Quercus phellos	Willow Oak	As Shown	1.5"Cal	Per Details, B&B
TD	Taxodium distichum	Bald Cypress	As Shown	8'-10' Ht.	Per Details, B&B
EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
IA	Ilex opaca	American Holly	As Shown	6'-8' Ht.	Per Details, B&B
JH	Juniperus virginiana 'Hillspire'	Hillspire Eastern Redcedar	As Shown	6'-8' Ht.	Per Details, B&B
JS	Juniperus chinensis 'Spartan'	Spartan Juniper	As Shown	6'-8' Ht.	Per Details, B&B
PA	Picea abies	Norway Spruce	As Shown	8'-10' Ht.	Per Details, B&B
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TS	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	As Shown	6'-8' Ht.	Per Details, B&B
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CA2	Cercis canadensis 'Appalachian Red'	Appalachian Red Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CC2	Cornus florida 'Cherokee Brave'	Cherokee Brave Dogwood	As Shown	1.5"Cal	Per Details, B&B
CF3	Cercis canadensis 'Forest Pansy'	Forest Pansy Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CM	Cercis canadensis 'Merlot'	Merlot Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CP2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	As Shown	1.5"Cal	Per Details, B&B
MJ	Magnolia virginiana 'Jim Wilson'	Moonglow® Sweetbay Magnolia	As Shown	6'-8' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
STREET TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
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AO	Acer rubrum 'October Glory'	October Glory Red Maple	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
TM	Taxodium distichum 'Mickelson'	Shawnee Brave™ Bald Cypress	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
UC	Ulmus x 'Frontier'	Frontier Elm	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
UP	Ulmus americana 'Princeton'	Princeton American Elm	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk

A PHASE 1 PLANTING PLAN - ENLARGEMENT
SCALE: 1"=30'

Graphic Scale: 1" = 30'
0' 15' 30' 60' 90'

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

BONNIE C. ROY — STATE OF MISSOURI — LANDSCAPE ARCHITECT — LA-2009014763

9/26/23
Bonnie C. Roy
Landscape Architect MO
#LA-2009014763

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION
3	9/26/23	PHASE 1 Resubmittal
2	9/13/23	PHASE 1 Resubmittal
1	8/11/23	PHASE 1 LANDSCAPE DEVELOPMENT PLANS

PROJECT NO: 23005201-00
CAD DWG FILE: 21585.01_SHEETS_PLANTING_PHASE 1.DWG
DESIGNED BY: WT
DRAWN BY: MB/ZTS
CHECKED BY: BR
APPROVED BY: BR
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SHEET TITLE
PHASE 1 PLANTING PLAN

L-145

SHEET OF

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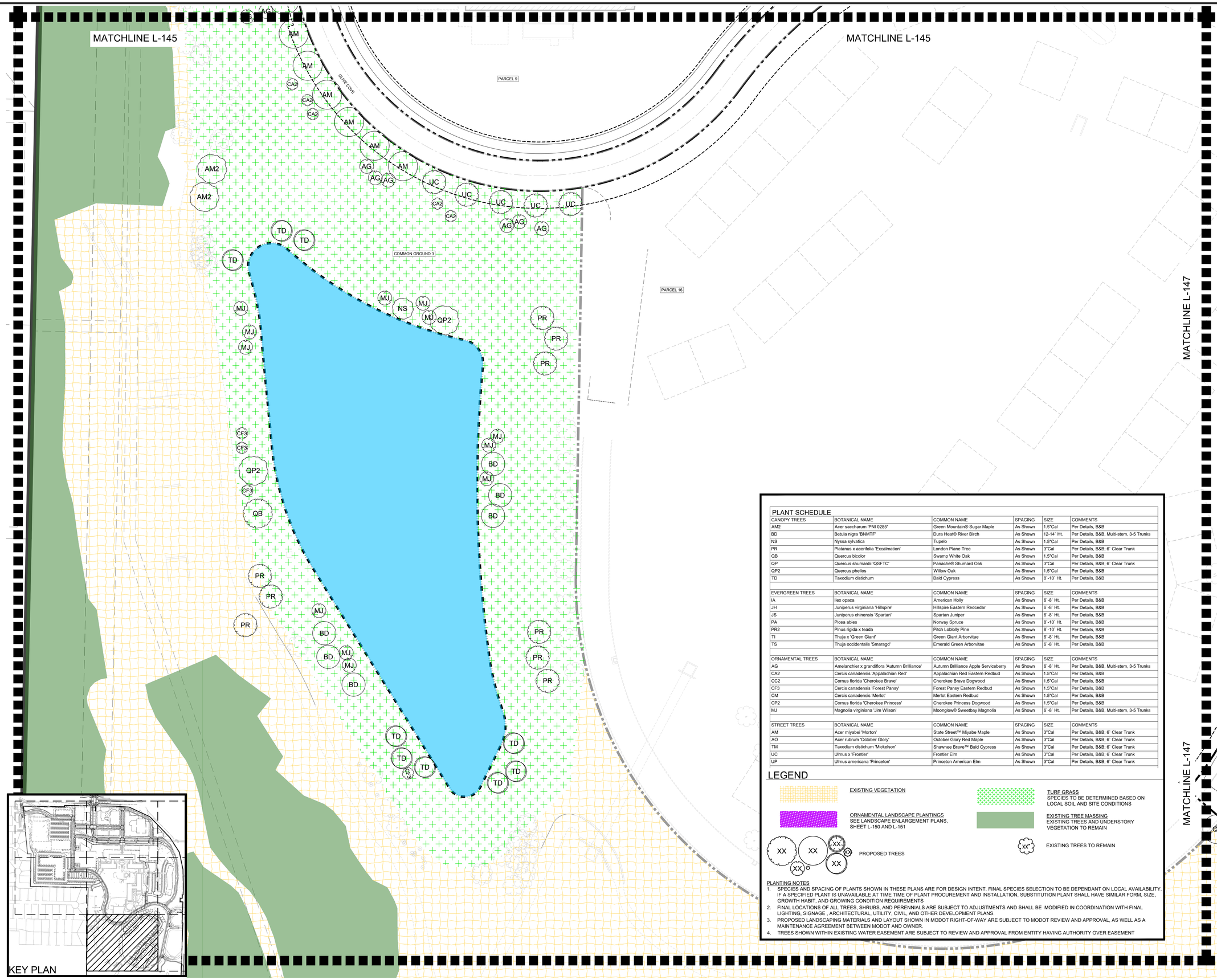

PLANT SCHEDULE					
CANOPY TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
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QB	Quercus bicolor	Swamp White Oak	As Shown	1.5"Cal	Per Details, B&B
QP	Quercus shumardii 'QSFTC'	Panache® Shumard Oak	As Shown	3"Cal	Per Details, B&B; 6' Clear Trunk
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PR2	Pinus rigida x teada	Pitch Loblolly Pine	As Shown	8'-10' Ht.	Per Details, B&B
TI	Thuja x 'Green Giant'	Green Giant Arborvitae	As Shown	6'-8' Ht.	Per Details, B&B
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ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AG	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Apple Serviceberry	As Shown	6'-8' Ht.	Per Details, B&B, Multi-stem, 3-5 Trunks
CA2	Cercis canadensis 'Appalachian Red'	Appalachian Red Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CC2	Cornus florida 'Cherokee Brave'	Cherokee Brave Dogwood	As Shown	1.5"Cal	Per Details, B&B
CF3	Cercis canadensis 'Forest Pansy'	Forest Pansy Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CM	Cercis canadensis 'Merlot'	Merlot Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CP2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	As Shown	1.5"Cal	Per Details, B&B
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STREET TREES	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
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LEGEND

EXISTING VEGETATION

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

ORNAMENTAL LANDSCAPE PLANTINGS
SEE LANDSCAPE ENLARGEMENT PLANS, SHEET L-150 AND L-151

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

XX PROPOSED TREES

XX EXISTING TREES TO REMAIN

PLANTING NOTES

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A PHASE 1 PLANTING PLAN - ENLARGEMENT
SCALE: 1"=30'

Graphic Scale: 1" = 30'
0' 15' 30' 60' 90'

PREPARED BY:
CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:
SWT DESIGN
7722 Big Bend Blvd.
St. Louis, mo 63119
t. 314.644.5700

STATE OF MISSOURI
BONNIE C. ROY
2009014763
LANDSCAPE ARCHITECT
9/26/23
Bonnie C. Roy
Landscape Architect MO
#LA.2009014763

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD.
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION
3	9/26/23	PHASE 1 Resubmittal
2	9/13/23	PHASE 1 Resubmittal
1	8/11/23	PHASE 1 LANDSCAPE DEVELOPMENT PLANS

PROJECT NO: 23005201-00
CAD DWG FILE: 21585.01_SHEETS_PLANTING_PHASE 1.DWG
DESIGNED BY: WH
DRAWN BY: MB/ZTS
CHECKED BY: BR
APPROVED BY: BR
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SHEET TITLE
PHASE 1 PLANTING PLAN

L-146

SHEET OF

Path: H:\04_Projects\21585_Olia Village\21585.01_Olia Village Schematic Design\02_Production\04_AutoCAD\21585.01_Sheets_Planting_Phase 1.dwg
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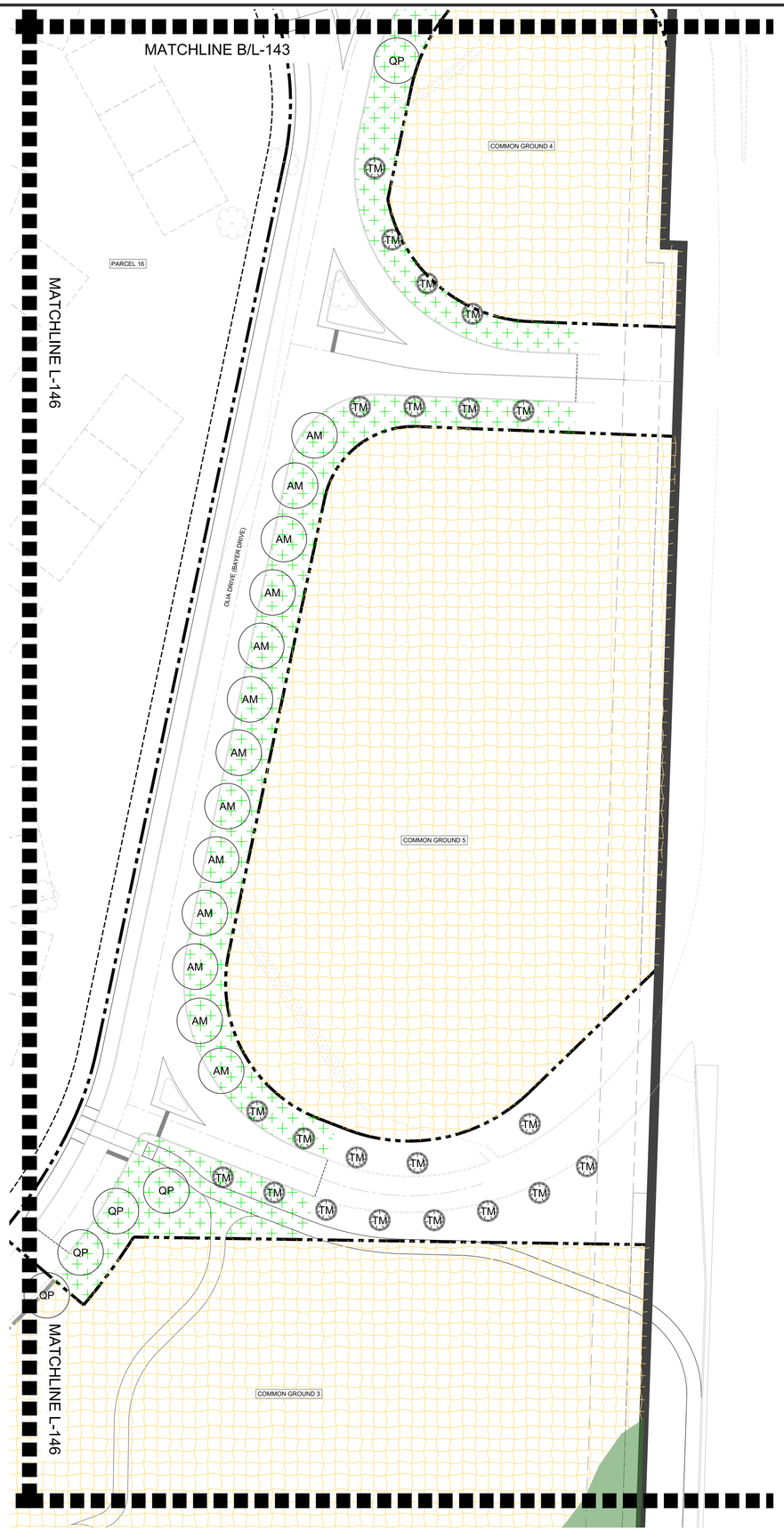

A PHASE 1 PLANTING PLAN - ENLARGEMENT
SCALE: 1"=30'

Graphic Scale: 1" = 30'
0' 15' 30' 60' 90'

PLANT SCHEDULE - OVERALL

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SHRUBS	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
CR	Clethra alnifolia 'Ruby Spice'	Ruby Spice Summersweet	As Shown	#5	Per Details, Cont.
HR	Hydrangea quercifolia 'Ruby Slippers'	Ruby Slippers Oakleaf Hydrangea	As Shown	#5	Per Details, Cont.
IR	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry	As Shown	#5	Per Details, Cont.
IV	Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry	As Shown	#5	Per Details, Cont.
JX	Juniperus x 'Grey Owl'	Grey Owl Juniper	As Shown	#5	Per Details, Cont.
R3	Rosa x 'Radtko'	Double Knock Out® Red Rose	As Shown	#5	Per Details, Cont.

GRASSES & PERENNIALS	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
AH	Amsonia hubrichtii	Arkansas Bluestar	18" O.C.	#1	Per Details, Cont.
AM3	Achillea x 'Moonshine'	Moonshine Yarrow	15" O.C.	SP4	Per Details, Cont.
EP	Echinacea purpurea 'PAS702918'	PowWow® White Coneflower	18" O.C.	#1	Per Details, Cont.
EW	Echinacea purpurea 'PAS702917'	PowWow® Wild Berry Coneflower	18" O.C.	#1	Per Details, Cont.
IC	Iris sibirica 'Caesar's Brother'	Caesar's Brother Siberian Iris	18" O.C.	#1	Per Details, Cont.
LV2	Liriope muscari 'Variegata'	Variegated Lilyturf	18" O.C.	#1	Per Details, Cont.
OL	Oenothera x 'Innoeno131'	Lemon Drop® Evening Primrose	15" O.C.	SP4	Per Details, Cont.
OR	Oenothera speciosa 'Rosea'	Mexican Evening Primrose	15" O.C.	SP4	Per Details, Cont.
PN	Panicum virgatum 'Northwind'	Northwind Switch Grass	20" O.C.	#1	Per Details, Cont.
PS	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	20" O.C.	#1	Per Details, Cont.
RS	Rudbeckia fulgida 'Little Goldstar'	Little Goldstar Coneflower	18" O.C.	#1	Per Details, Cont.
SH2	Stachys officinalis 'Hummelo'	Hummelo Betony	15" O.C.	SP4	Per Details, Cont.
SP	Symphyotrichum novae-angliae 'Purple Dome'	Purple Dome New England Aster	18" O.C.	#1	Per Details, Cont.

LEGEND

EXISTING VEGETATION

ORNAMENTAL LANDSCAPE PLANTINGS
SEE LANDSCAPE ENLARGEMENT PLANS, SHEET L-150 AND L-151

PROPOSED TREES

TURF GRASS
SPECIES TO BE DETERMINED BASED ON LOCAL SOIL AND SITE CONDITIONS

EXISTING TREE MASSING
EXISTING TREES AND UNDERSTORY VEGETATION TO REMAIN

EXISTING TREES TO REMAIN

PLANTING NOTES
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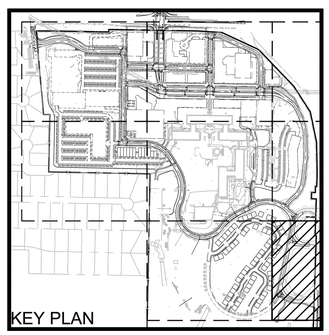

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OLIA VILLAGE DEVELOPMENT
LINDBERGH & OLIVE BLVD
OLIA VILLAGE
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CREVE COEUR, MO 63141

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DRAWN BY: MB/ZTS
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SHEET TITLE
PHASE 1 PLANTING PLAN

L-147
SHEET OF

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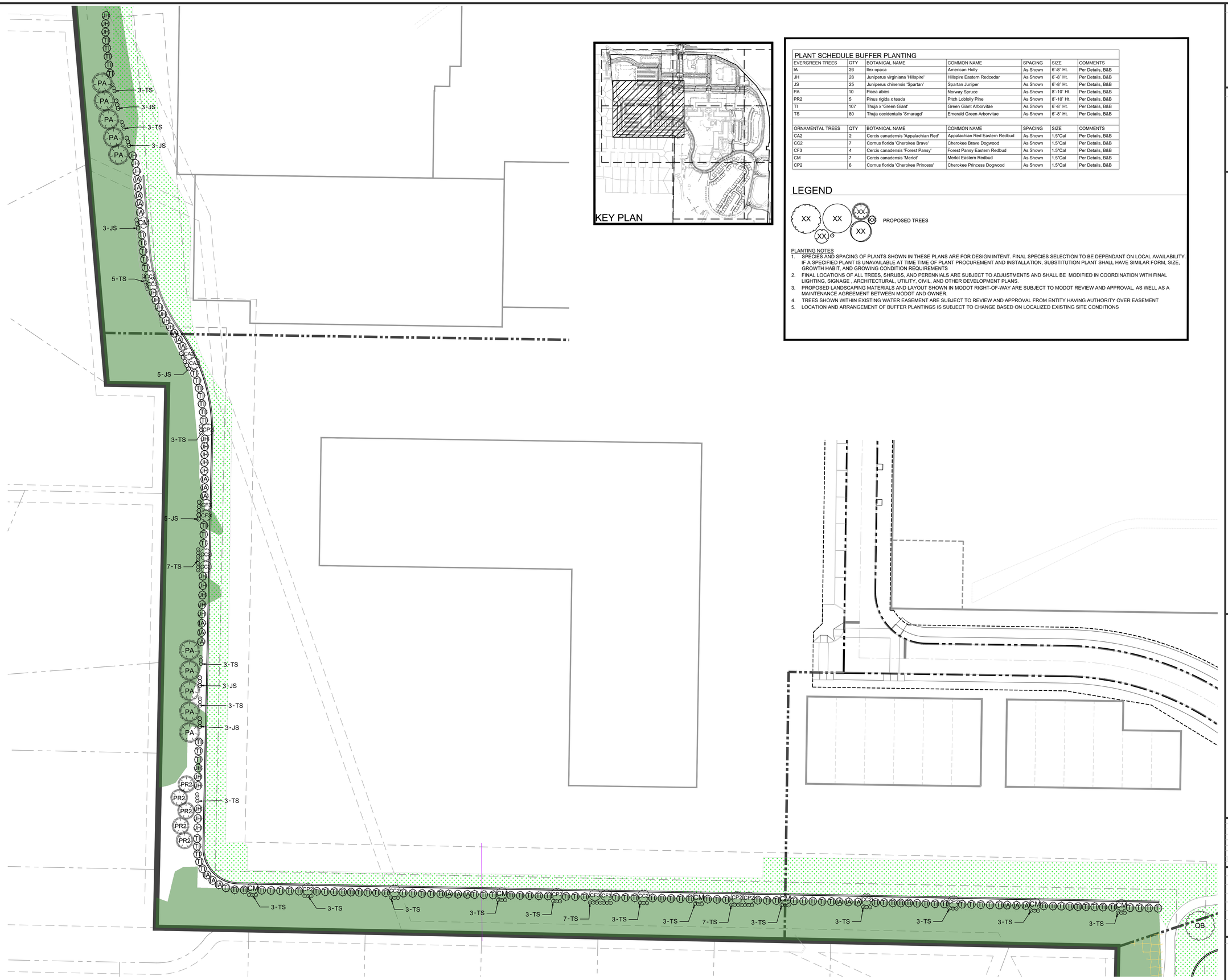

A PHASE 1 LANDSCAPE BUFFER SCREEN PLANTING PLAN
SCALE: 1"=30'

Graphic Scale: 1" = 30'
0' 15' 30' 60' 90'

PLANT SCHEDULE BUFFER PLANTING

EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
IA	26	Ilex opaca	American Holly	As Shown	6`-8` Ht.	Per Details, B&B
JH	28	Juniperus virginiana 'Hillspire'	Hillspire Eastern Redcedar	As Shown	6`-8` Ht.	Per Details, B&B
JS	25	Juniperus chinensis 'Spartan'	Spartan Juniper	As Shown	6`-8` Ht.	Per Details, B&B
PA	10	Picea abies	Norway Spruce	As Shown	8`-10` Ht.	Per Details, B&B
PR2	5	Pinus rigida x teada	Pitch Loblolly Pine	As Shown	8`-10` Ht.	Per Details, B&B
TI	107	Thuja x 'Green Giant'	Green Giant Arborvitae	As Shown	6`-8` Ht.	Per Details, B&B
TS	80	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	As Shown	6`-8` Ht.	Per Details, B&B
ORNAMENTAL TREES	QTY	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
CA2	2	Cercis canadensis 'Appalachian Red'	Appalachian Red Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CC2	7	Cornus florida 'Cherokee Brave'	Cherokee Brave Dogwood	As Shown	1.5"Cal	Per Details, B&B
CF3	4	Cercis canadensis 'Forest Pansy'	Forest Pansy Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CM	7	Cercis canadensis 'Merlot'	Merlot Eastern Redbud	As Shown	1.5"Cal	Per Details, B&B
CP2	6	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	As Shown	1.5"Cal	Per Details, B&B

LEGEND

XX XX XX XX XX PROPOSED TREES

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4. TREES SHOWN WITHIN EXISTING WATER EASEMENT ARE SUBJECT TO REVIEW AND APPROVAL FROM ENTITY HAVING AUTHORITY OVER EASEMENT
5. LOCATION AND ARRANGEMENT OF BUFFER PLANTINGS IS SUBJECT TO CHANGE BASED ON LOCALIZED EXISTING SITE CONDITIONS

PREPARED BY:
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Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
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PHASE 1 BUFFER PLANTING PLAN

L-148
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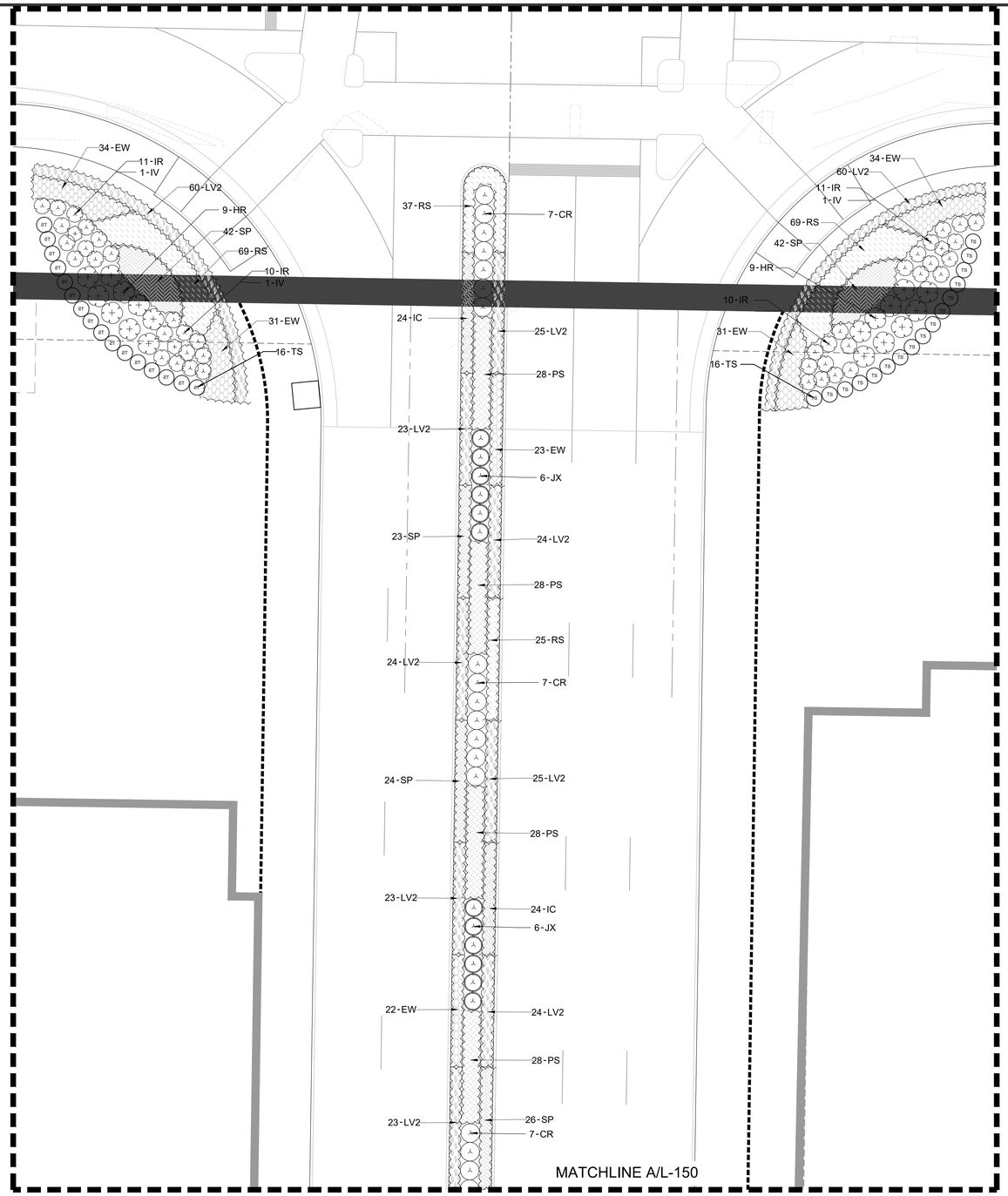

B PHASE 1 PLANTING PLAN - ENLARGEMENT
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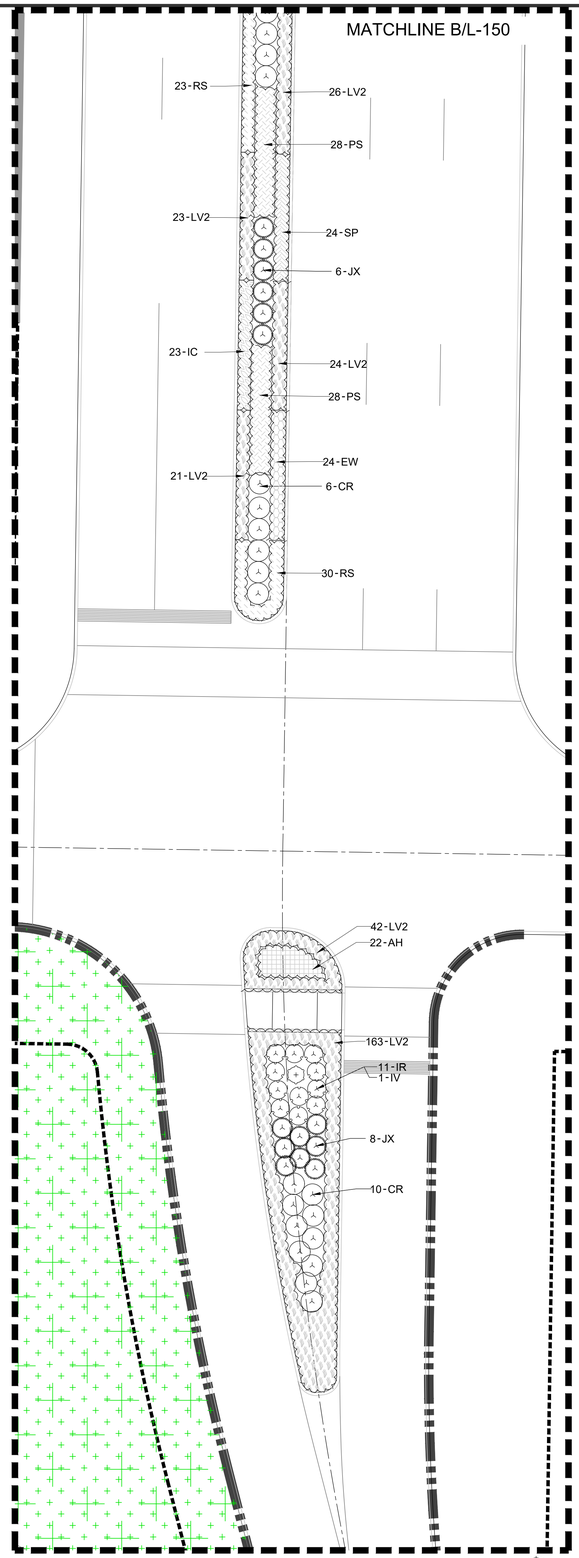

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PLANT SCHEDULE

SHRUBS	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	COMMENTS
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HR	Hydrangea quercifolia 'Ruby Slippers'	Ruby Slippers Oakleaf Hydrangea	As Shown	#5	Per Details, Cont.
IR	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry	As Shown	#5	Per Details, Cont.
IV	Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry	As Shown	#5	Per Details, Cont.
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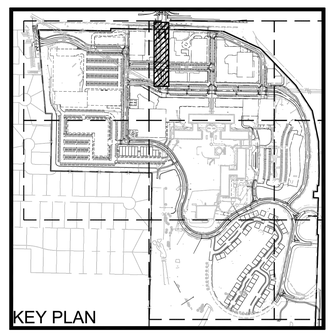

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OFFICE NO. (314) 436-5500
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STATE OF MISSOURI
BONNIE C. ROY
2009014763
LANDSCAPE ARCHITECT

9/26/23
Bonnie C. Roy
Landscape Architect MO
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OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
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DESIGNED BY:	WH
DRAWN BY:	MB/ZTS
CHECKED BY:	BR
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SHEET TITLE

PHASE 1 PLANTING PLAN ENLARGEMENT

L-150

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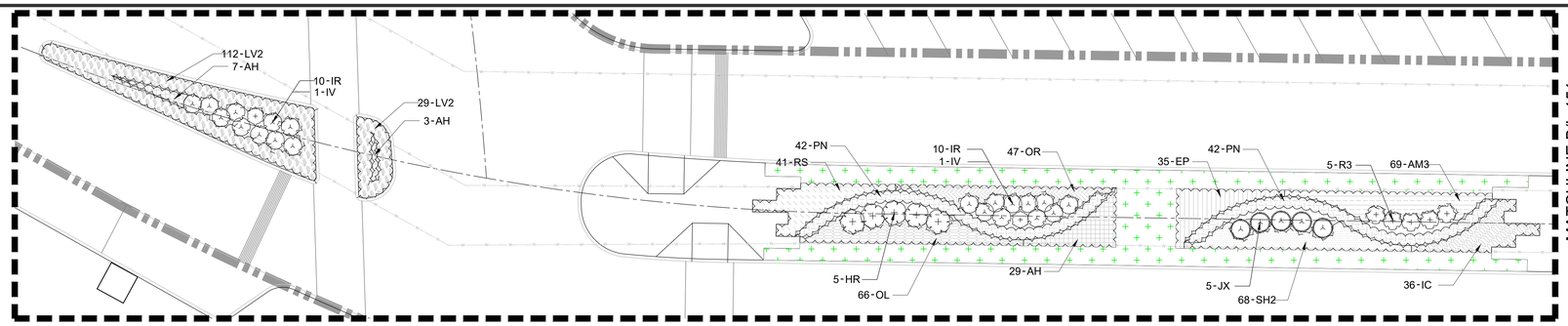

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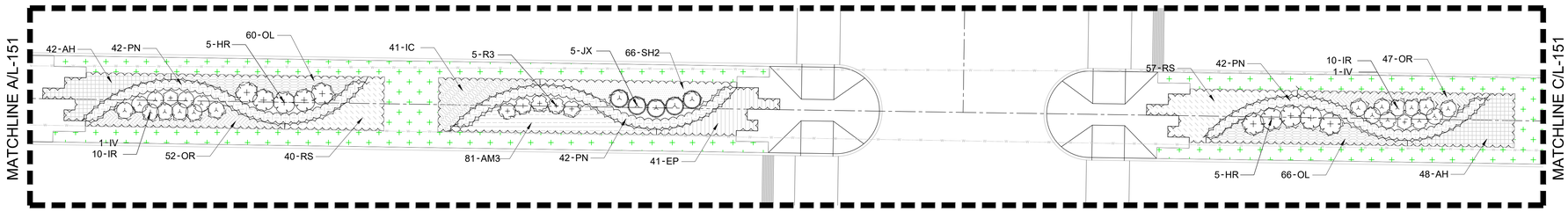

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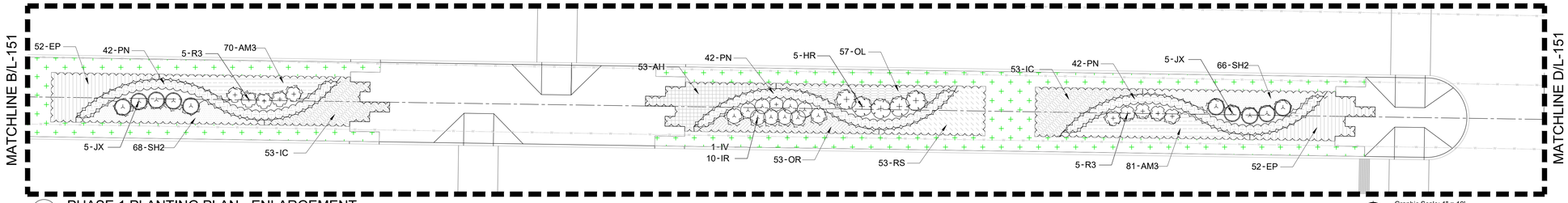

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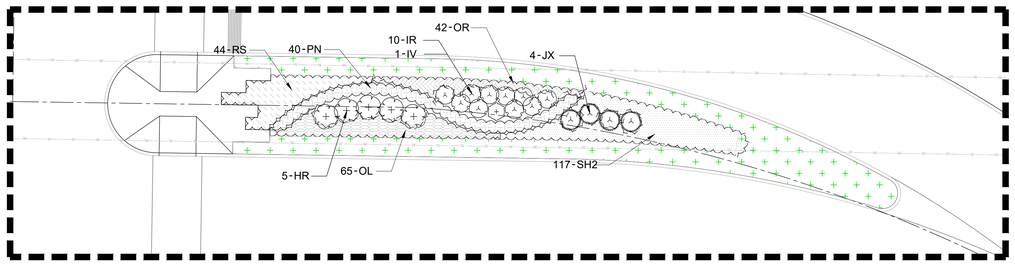

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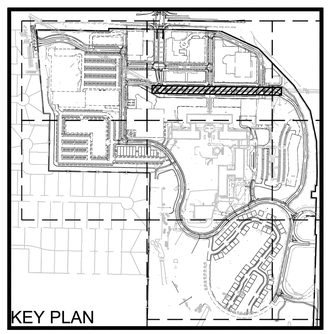

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PHASE 1 PLANTING PLAN ENLARGEMENT

L-151

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Date: Tuesday, September 26, 2023 2:24:34 PM

MEMORANDUM

DATE: September 28, 2023

TO: Mark Perkins, City Administrator

FROM: Lori Obermoeller, Director of Finance

SUBJECT: Olia Village Projected Costs

The attached spreadsheet shows the projected expenditure costs to the City for the Olia Village project. I have made the following assumptions:

- Personnel costs include the mid-point for the position, the costs for benefits & an annual 3% inflation factor
    - 1 Public Works Maintenance Worker
    - 1 Inspector (only for 3 years)
    - 2 Police Officers
- All annual maintenance costs include a 3% inflation factor
    - Street Maintenance for striping, snow plow & signs
    - Vehicle Maintenance includes fuel, tires, etc.
- All Capital Infrastructure & Vehicle includes a 3% inflation factor
    - One additional police vehicle to be sold and replaced every 3 years
    - Infrastructure includes slab & curb replacements, crack sealing, patching & other improvements

I would be pleased to respond to any questions.

Olia Village
City's Projected Costs
as of September 28, 2023

	Personnel 1st Year	Maintenance 1st Year	Capital Expend. Over 20 years	20-Year Costs with 3% Inflation
Public Works Department				
1 Maintenance Worker	$76,696			$2,060,850
Construction Management for 1st Year Only		$260,000		$260,000
Annual Street Maint		$31,500		$846,417
Capital Improvements - 20 Year Costs			$2,316,606	$2,316,606
Total Public Works Department	$76,696	$291,500	$2,316,606	$5,483,873
Community Development Department				
1 Inspector (3 years)	$96,550			$298,426
Total Planning Department	$96,550	$0	$0	$298,426
Police Department				
2 Police Officers	$220,904			$5,935,773
1 Vehicle every 3 yrs (includes equip. & change-over)			$496,528	$496,528
Annual Vehicle Maintenance		$7,136		$191,747
Total Police Department	$220,904	$7,136	$496,528	$6,624,048
Grand Total by Category	**$394,150**	**$298,636**	**$2,813,134**	**$12,406,347**

DEPARTMENT OF PUBLIC WORKS
OFFICE MEMO

DATE: September 28, 2023

TO: Jason Jaggi, Director of Community Development

CC: Mark Perkins, City Administrator

FROM: Jim Heines, Director of Public works

SUBJECT: Olia Village - Cost Projections for Construction Management Services and Long-term Maintenance of Proposed Public Streets

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Background

Public Works staff has been asked to evaluate the long-term (20-years) financial impact to the city regarding the day-to-day maintenance and Capital cost if the proposed public streets in Olia Village are dedicated to and accepted by the City. The following report is based upon the acceptance of approximately 3 lane miles of concrete pavement with vertical curb.

Most of the proposed roads are two-lanes and a minimum of 26 feet wide. However, there are isolated sections of road where additional 12 to 13 foot wide lanes are proposed. The concrete road pavement is to be 8 inches thick and placed on 4 inches of compacted crushed stone.

Sidewalks, trails and street lights, on-street parking and street trees will be privately maintained under the terms of the proposed development.

Construction Inspection

During the clearing and grubbing phase of the project, minimal inspections will be necessary. Therefore, our current staff should be able to keep up with the added work. However, when we get to the grading, compacting subgrade and base and placing the concrete pavement portions of the project it will require full time inspections and project management. Public Works has obtained pricing for these services from one of our consultants for $4,500-$5,000 per week. We anticipate these services will be required for approximately a one-year period while the public improvements are being constructed.

Estimated one-time cost for Construction Management* $234,000-$260,000

Annual Maintenance

Public Works Maintenance staff will manage routine maintenance of pavement, street signs, striping, and snow plow of the proposed public streets in Olia Village. Currently Public Works staff is at their limits regarding their maintenance capabilities and any additional maintenance responsibilities will require an additional staff member to add available manhours to maintain the proposed pavement and associated services.

Costs for one year maintenance service is listed below in 2023 dollars:

Item	Cost
Striping	$ 15,000.00
Snow Plow	$ 15,000.00
Sign Maintenance	$ 1,500.00
Maintenance Worker 1 annual salary plus benefits	$ 76,696.05
Total one-year cost*	$ 108,196.05
Total 20-year cost using 3% inflation value	$2,907,268.38

Capital Improvements

Capital Improvements include isolated concrete slab replacement or even full replacement of sections of the roadway. It is likely that these costs will be minimal during the early life (0-10 years) of the concrete pavement, however later in our 20-year projection period it is likely that the road network will require an increasing level of attention. Public Works staff reached out to our pavement management consultant, IMS to evaluate the capital cost to maintain proposed public roads over the next 20 years.

IMS submitted the 20-year projection in two parts to represent the different levels of increasing capital replacement needs. These projected costs include slab and curb replacements, crack sealing, patching, and other capital improvements. A 3% inflation value to project future costs:

Time period	Cost
0-10 year total cost	$ 192,437.00
10-20 year total cost	$2,123,569.00
Total 20-year cost	$2,316,606.00

Summary

The addition of the proposed public streets in Olia Village will cause a significant impact on the Department of Public Works budget as well as staffing levels. The day-to-day maintenance items and costs, capital replacements costs over a 20-year period, and the one-time cost for construction inspection/management have been identified above. The total 20-year financial impact to the budget is listed below:

Item	Cost
One-time construction inspection/management cost	$ 260,000.00
Total annual maintenance cost over 20-years	$2,907,268.38
Total capital improvement cost over 20-years	$2,316,606.00
Total projected financial impact over 20-years	$5,483,874.38

*Costs based on 2023 dollar value.

MEMORANDUM

DATE: September 11, 2023

TO: M. Perkins, City Administrator

FROM: J. Hartman, Chief of Police

SUBJECT: Service Impacts – Olia Village Development

Brief Background

As the re-zoning application process for the proposed development known as “Olia Village” develops, I would like to submit the following for consideration, concerning the potential impact this development may have on police services.

The expected increase in the residential population that would result from this development is estimated to be approximately 2,000, according to a recent presentation from the developer. This will certainly impact requests for police services in this sector of the city. In addition to the impact of the increased population, it is reasonable to expect there will be an increase in call volume due to the mixed-use nature of the development (hotels, restaurants, office space, retail).

Point of Reference: History of Staffing Since the Last Annexation

The last significant staffing increase for the Police Department was in 1994, after an annexation. The staffing, after annexation, was 50 full-time officers. The population was approximately 16,500. At that time, the Police Department was also providing police services to the Village of Westwood. The Police Department dropped to 49 full-time officers after the City of Frontenac was awarded the contract to patrol the Village of Westwood.

Summary: Very little has changed with regard to Police Department staffing in the last 30 years.

Point of Reference: Current Police Department Staffing and Organizational Chart

The current staffing for the Police Department is 50 full-time commissioned officers, 5 full-time civilian staff, and 2 part-time civilian staff. There are two divisions within the Police Department, the Patrol Division and the Support Services Division.[1] This memorandum will focus on the impact this development will have on the Uniformed Patrol Division.

There are 37 positions allocated to the Uniformed Patrol Division (74% of authorized staffing). There are four squads referred to as A, B, C, and D squads. Each squad has two (2) Sergeants and five (5) Police Officers.

Providing support to the patrol squads are two (2) Traffic Safety Officers (TSOs), two (2) Impact Unit Officers (currently unstaffed), and one (1) K-9 Officer. There are two (2) “layover” Police Officer positions that provide additional patrol support that are also currently unstaffed. The Patrol Division is commanded by a Captain (Commander) and Lieutenant (Deputy Commander)

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[1] For reference, the Police Department Organizational Structure can be viewed here: https://www.crevecoeurmo.gov/DocumentCenter/View/8021/CCPD-Organizational-Chart---FY-2023-2024?bidId=

Point of Reference: How Patrol Division Resources Are Allocated

The city is broken down into four (4) patrol sectors. When a uniformed patrol shift has full staffing, one officer is assigned to each sector and one officer is given city-wide directed patrol responsibility. The Sergeants are responsible for the supervision of the officers on their squads. Having two Sergeants and five Police Officers on each squad provides a (very slim) cushion to maintain a minimum staffing of four Patrol Officers and one Sergeant on any given shift. It also allows supervisors to be on two different calls at the same time, which is occasionally required.

The Officers in the Patrol Division assigned to support roles (TSOs, Layover, Impact Unit, K-9) can fill in as sector cars when staffing falls below minimum on any given shift. The most common reason for falling below minimum staffing on shifts is when one officer is off due to scheduled vacation leave or training, and there is an unexpected injury or illness that prevents another scheduled officer from being able to work their shift. It is not ideal for a Sergeant to cover a sector when there is an unexpected Patrol Officer shortage. When assigned to a sector, the Sergeant has a diminished capability to supervise officers, which is a critical component of a police department that prizes professionalism and accountability.

Determining Appropriate Police Department Staffing – Brief Introduction to Concepts and Research

There are a lot of variables to consider when answering this question. Some examples include crime rates, anticipated growth or decline, officer/population ratios, call volume, community policing style, organizational work ethic, officer distribution, and response time (or the public's expectation regarding response time).

In a report analyzing police department staffing completed by ICMA, five models for determining the appropriate staffing levels for Police Departments were examined[2]:

1. Crime Trends
2. Per Capita
3. Minimum Staffing
4. Authorized Budget Level
5. Workload Based

The research presented in this report recommends a "workload-based" approach to determine proper staffing. From an assumed starting point that the current authorized staffing for the Creve Coeur Police Department is appropriate, it is logical to assume that the Olia Village development will require an increase in authorized staffing to maintain the current levels of police service that the Police Department provides the city. What is unknown or difficult to predict is the exact impact the development will have on police services.

Since this Olia Village development has not been approved or completed, no data has been (or can be) collected to definitively conclude the impact this development will have on police workload. Reaching a conclusion would require evaluating factors such as call volume, (number of calls), total service time (number of officer minutes needed to handle a call), and the saturation index (ratio of dedicated call time to discretionary time). Therefore, I cannot confidently state this development will require ("X") number of additional staff.

Although data is not available to determine how the Olia Village development (and other developments currently in discussion) will impact police service levels, I can confidently conclude that it would be poor planning to wait

[2]"An analysis of police department staffing: How many officers do you really need?" ICMA Center for Public Safety Management White Paper. Retrieved from: https://icma.org/sites/default/files/305747_Analysis%20of%20Police%20Department%20Staffing%20_%20McCabe.pdf

until the project is complete and data is collected before making a staffing adjustment recommendation. The Patrol Division's cushion for maintaining minimum staffing when there is an unexpected illness or injury is slim. This development will certainly put extra strain on call volume, service time, and the saturation index.[3] A proactive approach will better ensure that the quality of police services CCPD provides continues to meet the community's expectations, compared to a reactive approach.

Recommendations

Recommendation #1: Proactively increase authorized staffing from 50 to 52 commissioned officers for the fiscal year 2024-2025.

These two positions would be assigned to where they are most needed, in the Uniformed Patrol Division as Patrol Officers. To balance all four squads, the two existing layover positions would also be shifted to individual patrol squads as Patrol Officers, resulting in one more patrol officer on each squad for a total of two (2) Sergeants and six (6) Police Officers on each squad. This will provide the Police Department sufficient time to have additional staffing already in place before the completion of the development. After the completion of the project(s), it also provides the Police Department the ability the ability to expand to 5 sectors, if the data collected supports a realignment in the sector boundaries to smooth the workload across all sectors and maintain the optimal 60/40 saturation index. Even if the data results in increasing the staffing beyond 52 commissioned officers, the Police Department can implement a 5-sector plan with an authorized staffing of 52.

Two additional benefits of a modest staffing increase during the planning phase of the development(s)

1) The increased staffing provides the Patrol Division with additional resources and less reliance on the Traffic Safety Unit or Impact Unit to cover patrol sectors, thus leaving those specialized units more time to focus on their missions.
2) After the completion of the project, if data supports increasing the staffing beyond 52, it is more manageable to implement staffing increases in small steps as opposed to one large leap.

Recommendation #2: 1 year after the development is complete, re-evaluate Police Department staffing to determine whether the data supports a further increase in staffing, a decrease in staffing, or no change in staffing.

In conclusion, I believe the prudent public safety decision is to proactively increase staffing incrementally, beginning with a small increase once it is certain that the project(s) are moving toward development. The alternative is to wait for the project to be completed, then wait to determine the impact on demand for police services. I can predict with confidence that call volume will increase, service time will increase, the saturation index will be negatively impacted, and the sector boundaries will need to be re-evaluated. Having the organization chart set in place to absorb these impacts as the project is being completed is responsible planning.

After the project is complete, if an evaluation of the factors that impact staffing results in a recommendation to decrease staffing, those positions can be eliminated by attrition. If research supports a further increase in staffing, it is more manageable if the Police Department has already taken an incremental step to increase staffing as opposed to a large leap. If the data indicates, after the project is complete, that a staffing level of 52 officers is appropriate, the Police Department has lost nothing and is in a good position to continue the high level of service the community expects.

[3] According to ICMA, patrol staffing is optimally deployed when the SI is slightly less than 60%. When the SI is greater than 60%, it indicates that patrol manpower is largely reactive, and overburdened with workload demands. (Reference for this recommendation noted in footnote #1)

Recommendation #3: Increase the number of fully marked[4] patrol vehicles in the Police Department fleet from fifteen (15) to sixteen (16). Marked patrol vehicles are a critical resource in providing police services to the community. An aggravating factor to consider regarding this recommendation is the changing landscape of the auto industry. Finding and acquiring new police vehicles has been especially challenging due to the lack of availability. With the added staffing to uniformed patrol, comes the need for additional police vehicles to respond to calls. Adding an additional marked patrol vehicle to the fleet provides extra insurance that the Police Department will have enough vehicles in working order to respond to calls for police service.

The Police Department fleet, with the addition of a marked patrol vehicle, is outlined below:

Patrol Vehicles (fully marked): 16

Traffic Safety Unit Vehicles (unmarked)[5]: 2

Administrative Police Vehicle[6]: 4

Investigations Bureau Vehicles: 4

Motorcycle Units: 2[7]

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[4] A "fully marked" patrol vehicle is a "pursuit rated" police vehicle equipped with all required emergency equipment, including highly visible reflective lettering and lightbar mounted on the roof.

[5] An "unmarked" patrol vehicle is a "pursuit rated" police vehicle equipped with all required emergency equipment, absent the highly visible reflective lettering and the lightbar mounted on the roof. (Emergency lighting is clearly visible when activated, but are covert when not activated). It is planned that these vehicles will be replaced this fiscal year due to high milage, and the new unit vehicles will have ghost (subtly reflective) "police" lettering, with covert lighting.

[6] Administrative and Investigations Bureau vehicles are civilian models, equipped with covert lights and siren. They are not pursuit rated.

[7] One motorcycle unit will be sold this fiscal year, reducing the number to one.

city of CREVE COEUR
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www.creve-coeur.org

October 3, 2023

10300 Olive, LLC
Attn: Matt Pfund
90 Edwardsville Prof Park
Edwardsville, IL 62025

RE: APPLICATION #23-027 and #23-028: for a Rezoning From "RO" Research Office District to the Olia Village "PMD" Planned Mixed-Use Development District With a Site Concept Plan, Phase One Site Development Plan and Associated Preliminary Plat for the 96 Acre Property at 10300 Olive Boulevard.

Dear Mr. Pfund,

The Planning and Zoning Commission, at its meeting of October 2, 2023 reviewed and approved the preliminary plat. The Commission reviewed and has recommended approval to the City Council of the rezoning, site concept plan, and phase one site development plan subject to the conditions below:

1. The applicant provide more details on the Tree Conservation Plan showing the methodology and supporting calculations for staff review and determination of compliance with the Tree Preservation requirement prior to final consideration and vote by the City Council on the rezoning application.
2. Compliance with Review Criteria #14 of the Planned Zoning District Ordinance is met with the revenue analysis demonstrating revenues in excess of anticipated municipal expenditures prior to final consideration and vote by the City Council on the rezoning application.
3. The residential buffer yard shall be a minimum width of 50-feet from the property line, when adjacent to the existing single family residential zoning districts.

Your application will appear before the City Council on Monday, October 9th at 7:00 PM. You or a representative should plan to be in attendance to present the application and to answer any questions from the City Council.

If you have any questions, please contact the Planning Division staff (314) 872-2501 as soon as possible. Note that significant changes may require that the matter be returned to the Planning and Zoning Commission.

Sincerely,

Julie LaBonte, Chairman
Planning & Zoning Commission

city of CREVE COEUR
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JL: mw

city of CREVE COEUR

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APPLICATIONS TO PLANNING AND ZONING COMMISSION #23-027 AND #23-028 FOR A REZONING FROM "RO" RESEARCH OFFICE DISTRICT TO THE OLIA VILLAGE "PMD" PLANNED MIXED-USE DEVELOPMENT DISTRICT WITH A SITE CONCEPT PLAN, PHASE ONE SITE DEVELOPMENT PLAN AND ASSOCIATED PRELIMINARY PLAT FOR THE 96 ACRE PROPERTY AT 10300 OLIVE BOULEVARD

FOR THE MEETING OF: September 5, 2023

LOCATION: 10300 Olive Boulevard, former Bayer West Campus, located south of Olive Boulevard and west of Lindbergh Boulevard

REQUEST: Matt Pfund, of Jack Matthews Development, representing 10300 Olive, LLC, has submitted an application to amend the Official Zoning Map of the City of Creve Coeur to change the zoning of the property of approximately 96 acres located at 10300 Olive Boulevard, from "RO" Research Office to "PMD" Planned Mixed Use Development District, referred to as Olia Village. In accordance with Section 405.390 of the Zoning Code for Planned Zoning Districts, the applicant has submitted the Site Concept Plan and Phase One Site Development Plan for review and approval by the City. The proposed uses within the overall development include commercial buildings, restaurants, mixed-use buildings with ground floor retail/commercial uses and multi-family dwelling units on the upper floors within a "Main Street" type setting, hotels, apartments, office and research office buildings, as well as attached townhomes. The existing buildings formerly used by Bayer are shown to remain and will be repurposed for office and residential uses. A subdivision of the property is also proposed.

ADDITIONAL INFORMATION: The submitted Site Development Plan for Phase One consists of site clearing, grading, site utilities and roadway construction. Building construction and related site improvements will be submitted for review by the City at a later date in association with each of the outlined phases as provided in the Site Concept Plan. A preliminary plat has been submitted to subdivide the property into individual lots and to establish streets and easements.

Key Issues:

- Does the request further the goals and/or implement the Comprehensive Plan?
- Does the request meet with the criteria for Planned Zoning Districts as provided in Section 405.390?
- Does the project provide Public Benefits and meet the Design Criteria as a Planned Mixed-Use Development District?

Creve Coeur 2030 Plan References

- Mixed Use Innovation Campus District (MUIC)
- 39 North Master Plan
- Comprehensive Plan and 39 North Master Plan Amendment for the Former Bayer West Site

Zoning Code References

- Section 405.390 Planned Zoning Districts

APPLICANT'S REPRESENTATIVE:	Matt Pfund Jack Matthews Development 90 Edwardsville Professional Park Edwardsville, IL 62025	**PROPERTY OWNER:**	10300 Olive, LLC 90 Edwardsville Professional Park Edwardsville, IL 62025

REPORT PREPARED BY: BETHANY L. MOORE, CITY PLANNER
JASON JAGGI, AICP DIRECTOR OF COMMUNITY DEVELOPMENT

ATTACHMENTS:
Applicant's Materials received July 7, 2023, August 11, 2023, and August 30, 2023
PGAV Project Review dated August 15, 2023
PGAV Residential Market Analysis dated August 30, 2023
Lochmueller/Trekk Design Group Traffic Study Reviews

BACKGROUND SUMMARY
The 96-acre subject property is the former Bayer West campus purchased by the applicant in September 2022 when Bayer downsized due to the need for less office space post pandemic. Bayer still owns and operates the eastern half of the original Monsanto campus. The subject property includes five existing structures that will be reused in combination with new structures as part of the proposal for a planned mixed-use development with a combination of multifamily, townhouses, hotel, retail and office space.

The buyers of the property initially approached the City in the Fall of 2022 to discuss their plans for the site. Upon discussion with the applicant, staff determined that the best way to review the proposal would be through a comprehensive plan amendment and text amendment process to create a new mixed-use type of planned zoning district. Several work sessions were held with City Council and the Planning and Zoning Commission in order to consider these aspects in advance of a formal review of this specific proposal. On January 1, 2023, a joint Planning and Zoning Commission and City Council Work Session was held to identify Planning goals for the upcoming year in which the Comprehensive Plan update and the Planned Zoning District ordinance amendments were included as a priority for 2023. On February 21st and March 6th, the Planning and Zoning Commission held work sessions to discuss the Comprehensive Plan update and the Planned Zoning District ordinance amendments. On March 27, 2023, the City Council was updated and discussed the Comprehensive Plan update and Planned Zoning District ordinance amendments. The text amendment to modify Section 405.390 *Planned Zoning Districts,* received City Council approval on July 10, 2023 upon Planning and Zoning Commission recommendation of approval at the June 5, 2023 meeting. The City's Comprehensive Plan, *Creve Coeur 2030,* which includes the 39 North Master Plan, was also amended after the Planning and Zoning Commission granted approval on June 5, 2023 as the Comprehensive Plan and 39 North Master Plan did not foresee that the Bayer West campus would be sold and redeveloped.

PROJECT OVERVIEW
The project consists of a mixed-use planned development arranged within four (4) distinct components. These four components are as follows, with a general description of each:

- Category A: Main Street Development
  This component features a "Main Street" style of development with vertical mixed-use buildings, shared parking garages, and on-street parking within a pedestrian-friendly environment. The proposed uses within this category include office, ground level retail, services, and restaurants, hotels, multi-family residential above commercial and a central urban park. The height of buildings within this category varies between 1 and 8 stories.

- Category B: Mixed-Use Development
  This component is highly variable and features traditional "big box" commercial and in-line single story retail with supporting surface and structured parking, reutilization of the existing Bayer office buildings into residential and office/research uses, along with a new office building on the eastern end of the site. The proposed uses within this category include retail, services, restaurants, multi-family residential and general office. The height of buildings within this category varies between 1 and 5 stories.

- Category C: General Office Development
  This component consists of office/research uses on the eastern end of the site with the potential for accessory lab/greenhouse research space. Parking will be provided primarily on shared surface lots. One primary office/research building with a height of 3 stories is proposed with two single story accessory structures for labs and/or greenhouses.

- Category D: Residential Development
  This component features an attached single family residential (townhouse) development consisting of 65 units. The townhomes would be 2 stories in height.

The developer is proposing to construct the project in five (5) phases. The first phase consists of site work such as clearing, grading, utility and roadway construction that would begin later this year, or soon after approval of the rezoning by the City Council. The last phase would be the townhouse component, which is anticipated to be completed by December 2028.

The proposal includes the dedication of new public streets; the construction of a trail system, sidewalks, and a shared use path arranged to facilitate future connections to planned facilities within the 39 North District. New wet and dry detention basins will be provided to capture stormwater runoff and to also serve as an amenity for the development. Significant areas of undeveloped common ground are proposed, primarily along the west, south and eastern portions of the site. The access points into the existing site from Olive and Lindbergh will be retained with improvements such as traffic signal timing adjustments and an intersection reconfiguration to Olive Boulevard at Pavilion Drive, opposite the main entrance to the development, as required by the Traffic Impact Study.

Additional details are discussed in the Site Concept Plan portion of this staff report.

PROJECT PROPOSAL AND ZONING STRUCTURE
The project includes rezoning of the 96-acre property from the "RO" Research Office zoning district to a new "PMD" Planned Mixed Use Development District. This rezoning allows a proposal of this size and complexity to be reviewed by the City under its own specific zoning district. A Site Concept Plan, which serves as the basis for the project moving forward, has also been submitted in accordance with Section 405.390 *Planned Zoning District.* The rezoning and Site Concept Plan require approval by the City Council upon recommendation of the Planning and Zoning Commission. Once approved, any major changes to the overall development project will have to be approved as an amendment to the Site Concept Plan.

The submitted Site Concept Plan includes the following components: Site Overview, Parcel Plan, Setback and Buffer Plan, Phasing Plan, Grading Plan, Utility and Drainage Plan, Street Plan, Pedestrian Plan, Site Sections, Tree Conservation Plan, Overall Concept Planting Plan and preliminary renderings of the site. The project will be built in five phases. More specific details for each building or lot are to be provided at the Site Development Phase for each. A Site Development Plan for Phase One of the development along with associated preliminary plat to subdivide the property into individual lots and establish streets and easements, have also been submitted. The Phase One Site Development Plan includes site clearing, mass grading, site utilities, and roadway construction. Site Development Plans within the Planned Mixed Use Development District require Planning and Zoning Commission review and recommendation to City Council for approval by resolution.

PLANNING AND ZONING COMMISSION REVIEW TIMELINE
Due to the size of this proposal, this application has been noticed for Public Hearings before the Planning and Zoning Commission for two meetings, September 5th and September 18th and no decision is requested for today's meeting. After the Planning and Zoning Commission review is completed and the Commission has made a recommendation on the application, the application will be forward to the City Council for their review and final determination.

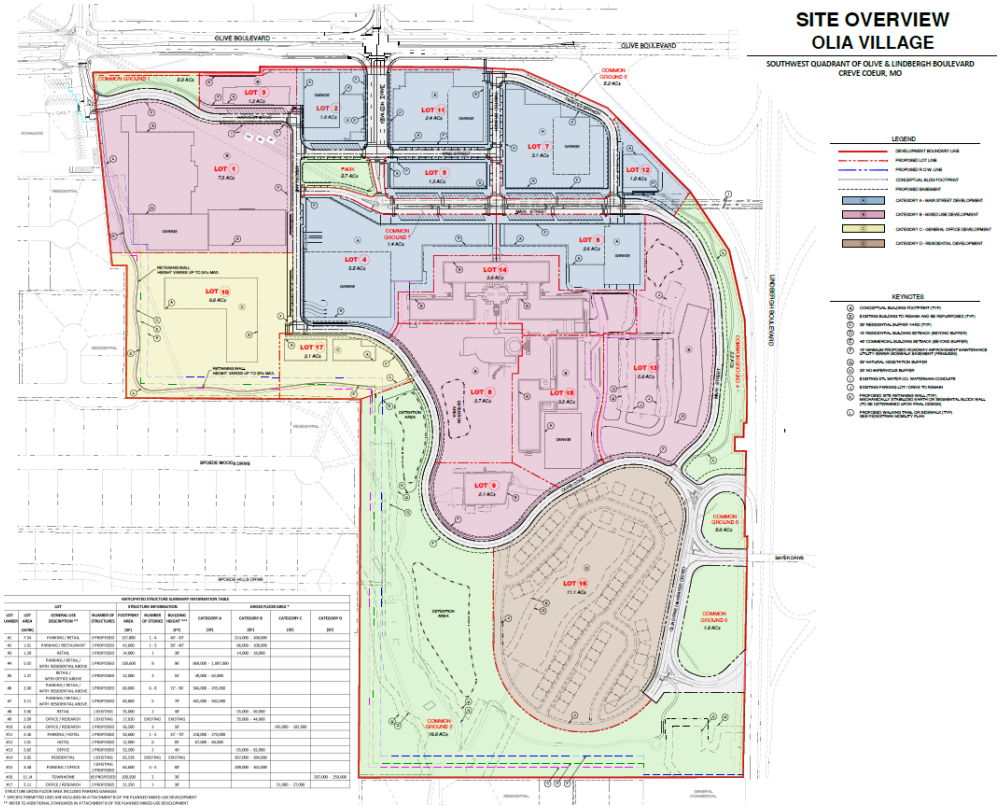


Figure 1: Site Concept Plan, color coded district use type categories shown.

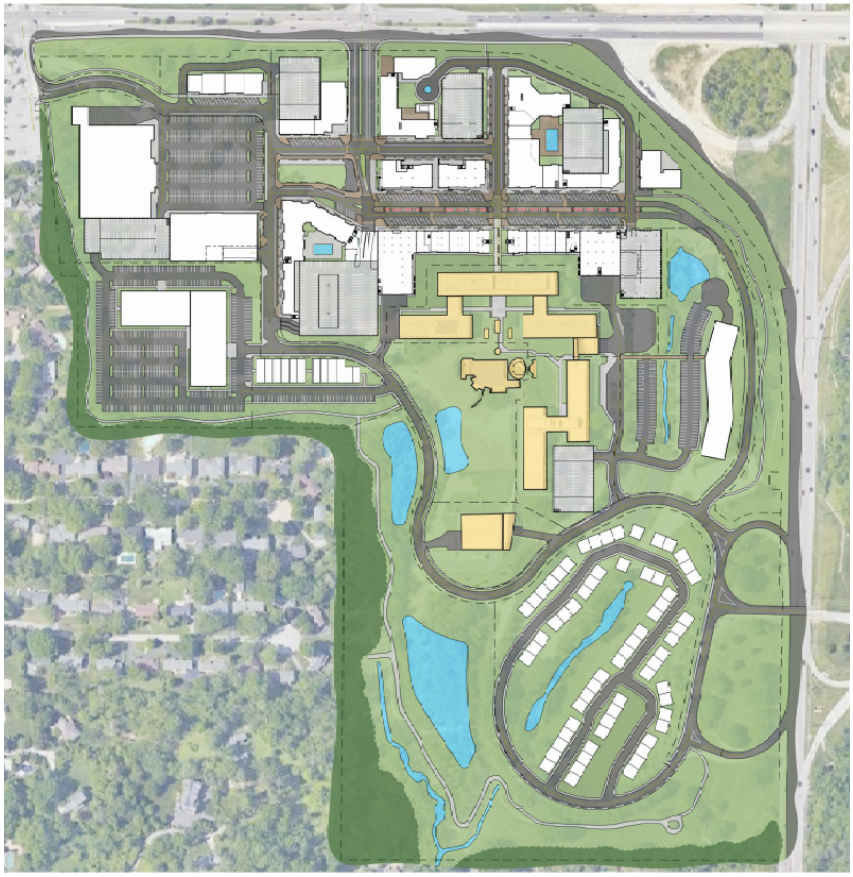


Figure 2: Architectural Site Plan

Figure 3: Preliminary Main Street elevations.

Figure 4: Main Street conceptual rendering.

LAND USE AND ZONING OF SURROUNDING PROPERTIES
The adjacent zoning and land uses are as follows:

DIRECTION	USE	ZONED	SEPARATED BY
North	Commercial, Multi-Family	"CB," "GC," and "AR"	Olive Boulevard
South	Single-Family Residential, Commercial	"A" Single-Family Residential and GC District	N/A
East	Bayer East Campus	"RO" Research Office District	N. Lindbergh Boulevard
West	Single Family Residential	"A," "B," and "C-RDD" Single Family Residential	NA

COMPREHENSIVE PLAN REVIEW
The subject property is located on the former Bayer West campus and is the subject of a Comprehensive Plan Amendment that was approved by the Planning and Zoning Commission on June 5, 2023. The City's Comprehensive Plan, *Creve Coeur 2030 and 39 North Master Plan,* did not anticipate the sale and redevelopment of the subject property and therefore the amendment was needed to establish recommendations and future land use and redevelopment goals for the site.

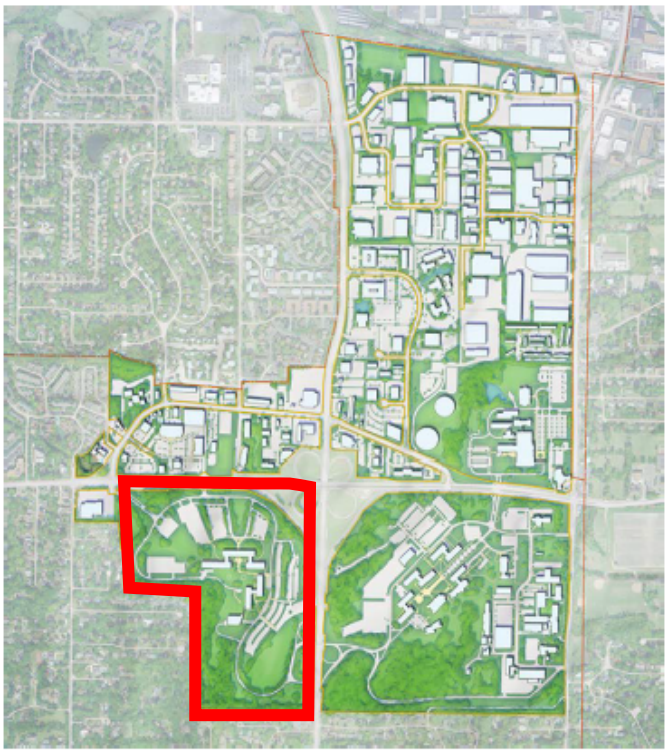


Figure 5: 39 North District map with project location outlined in red.

The subject property represents 17% of the 39 North District. The 39 North Master Plan is a component of the Comprehensive Plan that outlines the goals of the district to bring together AgTech businesses in the area connected by a walkable and bike-friendly environment within a mixed-use district with supporting retail and gathering spaces (Pg 2).

The goal of the adopted amendment is to encourage redevelopment that contributes to the continued growth of the 39 North innovation district and serves the broader community. The four stated Objectives of the amendment are as follows:

- Support a quality development that is commensurate with the size and location of this site within the local and regional context.
- Consider a mix of appropriate uses that provides a higher density component within an overall pedestrian friendly development.
- Respect the existing topography and natural features of the site.
- Maintain appropriate buffering to the adjacent, existing single family residential uses.

The specific recommendations of the Comprehensive Plan Amendment and Staff's analysis of how this proposal meets with these recommendations are as follows:

Future Land Uses
Potential developments should take into account the site's location within the 39 North AgTech Innovation District, the size of the subject property within the greater context of the 39 North District, provide a mix of uses to support the employment base such as housing, retail, hotel, office and commercial uses and services, reuse the existing buildings along with new construction within a

coordinated development that accommodates for phasing and a cohesive design theme throughout in terms of architectural style, colors and materials. The applicant's proposal includes a coordinated, phased development with a mix of uses including residential, commercial, office, and hotel uses that will support the growing 39 North District through additional amenities and housing for employees as well as for the surrounding Creve Coeur residents.

Transportation and Connectivity
Safe pedestrian access within the site and from the site to surrounding areas shall be provided with a pedestrian crossing from the site across Olive Boulevard to the larger 39 North district specifically mentioned. Any future development shall evaluate the traffic impacts that such developments will have on the two major state thoroughfares, Olive Boulevard and Lindbergh Boulevard, providing direct access to the site. The proposed development provides significant pedestrian safety features throughout the site including sidewalks, multiple crosswalks within the development and a dedicated pedestrian trail. Staff is continuing to work with the applicant to facilitate a pedestrian connection across Olive Boulevard to better connect the development to the rest of the 39 North District, but currently the north side cannot accommodate this improvement. The applicant has conducted a Traffic Study to assess and mitigate the increase in traffic volume that the site is anticipated to create. The City's traffic consultant has reviewed the submitted traffic study, along with MoDOT comments, and provided his assessment.

Recreation and Open Space
Due to the size and existing conditions of the site such as its topography, large wooded areas, and environmental requirements, internal trails connecting the entire site together and to local amenities such as city parks and the future 39 North Greenway system are encouraged. Public plazas for community gatherings and active streetscapes that encourage outdoor dining and events should be incorporated. The project proposal incorporates the existing pedestrian path around the former Bayer West campus into an expanded pedestrian trail with connections throughout the site to the development. Staff is continuing to work with the applicant to encourage connections to the path outside the development. The design of the Main Street element of the project with the park at one end and the wide pedestrian friendly street flanked with wide sidewalks aims to create an environment of outdoor dining and active streets that can easily host community events and gatherings as recommended in the Comprehensive Plan amendment.

Site Development Standards
Any development on the site should include well designed, cohesive buildings with quality building materials, high density developments located closer to Olive Boulevard and Lindbergh Boulevard to lessen the impacts on the residential areas to the west and south with appropriate buffering in place that preserves the existing trees and vegetation already serving that purpose. The development should include stormwater mitigation that is sensitive to the existing topography and environment while incorporating low impact BMPs in compliance with MSD standards. The application includes a cohesively designed dense development that places more active and disruptive uses next to Olive Boulevard and interior to the site while observing multiple layers of buffering between the new development and the existing residential uses to the south and west. The project includes new storm water management facilities, including detention basins, that are sensitive to the surrounding development and underground when feasible. Staff have encouraged the use of native landscaping in order to increase the connection to 39 North through incorporating the landscaping palate and designs of the 39 North Old Olive Great Streets Plan. The applicant is still exploring the proposed tree removals at staff request in order to comply with the requirements of Section 410.320 of the Subdivision Ordinance.

Staff finds that the proposed Site Concept Plan for the Olia Village development is substantially aligned with the goals and objectives of the Comprehensive Plan amendment. The project would offer housing options that would support the growing 39 North district as well as a variety of amenities including shops and restaurants for residents and workers alike. The plan also incorporates additional office and research space that could assist with the expansion of the 39 North employment base. The plan includes pedestrian paths within the site which would promote walkability and the applicant is still working with staff on plans to accommodate connectivity to the broader 39 North district across Olive Boulevard. The Main Street aspect of the development serves to provide a gathering place for the area that would be supported

by a small park and wide, active streets promoting outdoor dining. The existing topography guides the development with respect to maintaining a significant portion of the naturally wooded buffer along the western and southern portions of the site and protecting the existing natural waterways. The project has considered the sensitivity of the adjacent single-family residential areas that border the majority of the western and southern borders of the development by providing a minimum 35-foot residential buffer yard with an additional 15-foot residential building setback and additional 40-foot commercial setback lines proposed beyond the buffer.

ZONING REVIEW
As previously stated, Planned Zoning Districts are regulated within Section 405.390 of the Zoning Ordinance. This section describes, in considerable detail, the characteristics that a proposed planned development should have, as well as certain standards of review that must be performed by the Planning Commission and City Council.

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.

The following are Objectives for the use of Planned Zoning Districts:

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;
7. Mutually desired elimination of obsolete or deteriorated structures or incompatible uses through redevelopment.

A review of the specific components of Section 405.390 as they relate to this application are as follows:

Eligibility
The following criteria must be met as determined by the Zoning Administrator as provided within Section 405.390(C) Eligibility. The Zoning Administrator finds that the application meets these Eligibility criteria and is an appropriate use of the Planned Zoning District procedure as follows:

1. **Is located on one (1) or more lots totaling at least three (3) acres in size.**

Criterion met. The project, located on the former Bayer West campus, is comprised of approximately 96 acres on one parcel.

2. **Cannot be approved under the provisions of another Zoning District.**

Criterion met. None of the existing zoning districts within the City of Creve Coeur would be able to accommodate such a proposal based upon the scope of the proposed Site Concept Plan and intended land uses.

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.

Criterion met. The subject property is currently zoned "RO" Research Office which is eligible for rezoning to "PMD" Planned Mixed-Use Development which is one of the three types of planned zoning districts listed under Section 405.390(F).

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.

Criterion met. The proposed development substantially complies with the provisions of Section 405.390, which will be explored in greater detail further in this staff report. The City's Comprehensive Plan was amended when the former Bayer West campus was sold to create guidelines for the redevelopment of this property that aligned with the overall goals for the 39 North District and the *Creve Coeur 2023* Comprehensive Plan as the Comprehensive Plan did not foresee this property being sold and redeveloped. The proposal is generally consistent with the applicable provisions of the City's Comprehensive Plan as was discussed in the previous section.

Public Benefit
As a component of the Planned Zoning District, the project must provide public benefits as determined by the City Council upon the recommendation of the Planning and Zoning Commission. Such public benefits to the City can include, but are not limited to, the following uses as provided in Section 405.390.E.
Staff is of the opinion that this application provides several public benefits as described in the ordinance as follows:

1. Provision of public or quasi-public parking facilities;

The project incorporates numerous parking garages, surface lots, and on-street parking that will be privately maintained and open to the public.

2. Provision of on-street and off-street pedestrian facilities linking surrounding business, office and residential uses;

The project incorporates sidewalks throughout the development linking the various components within the development. In addition, the applicant is working on a final layout with staff for a shared use path within the development that will provide future connections to planned trails to adjacent areas within the 39 North District and beyond. Additionally, the applicant is working with staff to provide sidewalk connections to Lindbergh Boulevard. Finally, the developer is willing to provide a trail connection on the Vantage Credit Union property, if desired.

3. Consolidation and/or elimination of overhead utility wires;

There are no known existing overhead utility lines within or adjacent to this site. It is staff's understanding that all new utilities that will serve the development will be placed underground.

4. Inclusion of landscaped gardens, plazas or parks available for public use;

The development proposes a 0.7-acre urban park, with plaza areas and sidewalk seating amenities within the Main Street district which are available for public use.

5. Provision of alternative street connections or the dedication of land for additional street right-of-way;

The development will utilize the existing access points to the public roadways, Olive and Lindbergh. Modifications to some of these intersections are proposed as recommended in the Traffic Impact Study.

6. Fountains, statuary, public art;

The project proposes public art, primarily within or adjacent to the urban park.

7. Architectural distinction and significance that would make building(s) noteworthy;

The preliminary renderings indicate that the buildings would provide architectural distinction within this area of Creve Coeur and within each of the components of the development, subject to final review of each building at the Site Development Plan stage.

8. Extensive use of high-quality building materials that would add to the assessed valuation of the structures.

The exterior site and building materials are indicative of a high-quality development that would add value to the development and individual structures, subject to final review at the Site Development Plan stage. The use of brick, stone, metal panels and fiber cement are proposed.

Design Criteria
An application for rezoning to the PMD District must satisfy specific design criteria as determined by the City Council upon recommendation by the Planning and Zoning Commission. The following is staff analysis of the Planned Mixed-Use Development (PMD) Design Criteria, Section 405.390(F), and the extent to which those items are present with this proposal:

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.**

Criterion not fully met. This information has not yet been provided due to the preliminary nature of the Site Concept Plan which represents an overview of the project. Nonetheless, the Commission should require a preliminary analysis from the applicant to demonstrate general compliance for those buildings within the development that are subject to this requirement. Upon satisfaction of compliance at this conceptual stage, staff would recommend a condition of approval that this requirement will be verified for compliance at the Site Development Plan application review.

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.**

Crition met. Sheet C-103 of the Site Concept Plan shows that the required 35-foot buffer yard is provided along the western and southern boundaries of the subject property where it abuts single-family residences. The buffer yard will include most of the existing wooded areas and vegetation. In some places the buffer will also include the proposed pedestrian trail and the retaining wall required for the site due to mitigate the elevation changes on the site. In addition to this required buffer yard, the proposal also includes an additional 15-foot residential building setback and a 40-foot commercial building setback beyond the required 35-foot buffer yard abutting single family residential.

3. **If residential uses are proposed, provides for a mixture of housing types to meet market demands and encourage diversification.**

Criterion met. According to the applicant, the project is proposing two types of residential housing to attract a variety of residents including young working professionals in the 39 North district: families and downsizing older adults. The first would be apartment style multi-family housing within the Main Street development category above commercial uses on Lots 4, 6, and 7, and a standalone apartment use within an existing building in the Mixed-Use development category on Lot 14. There is also a townhouse style residential development proposed for Lot 16, the details of which will be determined at the Site Development Plan stage. To better understand the housing needs from a regional and local context, Staff have asked the City's planning consultants, PGAV, to conduct a market analysis for the housing types proposed and this report is attached for the Planning and Zoning Commission's review. PGAV will also be in attendance at the meeting to present their findings and answer questions from the Commission.

4. **Allows for and makes efficient use of parking and storage areas including cooperative parking facilities.**

Criterion met. The project proposal provides a variety of parking options for the development including on street parking, at grade parking lots and parking structures which are to be shared amongst the uses within the development.

5. **Provides for the more efficient provision of public and private utilities and facilities throughout the development area.**

Criterion met. The applicant intends to establish all new utilities to serve this development. Currently, all public utilities are privately "fed" from the Bayer East campus via a tunnel under Lindbergh Boulevard, except wastewater which is discharged directly to existing MSD sewers. The applicant is working with Ameren, Spire, and Missouri American Water to establish all new electrical, gas and water service connections for this development. MSD approval will be required for future sanitary and storm sewer systems.

6. **Provides adequate public facilities including streets, bicycle and pedestrian facilities, fire protection, water, storm water control, sanitary sewer and parks and recreation facilities.**

Criterion met, subject to final approval by the appropriate jurisdictional agencies. The application provides adequate public facilities as is shown throughout the Site Concept Plan including providing public parking facilities, providing new and updated on and off-street pedestrian facilities throughout the development, providing a new park, burying overhead lines and providing new stormwater detention ponds to handle the runoff for the site. It should be noted that MSD and Creve Coeur Fire Protection District approval will be required in accordance with any future construction based upon detailed construction-level drawings.

7. **Incorporates pocket parks, small plazas and places for public art where appropriate.**

Criterion met. The project includes the development of a 0.7 acre park to anchor the Main Street development and serve as a gathering area for any events held there. The applicant has also indicated that public art is part of the proposal with final locations and designs to be determined in conjunction with a

Site Development Plan. At the appropriate time, the Arts Committee will review and provide a recommendation regarding the public art component.

8. Locates buildings in appropriate relation to sidewalks or public parks and plazas.

Criterion met. The centerpiece of the proposed development is the Main Street area which creates a dense "downtown" feel with buildings right up to the sidewalks along a wide pedestrian oriented thoroughfare with a park at one end. The buildings are located close to the streets along Twisted Branch, Vine Street, Main Street and Pavilion Drive which make up the dense mixed-use commercial and residential area. Sheet C-108 of the Site Concept Plan shows the location of the sidewalks as part of the pedestrian plan.

9. Provides for vehicular mobility in a manner that does not compromise pedestrian safety and mobility.

Criterion met, subject to further refinements. Sheet C-107 shows the Street Plan for the development and Sheet C-108 is the Pedestrian Plan of the overall Site Concept Plan. These two sheets show the location of all proposed streets and sidewalks and trails throughout the development. The layout of streets throughout the development includes sidewalks along one or both sides of the street with adequate crosswalks connecting the pedestrian access throughout. The Main Street area of the development pays particular attention to the pedestrian experience providing more frequent, staggered crosswalks which help to aid in the visibility of pedestrians in the roadway to oncoming vehicles. Staff suggests these crosswalks can be even more improved for pedestrian safety through the use of differentiated materials, colors and textures per the Design Guidelines recommendations. The plan also proposes a low-impact nature trail within sensitive areas of the development near protected stream areas and adjacent to existing single family uses. Finally, the applicant is working with staff on final alignments for a paved, 8-foot shared use path. The details for the shared use path will be presented at a future meeting.

10. Utilizes high-quality architectural design and materials, placement, relationship and orientation of structures throughout the planned development.

Criterion met. Sheet A-104 of the Site Concept Plan provides conceptual elevations for the project and Sheet A-105 provides an overview of the materials proposed throughout the development which includes fiber cement panels, metal panels, stone, a variety of brick types, and other decorative architectural panel materials. Attachment B, the document which serves as the development guidelines for the project and still in draft form, states that the development will have a consistent design theme throughout including a color palette of white, off-shite, light grey, wood grain or light beige with dark grey, black or dark bronze accent materials and banning red, orange or yellow brick or other bold finish materials. The individual materials and architectural design of each building will be provided at a more detailed level with each Site Development Plan application. The placement, relationship and orientation of the structures throughout the development create a dense, urban design that encourages pedestrian activity while also creating a desirable residential environment for the apartment units. The attached single-family residential development is placed further away from the development surrounded by the existing wooded areas and proposed detention basins giving it a sense of privacy.

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.

Criterion met. Sheet C-106 of the Site Concept Plan shows new utilities will be underground to the extent feasible for the site given the various environment and topographical concerns present.

12. Provides for appropriate spacing and/or greenspace in or around the separate developments within the PMD.

Criterion met. The Site Concept Plan provides for appropriate spacing and greenspace within each of the components within this development. The Main Street component is appropriately dense and is placed

on the northern portion of the site with less greenspace and buildings placed closer together with emphasis on the sidewalk and smaller plaza spaces. The traditional "big box" commercial on the northern and western end of the site and the office developments found in the Mixed-Use and General Office land use categories transition well from the Main Street area by offering larger greenspaces and landscaped areas appropriate for this type of development. The greenspaces are very pronounced around the Residential component on the southern portion of the site as well as around the perimeters of the site, most notably on the southwest, southern and eastern areas.

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.**

Criterion met. Sheet C-106 of the Site Concept Plan details the utility and drainage plan for the development. The plan shows the proposed underground storm drainage system as well as the three proposed wet detention areas integrated into the south and western portions of the proposal. Some of these detention areas help to serve as an additional buffer between the single-family residential neighborhoods and serve as amenity spaces for the proposed development.

Review Criteria
An application for rezoning to the Planned Zoning District must satisfy specific Review Criteria as determined by the City Council upon recommendation by the Planning and Zoning Commission. The following is staff's analysis of the Planned Mixed-Use Development (PMD) Design Criteria, Section 405.390(F), and the extent to which those items are present with this proposal:

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.**

Criterion met. The proposed development is in harmony with the intent of Section 405.390 and the Zoning Ordinance as a whole. The planning goals and objectives outlined in the Comprehensive Plan seek to attract plant science and technology innovation type users integral to the 39 North district while providing more meaningful amenities such as housing, retail, hotel, commercial uses and services in a dense pedestrian friendly environment that is sensitive to the surrounding residential uses that will also attract other office tenants as well.

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.**

As part of the application submittal, the applicant's traffic engineer studied the proposed development and uses to conclude that the streets and means of access to the development are adequate for the development with internal circulation that encourages safe pedestrian and vehicle circulation. The applicant has shared this review with MoDOT for comment as well as the City's traffic engineering consultant who has also reviewed the traffic study and provided comments. As part of this requirement, any recommendations made by MoDOT or the City's traffic consultant based on the Traffic Impact Study should be implemented.

3. **The internal circulation system of the proposed development encourages safe movement for vehicles and pedestrians.**

The proposed roads, sidewalks and multiple crosswalks provided in the Site Concept Plan appear to encourage safe movement for vehicles and pedestrians. Staff requests that the crosswalk material, color and texture be differentiated for better vehicle awareness of such pedestrian crossings. In addition, final alignment of the shared use path needs to be completed and submitted for review by the Planning and Zoning Commission at a future meeting.

4. Existing or proposed utility services are adequate for the proposed development.

The new underground utilities provided for the development have been reviewed by the Public Works Department with no concerns at this stage of the development review. Each utility will require a separate review and approval prior to construction.

5. Appropriate buffering is provided to protect adjacent land uses from light, noise and visual impacts.

The required 35-foot buffer when abutting residential uses is shown on Sheet C-103 of the Site Concept Plan along with additional building setbacks beyond the 35-foot buffer. Sheet LD-100 of the Site Concept Plan shows that some of the existing tree massing will be left untouched between the residential areas and the project development area for additional buffering to help reduce light noise and visual impacts. In addition, the proposed grades for the development result in several areas of the site will be lower than adjacent residential neighborhoods. Staff recommends that the Commission thoroughly review this aspect of the development with the applicant to understand any impacts to the existing residential neighborhoods and to determine if adjustments need to be made.

6. Architecture and building materials are consistent with the character of the proposed development and compatible with areas of the City proximate thereto.

The proposed materials are of a high quality that is indicative of the caliber of the proposed project. The applicant proposes to keep a consistent design character in material, color palate and architectural detail throughout the site that will be compatible with the surrounding areas of the City. Additional details of each building will be reviewed more specifically with a Site Development Plan application.

7. Landscaping is appropriate for the scale of development and consistent with any applicable City codes, ordinances and standards.

Sheet L-140 of the Site Concept Plan details the overall concept planting plan showing new street trees along the proposed roads in the development and along Olive Boulevard as well as ornamental landscaping along the main entrance to the site on Pavilion Drive and in the Main Street area. At a Site Concept level, the landscaping appears to be adequate. Additional details for each building and phase will be required as part of the landscaping plan for each Site Development plan application.

8. The proposed development preserves any significant architectural and environmental features of the property, to the extent reasonably possible.

All previously occupied existing buildings on the site are proposed to be reused and incorporated into the development. The significant environmental features of the site including the stream and topography on the southern end will be kept intact with the applicant proposing to develop around these features. The area is heavily wooded in many areas and as part of the proposal, roughly 61% of trees on the entire site will be removed to accommodate the development. Because the subdivision of the existing property into multiple lots is a component of this project, it is subject to Section 410.320 *Tree Conservation* which limits the tree removal to no more than 50% on site. Any further tree removal after approval is required to be replaced on a 1 to 1 basis or a 2 to 1 basis if the trees are over 20 inches DBH. The Planning and Zoning Commission should review the proposed tree removals with the applicant and determine if adjustments should be made, to bring the removals closer to the 50 percent limit. Please refer to the Preliminary Plat section in this staff report for further information.

9. Operating and delivery hours are compatible with the land uses adjacent to the planned zoning district.

The applicant has made a conscientious effort to concentrate more intense uses to the portion of the property adjacent to Olive Boulevard and Lindbergh Boulevard with less intense uses planned for the portions of the property that abut residential areas to the west and south. This site will have activity 24 hours a day due to the residential components. The commercial operating and delivery hours are not known at this time and will be reviewed as a component of the Site Development Plan review. General restrictions could be placed on the project as part of the planned development ordinance, if desired, such as limiting delivery hours for the components of the project that are adjacent to existing residential 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.

The proposed uses are compatible with the surrounding area as the properties opposite the subject property across Olive Boulevard are zoned for commercial uses in the "CB" Core Business and "GC" General Commercial zoning districts as well as the majority of the Olive Boulevard corridor. The proposed development replicates the existing development pattern to the west of the subject property along Olive Boulevard and south along Lindbergh Boulevard with commercial uses along the frontage of the main arterial roadways and residential uses behind. The applicant understands the sensitivity of this site as it abuts residential uses to the west and south of the property. With this in mind, the Site Concept Plan utilizes buffering in the form of existing trees, new trees, and proposed grading for the new development. In addition, more intense uses are placed to the interior of the development. Vehicular access to the site will be from Olive and Lindbergh, the two existing primary on-interstate roadways serving the City. No new access is proposed to directly serve the existing residential neighborhoods.

11. The proposed development complies with all other applicable codes and ordinances.

Staff is working with the applicant on additional details in some areas including the pedestrian path, street dedications, pedestrian access across Olive Boulevard, however, the application, as a whole, generally appears to be compliant with other required applicable codes and ordinances as submitted.

12. The layout of structures and spaces adequately takes into account the potential for future subdivision of the development.

The submitted Subdivision Preliminary Plat proposes to split the development into smaller areas for sale. Additional subdivision of land within the development beyond this is not anticipated at this time.

13. There is a demonstrated level of the public benefit to the City derived from the proposed development, per Section 405.390(E).

There are several aspects of the proposal that provide public benefit to the City including the pedestrian walking paths within the site and connections to the surrounding existing or planned facilities, public art, urban park, additional housing and retail amenities to support the 39 North District and a dense, walkable commercial Main Street development that fulfills the goals of the Comprehensive plan for the area. Please see the Public Benefit section of this report for additional information.

14. Any proposed direct impacts on public services, including public improvements proposed for dedication to the public, do not impose an unacceptable burden on the City, taking into account new City revenues projected to be realized from the development.

Site Concept Plan
The Site Concept Plan is a significant component of the Planned Zoning District rezoning process. The Site Concept Plan provides the general layout for the entire development and provides critical information but at a relatively high-level view. Information that is required to be provided on the Site Concept Plan includes: general land uses, building placement, building heights, setbacks and buffers, circulation and access, parking, site coverage, proposed preliminary grading and stormwater facilities, conceptual landscaping and greenspace. Additional information to be submitted as part of the Site Concept Plan includes a narrative of the project by the applicant, phasing plan, general architectural information, and a traffic impact study. Furthermore, the Site Concept Plan provides the basis for future Site Development Plan review by the Planning and Zoning Commission and City Council for each of the phases of the development. A key finding of any future Site Development Plan review is that the plan must be consistent with the approved Site Concept Plan. If they are not, the Site Concept Plan must be amended and submitted to the City for approval.

The applicant has supplied this required information in the form of a multi-sheet Site Concept Plan set. The narratives are provided with the rezoning application and a separate traffic impact study prepared by the applicant's project engineer and reviewed by City staff and the City's consulting traffic engineer has also been submitted. Finally, the applicant has submitted their proposed development standards, including specific allowable uses, as an attachment to the rezoning application (titled Attachment B). These development standards remain under review by staff, the City's planning consultant and the applicant and will be presented at a future meeting.

Site Overview—Four Components of the Development
There are four categories in the development: Category A-Main Street Development which includes Lots 2, 4-7, 11 and 12, Category B-Mixed-Use Development which includes Lots 1, 3, 8, 9, and 13-15, Category C-Geneal Office Development which includes Lots 10 and 17, and Category D-Residential Development which includes Lot 16. Each category has its own set of guiding standards outlined in Attachment B, the rezoning ordinance. The general uses and building bulk information are provided in a table on Sheet C-101 of the Site Concept Plan and is available below:

ANTICIPATED STRUCTURE SUMMARY INFORMATION TABLE										
LOT				STRUCTURE INFORMATION			GROSS FLOOR AREA *			
LOT NUMBER	LOT AREA (ACRE)	GENERAL USE DESCRIPTION **	NUMBER OF STRUCTURES	FOOTPRINT AREA (SF)	NUMBER OF STORIES	BUILDING HEIGHT *** (FT)	CATEGORY A (SF)	CATEGORY B (SF)	CATEGORY C (SF)	CATEGORY D (SF)
#1	7.54	PARKING / RETAIL	3 PROPOSED	137,800	1 - 4	40' - 50'		214,000 - 268,000		
#2	1.61	PARKING / RESTAURANT	1 PROPOSED	42,600	1 - 3	30' - 40'		86,000 - 108,000		
#3	1.20	RETAIL	1 PROPOSED	14,000	1	30'		14,000 - 18,000		
#4	5.02	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	130,600	8	96'	869,000 - 1,087,000			
#5	1.27	RETAIL / WITH OFFICE ABOVE	1 PROPOSED	22,000	3	55'	49,000 - 62,000			
#6	2.60	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	60,000	6 - 8	72' - 96'	364,000 - 455,000			
#7	3.11	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	83,800	5	70'	401,000 - 502,000			
#8	3.66	RETAIL	1 EXISTING	35,000	2	40'		55,000 - 69,000		
#9	2.09	OFFICE / RESEARCH	1 EXISTING	17,630	EXISTING	EXISTING		35,000 - 44,000		
#10	6.69	OFFICE / RESEARCH	1 PROPOSED	56,500	3	50'			145,000 - 182,000	
#11	2.46	PARKING / HOTEL	1 PROPOSED	50,600	1 - 5	25' - 70'	218,000 - 273,000			
#12	1.01	HOTEL	1 PROPOSED	12,000	6	85'	67,000 - 84,000			
#13	5.82	OFFICE	1 PROPOSED	32,500	2	40		65,000 - 82,000		
#14	3.85	RESIDENTIAL	1 EXISTING	65,528	EXISTING	EXISTING		307,000 - 384,000		
#15	3.48	PARKING / OFFICE	1 EXISTING 1 PROPOSED	64,600	4 - 5	60'		289,000 - 362,000		
#16	11.14	TOWNHOME	65 PROPOSED	100,500	2	30'				207,000 - 259,000
#17	2.11	OFFICE / RESEARCH	2 PROPOSED	21,250	1	30'			21,000 - 27,000	

Phases
As shown on the Phasing Plan (Site Concept Plan Sheet C-104), the applicant proposes that the development will be constructed in five phases over a period of five years. Phase 1 will consist of site clearing, mass grading, site utilities and roadway constraint. Phase 1 is proposed to take place from October 2023 to July 2025. The Site Development Plan for Phase 1 has been submitted for review and approval as a component of this review.

Phase 2 consists of building construction on Lots 1-6,8,9, 14 and 15, including the common areas which will take place tentatively from January 2023 to July 2026.

Phase 3 includes building construction on Lots 7, 10 and 11 from January 2025 to December 2026.

Phase 4 would be building construction for Lots 12, 13 and 17 from January 2026 to December 2027 and the final phase, Phase 5, would consist of building construction for lot 16 from January 2025 to December 2028. Each phase or individual building will require a Site Development Plan which will be reviewed against the Site Concept Plan for compliance by the Planning and Zoning Commission, and if applicable, the City Council. The Site Development Plans will include more detailed information about each building and lot.

Streets, Circulation and Pedestrian Access
The development proposes to add to the existing pedestrian trails on the site and expand the length of the trail along the western and southern portions of the property. The trail will link up to the sidewalk system within the development on Lot 17.

There are some areas in the southern portion of the lot where the existing aggregate trail will have to remain in order to not disturb the two federally jurisdictional wetlands, two isolated wetlands and two federally regulated streams in that area. Sheet C-108 of the Site Concept Plan shows that the trail will be a natural aggregate trail.

Staff are still working with the applicant on the details for a separate, 8-foot-wide paved shared use path to connect the various components of the development and to allow future connections to other areas within the 39 North District. The applicant is currently revising the location of the path and looking into providing additional connections upon the City's request. Additional information will be provided at a future meeting.

The project includes just under 4 miles of roadway throughout the development, the majority of which will be dedicated to the City for continued maintenance as shown on Sheet C-107. Final details of the dedications are still being worked out with the applicant, but the City anticipates taking on a loop of roads within the development including Harvest Drive, Arbor Lane, Olive Cove, a portion of Olive Drive before it turns private to serve the planned residential development on Lot 16, part of Main Street, part of Twisted Branch, Vine Street and part of Pavilion Drive. The remainder of Main Street, Twisted Branch and Pavilion Drive will be privately maintained. The proposed streets meet the City's standards for new streets. An extensive network of new concrete sidewalks, totaling 12,800 feet, are also proposed within the development as shown on Sheet C-108. The sidewalk system is proposed to link to the pedestrian trail giving access to the development from the trail between Lot 17 and the detention pond. Topography changes make it difficult to connect the pedestrian trail to the sidewalk system in other areas.

Setback and Buffers
The setback and buffer plan is shown on Sheet C-103 of the Site Concept Plan. It provides that the development will include a 35-foot Residential Buffer Yard along the western and southern portions of the property that abut residential as well as two additional setbacks beyond the 35-foot buffer yard of 15 feet for residential buildings setbacks and 40 feet for commercial building setbacks. The setback and building line requirements within the development are outlined below:

CATEGORY A – " MAIN STREET" SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY B – MIXED USE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY C – GENERAL OFFICE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - ZERO (0) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY D – RESIDENTIAL SUB-DISTRICT:
1. MINIMUM FRONT YARD - FIVE (5) FEET
2. MINIMUM SIDE YARD - NONE OR SEVEN AND A HALF (7.5) FEET
3. MINIMUM REAR YARD - FIVE (5) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - FIFTEEN (15) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

Utilities, Grading and Drainage

Sheet C-105 and Sheet C-106 contain the grading and utilities and drainage plans for the site. Due to the extreme grade changes in parts of the site some significant grading will have to take place to prepare the site for the development including the installation of a retaining wall along the northwestern part of the site where the grade slopes down towards the subject property and away from the higher residential areas to the west. Sheet C-106 shows the placement of existing and proposed sanitary and storm sewers on the site along with proposed building footprints, lot lines and rights of way. Below are the preliminary buildout stormwater calculations:

PRELIMINARY BUILDOUT STORMWATER CALCULATIONS

PRE-DEVELOPED RUNOFF

TOTAL AREA	= 227.90 ac
WEIGHTED "CN" VALUE	= 81.59
AVERAGE "TC" VALUE	= 19.86 min
TOTAL FLOW	= 1,260± cfs

POST-DEVELOPED RUNOFF

TOTAL AREA	= 227.90 ac
WEIGHTED "CN" VALUE	= 86.54
AVERAGE "TC" VALUE	= 16.34 min
TOTAL FLOW	= 1,478± cfs

DIFFERENTIAL RUNOFF

PRE-DEVELOPED	= 1,260± cfs
POST-DEVELOPED	= 1,478± cfs
DIFFERENTIAL FLOW	= +218± cfs

100-YEAR, 24-HOUR PEAK FLOW RATE COMPARISON

PRE-DEVELOPED	= 404± cfs
POST-DEVELOPED	= 1,142± cfs
DIFFERENTIAL FLOW	= -55± cfs

THIS PROJECT HAS BEEN SUBMITTED TO MSD FOR CONCEPTUAL REVIEW (23CNCPB-00003).

ALL STORM SEWER AND DETENTION FACILITY CALCULATIONS AND REPORTS WILL BE SUBMITTED TO MSD AND CITY OF CREVE COEUR FOR FINAL APPROVAL PRIOR TO CONSTRUCTION.

Architectural, Exterior Materials, and Lighting
The proposed lighting for the site, as shown on Sheet A-103.1, includes three different types of pole lighting ranging in height from 11 feet to 23 feet tall which will be liberally distributed through the site along the roads and Main Street development area. Sheets A-105 and A-104 detail the proposed exterior materials and elevations for the project. The high-quality materials proposed include four types/color of brick, fiber cement, metal, composite metal and wood phenolic panels in a neutral color scheme. The elevations provided show a nicely designed set of buildings that are interesting, modern and cohesively designed to interrelate to each other and fit in with the surrounding developments.

Concept Landscape Plan and Tree Preservation
Sheets LD-100, L-140 and L-141 include the Tree Preservation Plan for the property and the proposed landscaping for the site. The Tree Preservation Plan shows which trees and tree masses of 6-inch DBH or larger will be removed and which will stay in order to make way for the proposed development. The submitted plan shows 61% of existing trees and tree masses to be removed leaving 31%. This does not comply with the requirements of Section 410.320 which requires no more than 50% of existing trees at 6-inch DBH be removed from a subdivided site. Staff have discussed this with the applicant and the applicant is currently exploring options to address this. The tree masses that are remaining help to form a buffer around the perimeter of the development between it and the existing residential uses to the west and south. The Planning and Zoning Commission should review this document and consider the potential impacts this tree removal will have on the surrounding residents.

Sheets L-140 and L-141 detail the overall landscaping plan for the site. New trees and street trees will be planted throughout the site, in the park, and along Olive Boulevard. The landscaping plans also show the installation of ornamental landscape plantings of a combination of shrubs, perennials, and ground cover including native plant materials. The plans state that the 39 North Great Streets Plan plant palette will also be consulted in order to bring that element in to connect the site with the greater 39 North District. Staff have discussed the installation of additional landscaping elements along Olive Boulevard to provide a better experience for motorists and pedestrians traveling Olive Boulevard and entering the site via Pavilion Drive. The street frontage along Olive Boulevard is an important feature of the development that will help to screen the rear side of the buildings and give a sense of place when entering the site. Additional details will be provided for the landscaping for each site as part of the Site Development Plan application for each lot or phase.

Traffic Impact Study
A Traffic Impact Study (TIS) has been prepared by the applicant's project engineer, CMT, to assess the traffic impacts that could occur upon full completion of the project and beyond the year 2048. An initial meeting was held in late November 2022 at MoDOT's offices to identify the scope of the study based on the preliminary site concept plan, site access and potential land uses. The study area, study timeframe, data collection and analysis, and a review of other developments within the vicinity were identified.

The first draft of the TIS was submitted in April 2023 for review by MoDOT, the City and the City's consulting traffic engineer, Kyle Evans, PE, PTOE (formerly with Lochmueller, now with Trekk Design Group). Comments were provided to the developer by all entities. A revised TIS was submitted in May 2023 which addressed most of the comments from the first draft. A second revised draft was submitted to the City and MoDOT on June 20, 2023 to address additional comments.

The table on the following page provides the analysis results for the future build out scenarios with respect to intersection delays and Levels of Service for the Construction Year 2028 and Design Year 2048:

Table 14 – Build Intersection Operational Analysis

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Spoede	EB	11.6 (B)	27.8 (C)	482	666	14.5 (B)	33.4 (C)	588	802
	WB	3.3 (A)	8.8 (A)	134	166	4.5 (A)	14.9 (B)	143	167
	NB	52.9 (D)	28.7 (C)	134	135	52.6 (D)	29.9 (C)	146	147
	SB	50.4 (D)	36.0 (D)	35	32	50.2 (D)	36.0 (D)	38	33
	ALL	**10.7 (B)**	**18.7 (B)**			**12.5 (B)**	**24.2 (C)**		
Olive & Old Olive W	EB	11.3 (B)	14.6 (B)	227	318	12.5 (B)	18.7 (B)	280	320
	WB	15.4 (B)	26.9 (C)	377	551	17.7 (B)	53.5 (D)	548	893
	NB	43.5 (D)	47.9 (D)	85	121	43.0 (D)	49.0 (D)	85	130
	SB	31.2 (C)	38.0 (D)	207	340	34.3 (C)	54.2 (D)	243	439
	ALL	**16.5 (B)**	**24.5 (C)**			**18.2 (B)**	**39.8 (D)**		
Olive & Pavillion	EB	14.8 (B)	14.7 (B)	257	393	19.3 (B)	19.0 (B)	596	524
	WB	19.7 (B)	14.2 (B)	465	377	19.8 (B)	16.3 (B)	468	380
	NB	40.8 (D)	30.1 (C)	204	170	40.8 (D)	29.5 (C)	204	170
	SB	53.7 (D)	40.6 (D)	84	136	53.5 (D)	41.6 (D)	89	151
	ALL	**21.1 (C)**	**17.5 (B)**			**23.0 (C)**	**20.0 (B)**		
Olive & SB Lindbergh	EB	6.8 (A)	12.2 (B)	148	303	7.1 (A)	14.2 (B)	151	368
	WB	10.9 (B)	16.1 (B)	216	406	11.5 (B)	16.5 (B)	225	436
	NB	43.7 (D)	39.6 (D)	154	154	46.0 (D)	42.6 (D)	163	155
	ALL	**12.5 (B)**	**16.2 (B)**			**13.0 (B)**	**17.4 (B)**		
Olive & NB Lindbergh	EB	4.1 (A)	5.2 (A)	175	151	5.2 (A)	5.7 (A)	197	164
	WB	6.6 (A)	10.7 (B)	283	531	8.1 (A)	13.3 (B)	394	613
	NB	47.3 (D)	42.9 (D)	155	165	49.8 (D)	46.1 (D)	174	177
	ALL	**11.0 (B)**	**12.7 (B)**			**12.4 (B)**	**14.5 (B)**		
Olive & Old Olive E	EB	3.5 (A)	6.7 (A)	251	456	5.0 (A)	8.8 (A)	120	556
	WB	6.0 (A)	9.8 (A)	277	520	6.5 (A)	11.5 (B)	321	627
	SB	41.8 (D)	48.2 (D)	72	163	41.9 (D)	53.1 (D)	77	179
	ALL	**5.6 (A)**	**11.8 (B)**			**6.7 (A)**	**14.0 (B)**		
Lindbergh & Old Olive	EB	36.6 (D)	21.1 (C)	100	83	40.4 (D)	23.1 (C)	118	98
	WB	36.3 (D)	58.1 (E)	121	487	46.3 (D)	67.6 (E)	156	593
	NB	8.5 (A)	16.4 (B)	353	486	9.9 (A)	19.1 (B)	417	570
	SB	10.0 (A)	20.8 (C)	681	735	13.5 (B)	28.2 (C)	909	930
	ALL	**11.3 (B)**	**23.8 (C)**			**14.4 (B)**	**28.5 (C)**		
Lindbergh / Monsanto Interchange (1)*	WB	9.1 (A)	9.0 (A)	3	3	9.1 (A)	9.0 (A)	3	3
Lindbergh / Monsanto Interchange (2.1)*	WB	9.8 (A)	9.1 (A)	38	30	9.9 (A)	9.1 (A)	40	30
	NB	9.6 (A)	9.0 (A)	30	23	9.6 (A)	9.0 (A)	30	23
	SB	9.9 (A)	9.5 (A)	23	20	9.9 (A)	9.5 (A)	23	20
Lindbergh / Monsanto Interchange (2.2)*	EB	10.6 (B)	10.1 (B)	48	40	10.8 (B)	10.1 (B)	48	40
	NB	13.7 (B)	11.7 (B)	88	60	13.8 (B)	11.7 (B)	90	60
Lindbergh / Monsanto Interchange (3)*	EB	8.7 (A)	8.7 (A)	28	25	8.7 (A)	8.8 (A)	28	28
	WB	8.0 (A)	8.2 (A)	3	3	8.1 (A)	8.2 (A)	3	3
	NB	9.9 (A)	10.7 (B)	35	48	10.0 (B)	10.8 (B)	35	48
Lindbergh / Monsanto Interchange (4)*	EB	7.3 (A)	7.4 (A)	5	3	7.3 (A)	7.4 (A)	5	3
	NB	7.2 (A)	7.1 (A)	4	1	7.2 (A)	7.1 (A)	5	1

* Unsignalized intersection, HCM6 delay/LOS/queue reported for stopped approach only.

The key findings of the Traffic Impact Study are as follows:

- According to the traffic study, the results of this analysis indicate that the existing roadway network generally operates efficiently with all intersections at Level of Service (LOS) C or better and all approaches at LOS D or better, and the Lindbergh and Old Olive intersection, due to future improvements by the City, will be improved with the new signalization. The only intersection that does not operate at this level of service is the intersection of Olive and Old Olive (West) which will operate a LOS of D during the 2048 PM peak hour due to projected background growth unrelated to this development.
- The entrance to the development at Olive Boulevard will require modifications. These modifications include the addition of a westbound left turn lane proposed at 500-feet in length to accommodate the proposed left turn queue within the existing median. The second modification involves reconfiguring the southbound approach at Pavilion Drive The southbound approach is

recommended to be modified through the conversion of the existing right turn lane to a shared through/right turn lane with protected/permissive left turn phasing, including flashing yellow arrows

- Lindbergh/Monsanto Drive Interchange: The existing interchange has ample capacity to accommodate the traffic demands with no additional improvements necessary.
- Olive Boulevard and Old Olive Street (West): There are no additional lanes required at this intersection, except in the future an additional southbound right turn lane at Old Olive and Lindbergh would improve operations beyond the 2028 build scenario.

Final acceptance of the Traffic Impact Study by MoDOT has not been submitted at this time. There are a few outstanding details that need to be finalized such as the pedestrian crossing at Olive and Pavilion Drive and potential sidewalk improvements along Lindbergh Boulevard. City staff is continuing to work with the developer on these remaining issues and will present additional information at a future meeting. The City's consulting traffic engineer will present his findings on the traffic study at the meeting and will be available to answer any questions.

Preliminary Subdivision Plat

The preliminary subdivision plat should provide sufficient information regarding a proposed subdivision of land to allow the Commission to evaluate the site development concept as it relates to the City's goals and objectives. The applicant is planning to sell portions of the development after completion of the project to other owners. In anticipation of this, the applicant has submitted an application for a preliminary plat to subdivide the subject property. The majority of the requirements of Section 410.110 Preliminary Subdivision Plat, have been met on the document provided while a few details are still needed. Staff continues to work with the applicant on the details of this requirement.

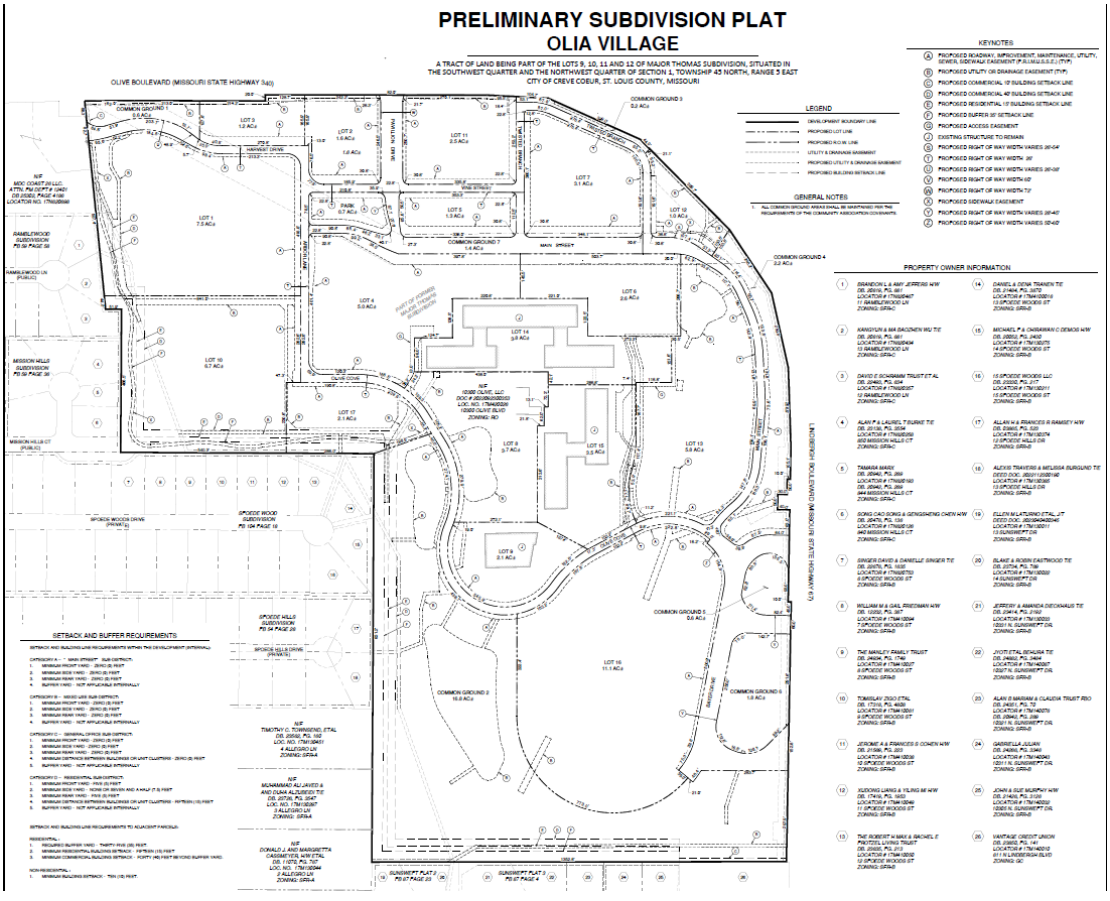


Figure 6: Preliminary Plat.

Tree Conservation Plan

A Tree Conservation Plan shall accompany every preliminary plat. The Tree Conservation plan provided, Sheet LD-100, shows that 61% of the existing trees or tree mass will be removed, leaving 39% on the lot. Section 410.320 requires that no more than 50% of the existing trees on the lot of 6-inch DBH be removed. This proposal is not compliant with the provisions of Section 410.320. Staff encourages the Planning and Zoning Commission to discuss this requirement with the applicant and consider what alternatives can be explored. The Commission can determine to what extent the requirements of Section 410.320 apply to projects in the new Planned Mixed-Use Development zoning district.

Figure 7: Tree Conservation Plan.

Site Development Plan Phase 1
The applicant would like to move forward with the construction phases of the project as soon as possible and the first step, the Phase 1 Site Development Plan, includes all of the improvements outlined in the Site Concept Plan as Phase 1, generally the clearing, grading, utilities and streets for the site. The plan appears to include all of the required elements of a Site Development Plan and an in-depth review of this proposal will be provided in the staff report for the upcoming meeting when this application returns to the Planning and Zoning Commission.

Rezoning Ordinance-Attachment B
This document serves as the new zoning code for this development and the "PMD" Planned Mixed-Use Development zoning district. It includes sections addressing permitted uses, standards, dimensional regulations, bulk regulations, parking and loading requirements, landscape and tree requirements, signage requirements, lighting requirements, architectural requirements, access, public/private road improvements, pedestrian circulation, traffic impact study and miscellaneous. This document is still under review by both Planning Staff and the City's planning consultant, PGAV. It will be addressed in greater detail at an upcoming meeting when this application returns to the Planning and Zoning Commission.

SUMMARY AND RECOMMENDATION
The proposal represents a substantial change for this site and the City of Creve Couer. As reviewed above, there are many facets to consider since a completly new zoning district is created that is unique to this project. The majority of the requiremnts have been effectively addressed in the devleopment. Some areas are still being worked out between Staff and the applicant at this time including aspects of the pedestrian path, finalizing street dedications to the City within the development, tree removals and access across Olive Boulevard. Staff recommends that the Commission hear from residents at the public hearing, and provide direction identifing areas for further staff analysis or for applicant adjustments to the proposal. Areas of discussion that Staff would like the Commission to give the applicant direction on include the removal of trees within the existing wooded buffer between residential and the subject property, the propsoed buffer yard and setbacks in relation to residential and the pedestrian connection throughout and off the site.

No decision is requested at this time. Therefore, Staff request that following presentations and disusssion, the Planning and Zoning Commission vote to continue the matter to the next regularly scheulded Planning and Zoning Commission meeting.

SUGGESTED ACTION
If the Planning and Zoning Commission agrees that a recommendation should be held until a subsequent meeting, the following is an example motion for a continuance:

> "I move to continue the public hearing on applications #23-027 and #23-028, the rezoning, site concept plan, site development plan and preliminary plat for the Olia Village Planned Mixed-Use Development to September 18, 2023, to allow for Staff and the applicant to address any concerns or comments brought forth by the Planning and Zoning Commission."

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

city of CREVE COEUR

300 North New Ballas Road • Creve Coeur, Missouri 63141

(314) 432-6000 • www.crevecoeurmo.gov

APPLICATIONS TO PLANNING AND ZONING COMMISSION #23-027 AND #23-028: FOR A REZONING FROM "RO" RESEARCH OFFICE DISTRICT TO THE OLIA VILLAGE "PMD" PLANNED MIXED-USE DEVELOPMENT DISTRICT WITH A SITE CONCEPT PLAN, PHASE ONE SITE DEVELOPMENT PLAN AND ASSOCIATED PRELIMINARY PLAT FOR THE 96 ACRE PROPERTY AT 10300 OLIVE BOULEVARD

FOR THE MEETING OF: September 18, 2023

LOCATION: 10300 Olive Boulevard, former Bayer West Campus, located south of Olive Boulevard and west of Lindbergh Boulevard

REQUEST: Matt Pfund, of Jack Matthews Development, representing 10300 Olive, LLC, has submitted an application to amend the Official Zoning Map of the City of Creve Coeur to change the zoning of the property of approximately 96 acres located at 10300 Olive Boulevard, from "RO" Research Office to "PMD" Planned Mixed Use Development District, referred to as Olia Village. In accordance with Section 405.390 of the Zoning Code for Planned Zoning Districts, the applicant has submitted the Site Concept Plan and Phase One Site Development Plan for review and approval by the City. The proposed uses within the overall development include commercial buildings, restaurants, mixed-use buildings with ground floor retail/commercial uses and multi-family dwelling units on the upper floors within a "Main Street" type setting, hotels, apartments, office and research office buildings, as well as attached townhomes. The existing buildings formerly used by Bayer are shown to remain and will be repurposed for office and residential uses. A subdivision of the property is also proposed. The application was continued from the September 5, 2023 meeting.

ADDITIONAL INFORMATION: The submitted Site Development Plan for Phase One consists of site clearing, grading, site utilities and roadway construction. Building construction and related site improvements will be submitted for review by the City at a later date in association with each of the outlined phases as provided in the Site Concept Plan. A preliminary plat has been submitted to subdivide the property into individual lots and to establish streets and easements.

Key Issues:

- Does the request further the goals and/or implement the Comprehensive Plan?
- Does the request meet with the criteria for Planned Zoning Districts as provided in Section 405.390?
- Does the project provide Public Benefits and meet the Design Criteria as a Planned Mixed-Use Development District?

Creve Coeur 2030 Plan References

- Mixed Use Innovation Campus District (MUIC)
- 39 North Master Plan
- Comprehensive Plan and 39 North Master Plan Amendment for the Former Bayer West Site

Zoning Code References

- Section 405.390 Planned Zoning Districts

APPLICANT'S REPRESENTATIVE:	Matt Pfund Jack Matthews Development 90 Edwardsville Professional Park Edwardsville, IL 62025	**PROPERTY OWNER:**	10300 Olive, LLC 90 Edwardsville Professional Park Edwardsville, IL 62025

REPORT PREPARED BY: BETHANY L. MOORE, CITY PLANNER
JASON JAGGI, AICP DIRECTOR OF COMMUNITY DEVELOPMENT

ATTACHMENTS: Applicant's Materials received September 13, 2023
PGAV Project Review dated September 14, 2023
Trekk Design Group Traffic Study Review dated September 13, 2023

BACKGROUND

At the previous meeting, staff and the Commission discussed the project and gave comments to the applicant. The Planning and Zoning Commission continued this item's discussion from the September 5, 2023, meeting to allow the applicant additional time to address comments raised by the Commission, Staff, and the residents and provide further information. The applicant has provided revised plan information in order to address those concerns. Discussion on other items pertaining to this application can be found in the previous staff report from September 5, 2023 along with prior versions of the plans and supplemental information.

PLANNING AND ZONING COMMISSION REVIEW TIMELINE

Due to the size of this proposal, this application has been noticed for Public Hearings before the Planning and Zoning Commission for two meetings, September 5th and September 18th. Based on feedback from the Commission given at the September 5th meeting, an additional meeting date is requested in order to address comments received at tonight's meeting and to present a final draft version of the submission. A motion to continue the item until the October 2, 2023 Planning and Zoning Commission meeting date is therefore recommended. After the Planning and Zoning Commission review is completed and the Commission has made a recommendation on the application, the application will be forward to the City Council for their review and final determination.

SUMMARY OF COMMENTS FROM SEPTMEBER 5, 2023 PLANNING & ZONING COMMISSION MEETING

The September 5th meeting public hearing allowed for the public to address the Commission and the applicant for the project with concerns that they had with the proposal as submitted. The majority of the public comments were from residents of the neighborhoods adjacent to the project. Below is a summary of the comments received:

- The location of the pedestrian path along the western portion of the site near the property line shared with residential properties running through Lots 1, 10 and 17 due to concerns including noise, safety, proximity to residential properties, and loss of trees to accommodate location.
- The size of the buffer yard proposed as 35 feet from the property line due to proximity of proposed commercial buildings to residential properties, loss of trees in buffer yard, lighting and noise levels and concerns about the view of the retaining wall from properties that are at a lower elevation.
- Proposed pedestrian access to the adjacent Sunswept neighborhood and concerns with safety and privacy.
- Storm water mitigation for the proposed project upon completion and on-site procedures to contain runoff during grading and tree removal.
- The Ladue School District's ability to accommodate new residential population anticipated within the residential developments proposed as part of the project.

The Planning and Zoning Commission also provided items for further discussion and comment summarized below:

- Additional details be provided for the proposed pedestrian trails throughout the development including proposed location, proposed screening, trail facilities such as trash, benches, signage for parking and bathrooms.
- Updated Tree Conservation Plan taking into account the concerns for trees within the buffer yard.
- Communication with school district about project impacts.

REVISED PLANS SUBMITTED IN RESPONSE TO SEPTMEBER 5TH COMMENTS

In response to the comments received at the September 5th Planning and Zoning Commission meeting, the applicant resubmitted plans with revisions to reflect the comments. The changes made to the Site Concept Plan will also be reflected in the Site Development Plans and all other relevant documents associated with this application and include revisions to the buffer between the project and the residential uses to the west, public and private streets, and pedestrian access throughout the site.

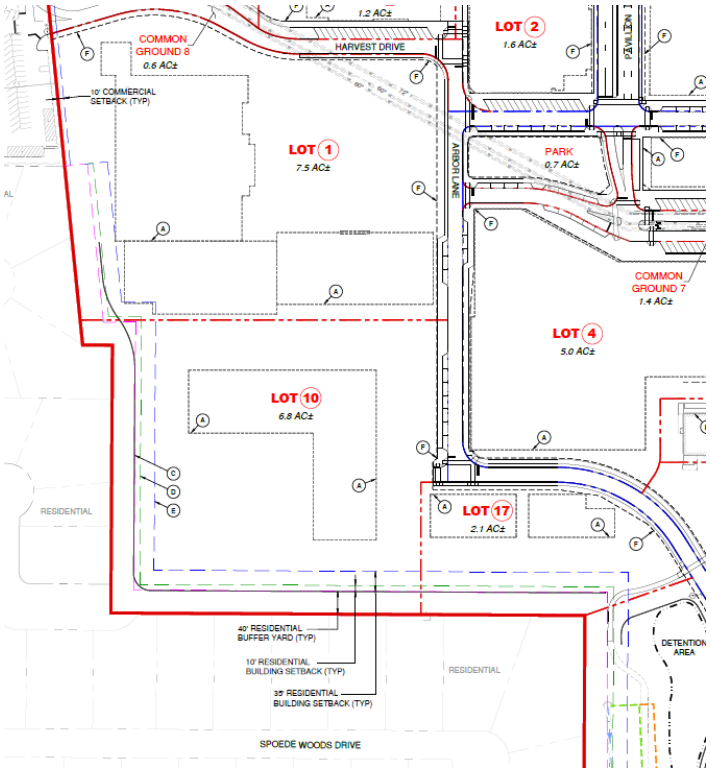


Figure 1: Sheet C-103, Setback and Buffer Plan showing revisions

The buffer yard for the development when adjacent to residential was previously proposed to be 35 feet from the property line when adjacent to residential uses. This was the minimum distance allowed by Ordinance 5844 which amended Section 405.390 of the zoning code which allowed for the creation of the Planned Mixed-Use development procedure. In response to comments received at the previous meeting, the applicant increased that buffer to 40 feet. Previously, the retaining wall for the site was allowed to be in the buffer yard as well as the pedestrian path that was proposed to sit on top of the retaining wall parallel to the property lines behind Lots 1, 10 and 17. The applicant has moved the location of the retaining wall to be 40 feet from the property line and outside of the buffer yard by straightening it behind Lots 1, 10 and 17. The pedestrian trail that was proposed for this location has been removed which will leave the 40 foot buffer yard and existing trees in place to help with a natural screening for the residential uses. Subsequently, the additional building setbacks for commercial and residential uses beyond the buffer yard were changed to 35 feet and 10 feet, respectively.

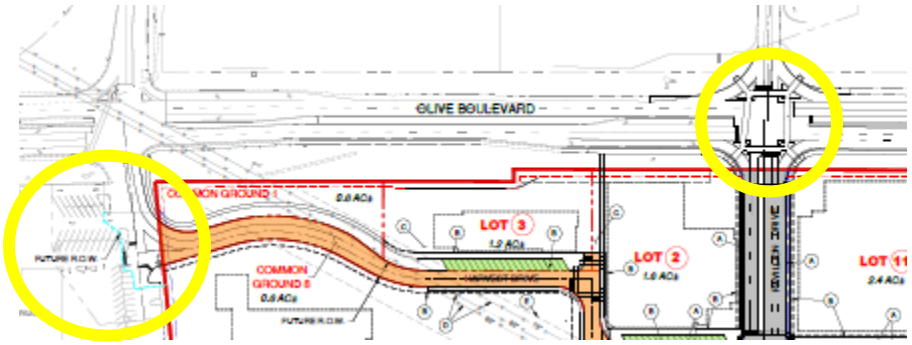


Figure 2: Sheet C-107, Street Plan revised

Sheet C-107 shows the street plan for the site. The Olive Boulevard and Pavilion Drive intersection has been updated to show the crosswalks connecting the sidewalk and shared use path systems to the other side of Olive Boulevard and up into the greater 39 North district. The right-of-way for Harvest Drive has been updated to indicate future right-of-way between the Schnucks' property and Arbor Lane to fulfill the City's request for continuous public access to the site connecting Olive Boulevard and the proposed public Harvest Drive within the development. The right-of-way for Bayer Drive has also been updated to indicate that the Bayer Drive overpass is to remain private per the City's request.

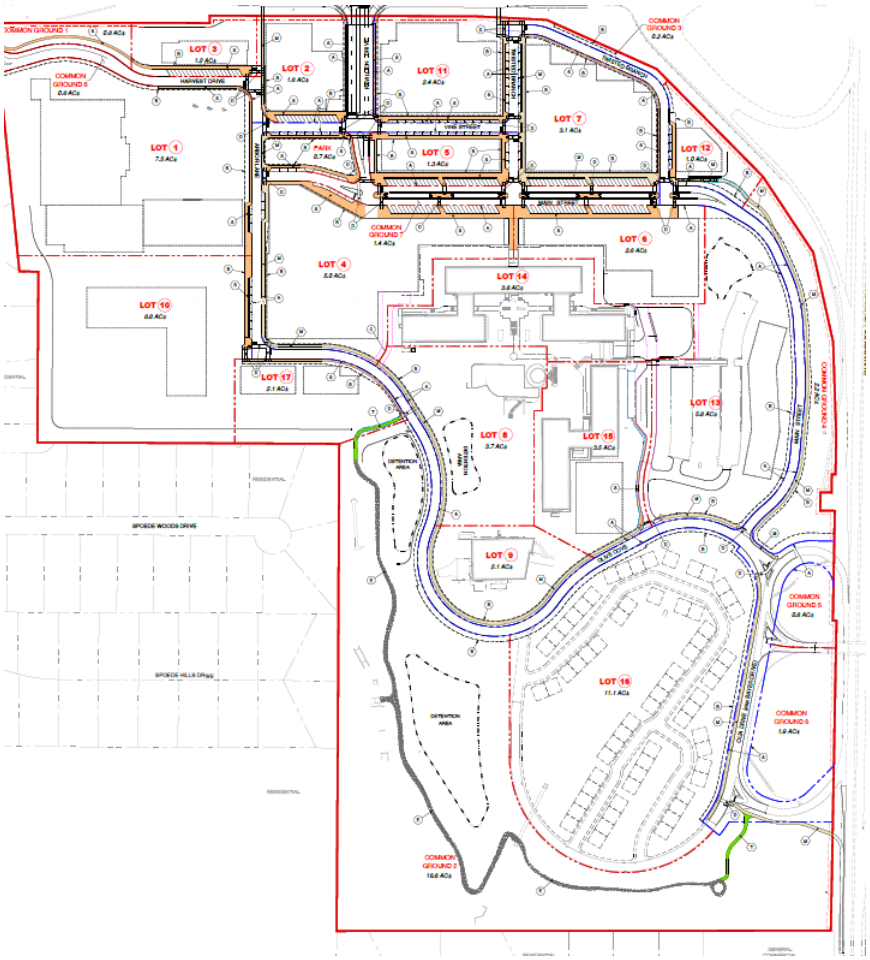


Figure 3: Sheet C-108, Pedestrian Plan, revised

Significant changes to the pedestrian path throughout the site have been made and are reflected on Sheet C-108, Pedestrian Plan. The location of the pedestrian path behind lots 1, 10 and 17 has been removed in favor of keeping more trees in the buffer yard. The applicant has proposed a new 8-foot-wide shared use path loop within the development that will provide an interior connection from Olive Boulevard to Lindbergh Boulevard and also replace the previously proposed regular sidewalk along the south side of Olive. The revised plans show the shared use path to be placed in front of the Main Street storefronts, which could be disruptive and create safety concern. Staff recommends the shared use path be relocated to the eastern side of Lot 7 to avoid this conflict.

The new rolled curb sidewalk along Lindbergh Boulevard to connect the pedestrian path through the site to the existing sidewalk system south of Vantage Credit Union is also shown. The existing nature path on the southern portion of the site will remain and will tie into the sidewalks system at Lot 17 and at the connection to the Lindbergh sidewalk at the southeastern corner of the site. A direct connection to the Sunswept neighborhood is not shown; however, further direction on this matter by the Planning and Zoning Commission is requested.

Traffic Study Update

The developer's project engineer has updated the Traffic Impact Study to include phasing for the pedestrian crossing at Olive and to account for a development proposal that has been submitted and is currently under staff review, for a mixed use commercial and multi-family development at the Creve Coeur Pavilion site.

The revised traffic study has been reviewed the City's traffic consultant and Mr. Evans' comments are attached to this staff report. The City's traffic consultant will be in attendance at the meeting to answer any additional questions regarding traffic impacts. Final acceptance of the Traffic Study by the City and MoDOT is recommended prior to approval by the Commission and City Council.

PRELIMINARY SUBDIVISION PLAT AND TREE CONSERVATION PLAN

Section 410.110 requires that the preliminary subdivision plat should provide sufficient information regarding a proposed subdivision of land to allow the Commission to evaluate the site development concept as it relates to the City's goals and objectives and to decide on the merits of the proposed subdivision. Once the Preliminary Plat and Tree Conservation Plan component have been reviewed and approved by the Planning and Zoning Commission, the applicant will submit the Subdivision Improvement Plans and Final Subdivision Plat for approval.

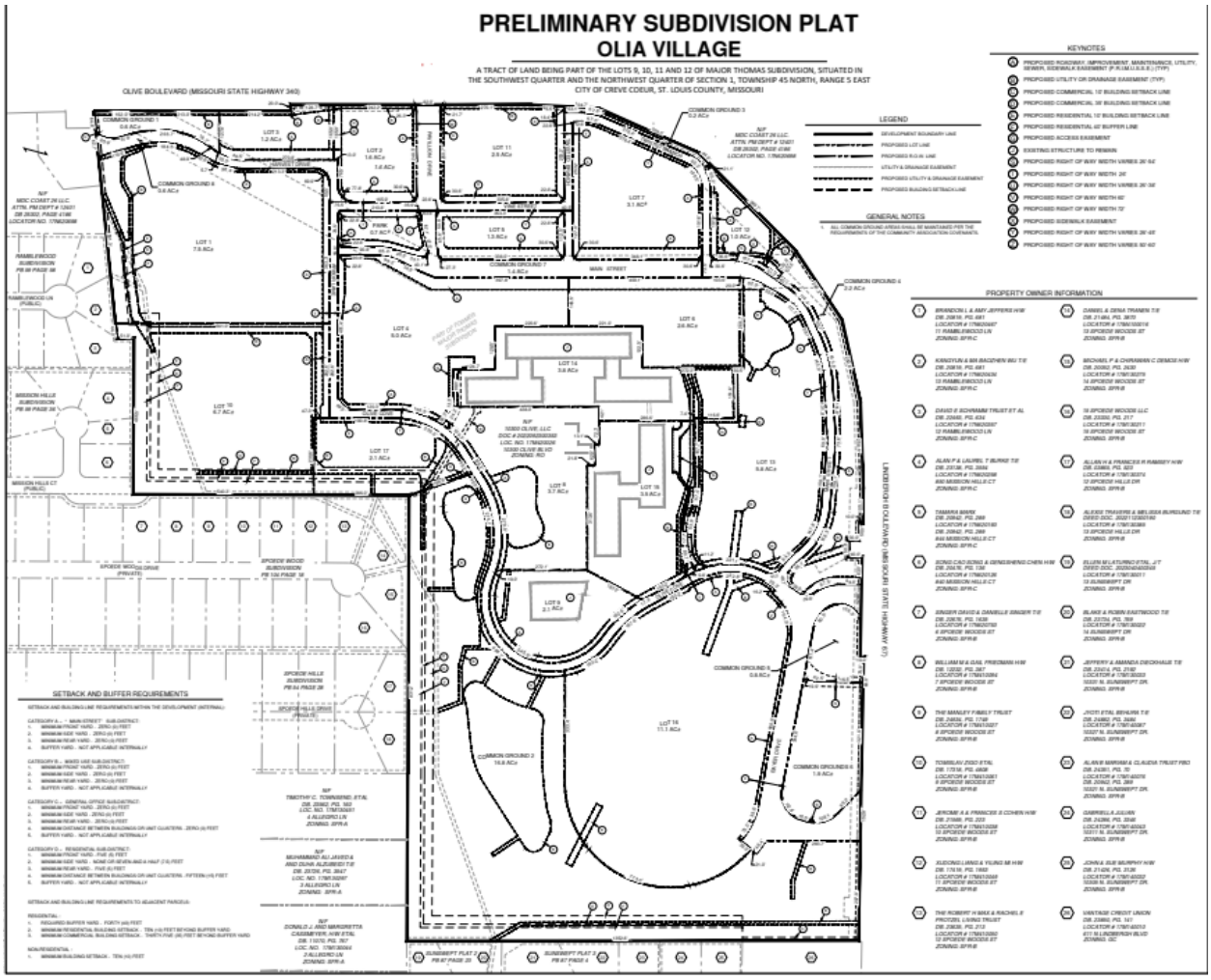


Figure 4: Preliminary Subdivision Plat

The Preliminary Plat shows the subject property split into 17 individual lots of varying width, depths and area along with 7 separate areas of common ground and a park. The common ground will be maintained per the requirements of the community association covenants to be submitted with the final plat at a later date. The plat includes the existing conditions of the property such as the existing buildings, watercourses, tree masses, and contours and including existing utilities, easements, rights of way, sanitary and storm sewers, culverts and other underground structures. The proposed location and width of streets, lots, right of way, buildings and setback lines, easements and boundaries of the proposed subdivision are also required to be shown on the plat. The submitted Preliminary Plat appears to meet all requirements of Section 410.110.

Tree Conservation Plan

The Tree Conservation Plan is a component of the Preliminary Subdivision Plat per Section 410.320. This section requires that all trees and tree masses of 6-inch diameter at breast height (DBH) be graphically recorded on the plan and indicated if they are to remain or to be removed. Not more than 50% of the tree masses or individual trees shall be proposed for removal. Any tree mass removal or tree removal not approved with the preliminary plat or subsequently approved by the City staff be replaced on the basis of a one-to-one ratio for trees 6 inches DBH or greater and two-to-one ratio for trees 20 inches DBH.
The applicant has revised their previous Tree Conservation Plan submission to meet the 50% removal maximum and is now in compliance with this section by showing no more than 50% of all existing trees and tree masses on site to be removed. This 50% removal figure is down from the previous 61% of trees on site proposed for removal previously.

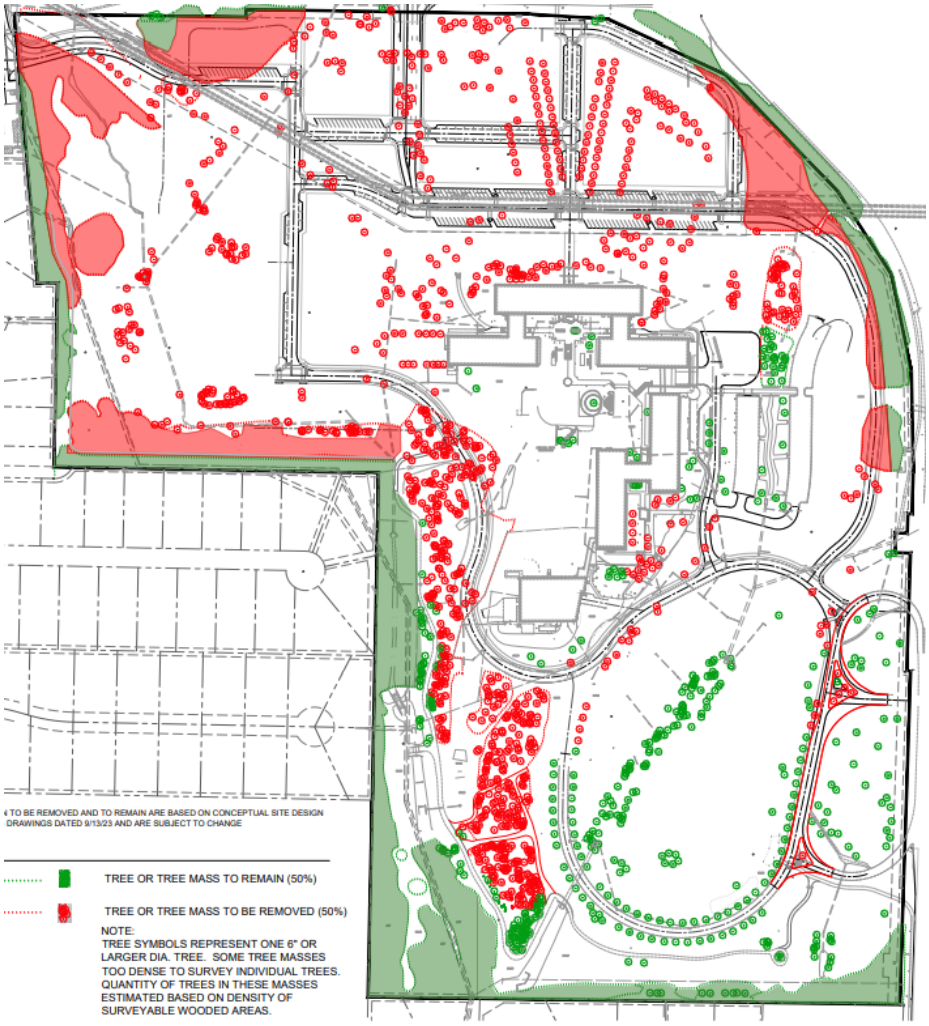


Figure 5: Tree Conservation Plan showing trees to be removed in red.

SITE DEVELOPMENT PLAN PHASE 1

After or in conjunction with the approval of the Site Concept Plan, a Site Development Plan must be submitted for each phase within the project for review and approval by the Planning and Zoning Commission. Of primary importance in the review of a site development plan will be a determination that the plan complies with the site concept plan approved for the total development or project. Olia Village is proposed to be constructed in 5 phases and the Site Development Plan submitted with this application is for Phase 1 of the development which includes site clearing, mass grading, site utilities, retaining wall and roadway construction for the development. The resubmitted Site Development Plans include revisions to address the comments and concerns brought up at the previous meeting including changes to the pedestrian path, the buffer yard and setbacks, the location of the retaining wall behind Lots 1, 10 and 17, the tree conservation plan, and new landscaped vegetative screen behind lots 1, 10 and 17 which Staff is requesting additional details on.

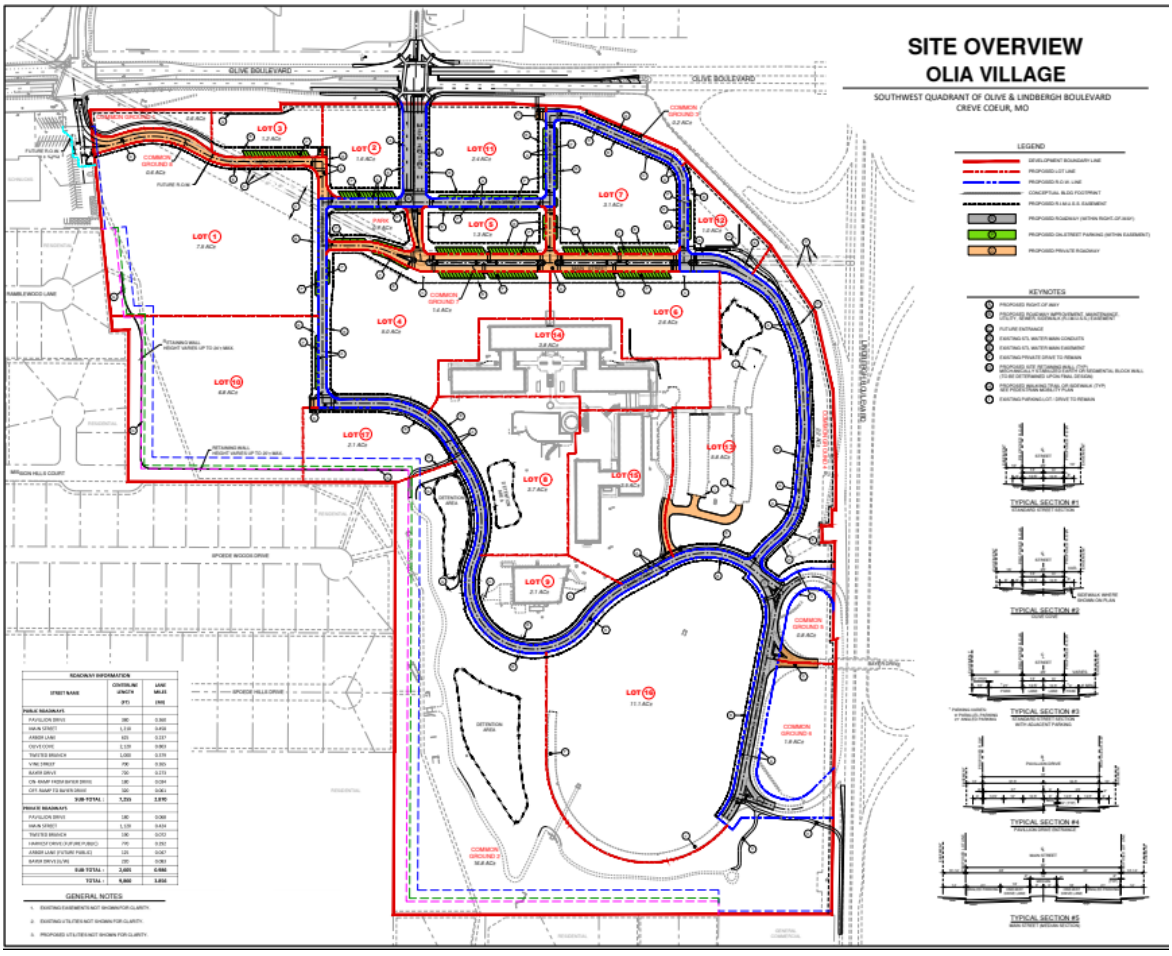


Figure 6: Sheet C-101, Site Overview.

Sheet C-101 includes the location of all roads on site showing the sections proposed to be private and public along with the location of on street parking, proposed lot lines, proposed right-of-way, proposed building footprints, existing St. Louis City watermain conduits and easements, existing buildings and roads to remain, proposed detention locations, proposed retaining wall location, proposed walking trail and sidewalks within easements and typical sections for streets within the development. The applicant is proposing 2.87 miles of public roadway and 0.99 miles of private roadway throughout the development.

Sheet C-103 includes the grading plan for the site and the location of the proposed storm sewer. Due to the existing topography and grade changes within the site, some areas require significant grading in order to prepare the property for future phases and building construction. Sheets A-103.1-4 contain the lighting plan/photometric information for the site including the lighting equipment ranging in height from 11 feet tall to 23 feet tall throughout the site.

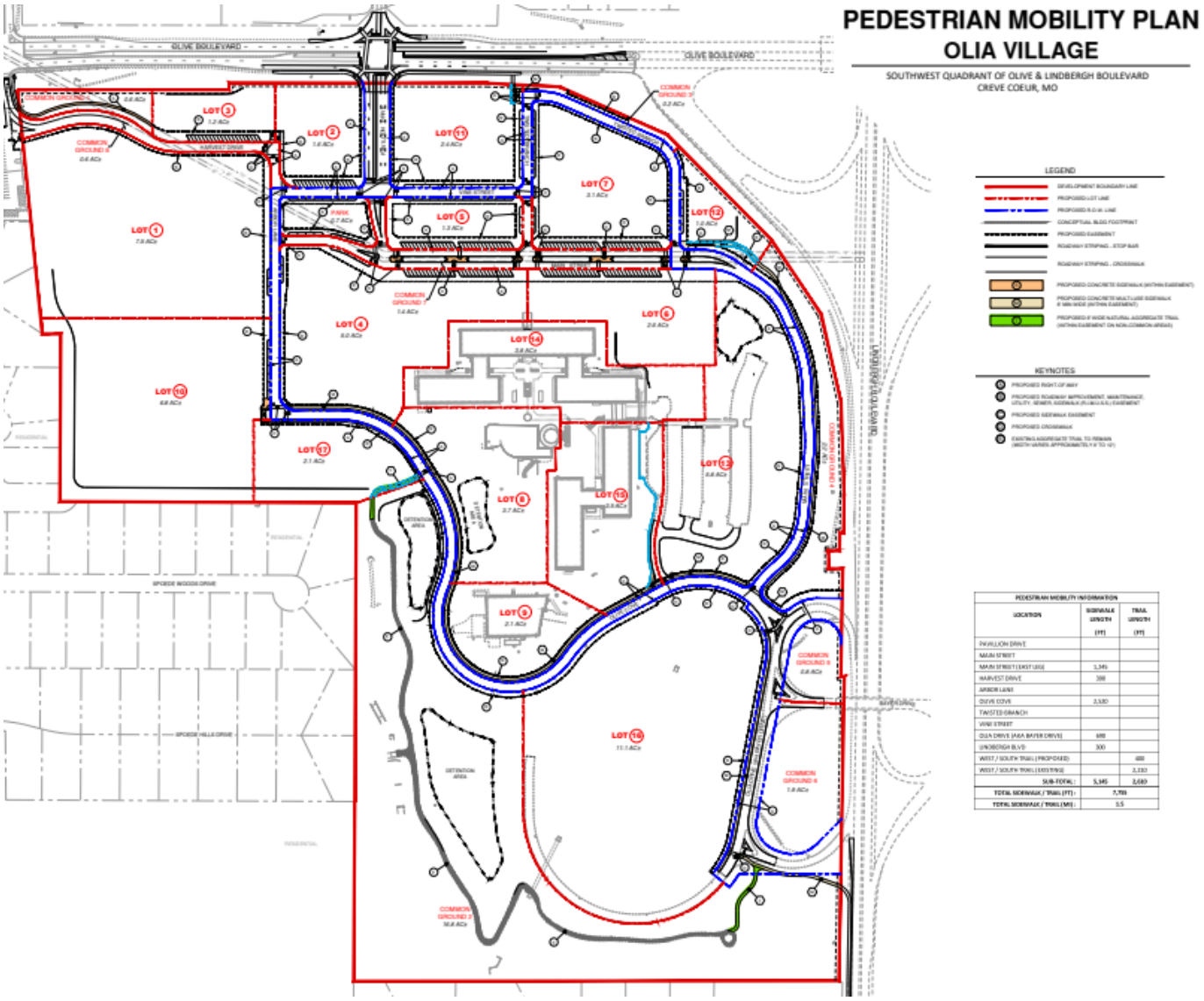


Figure 7: Sheet C-105, Pedestrian Mobility Plan

The Pedestrian Mobility Plan includes the location of all proposed crosswalks, sidewalks, and pedestrian trails throughout the site. The revised plans include the location of the proposed crosswalk at the entrance where Olive Boulevard and Pavilion Drive intersect, the proposed sidewalk along Lindbergh Boulevard and the revised location of the pedestrian path throughout the site including the multi-use sidewalk which will be an 8-foot-wide concrete sidewalk. The sidewalks and multi-use trail will be within easements and there will be a total of 1.5 miles total of sidewalks and trails throughout the site. The plans have been revised to reflect the removal of the pedestrian path behind Lots 1, 10 and 17 and to include the new location of the shared use path loop and the connection to the new sidewalk along Lindbergh Boulevard.

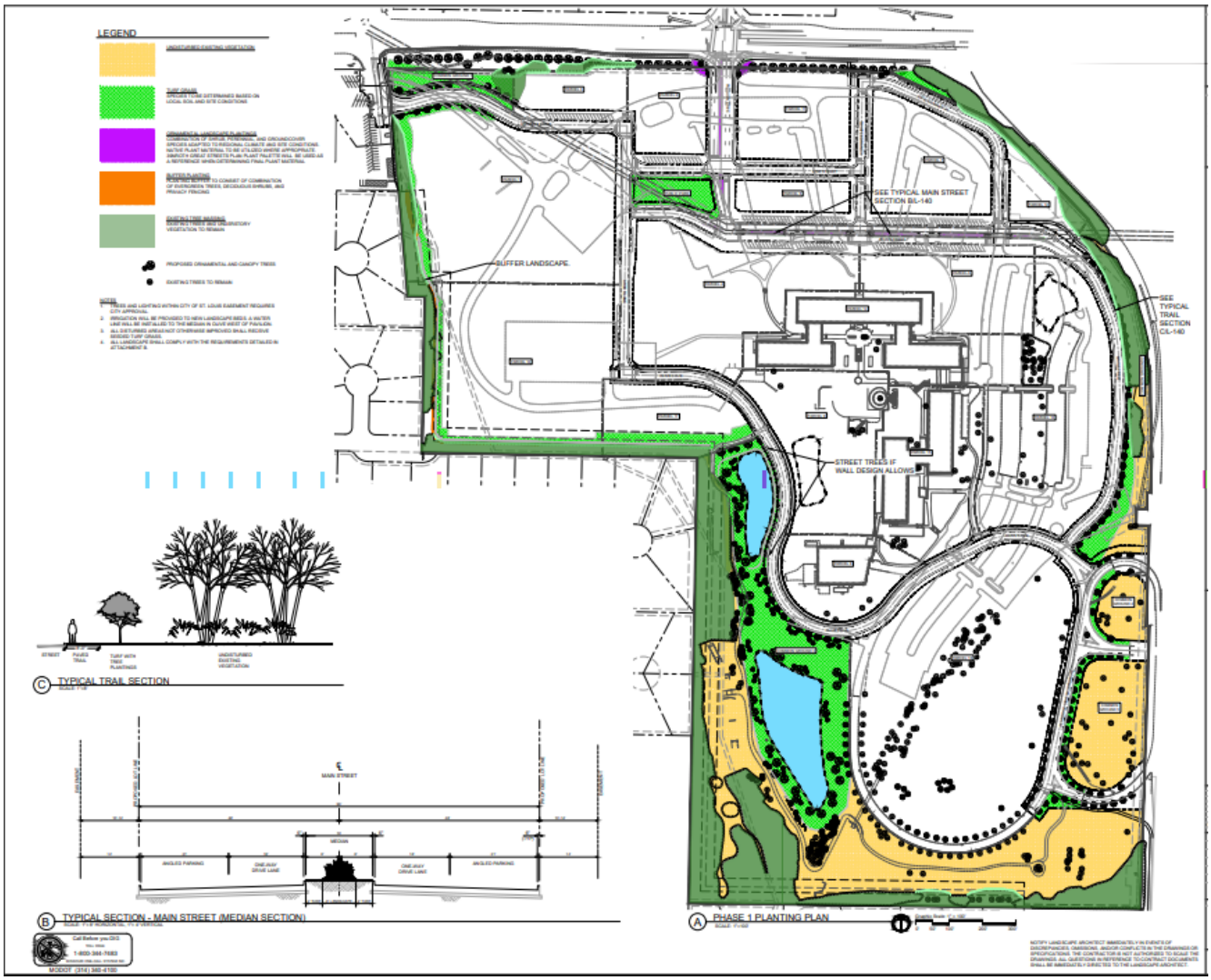


Figure 8: Sheet L-140, Phase 1 Concept Planting Plan

Sheet L-140 shows the concept planting plan for Phase 1 including new trees along Olive Boulevard, Harvest Drive, Olive Cove and Main Street. Several areas are color coded and highlighted for the installation of new turf grass, ornamental landscape plantings and buffer plantings. Specific details of these landscaped areas and the proposed additional buffer planting landscaping are needed including plant schedules and greater details of the plans. Staff requests that a detailed landscape plan be submitted for final review at the next meeting.

Sheet C-104 is the Utility and Drainage plan which includes the location of the existing and proposed on site utilities such as sanitary sewer, storm sewer, water main and the proposed easements and detention basins. Additional permits will be required for this work prior to construction including a State of Missouri Land Disturbance permit, Site Improvement Permit by City and approval by MSD. The Preliminary Buildout Stormwater Calculations are as follows:

PRELIMINARY BUILDOUT STORMWATER CALCULATIONS

PRE-DEVELOPED RUNOFF

TOTAL AREA	=	227.90 ac
WEIGHTED "CN" VALUE	=	81.59
AVERAGE "TC" VALUE	=	19.86 min
TOTAL FLOW	=	1,260± cfs

POST-DEVELOPED RUNOFF

TOTAL AREA	=	227.90 ac
WEIGHTED "CN" VALUE	=	86.54
AVERAGE "TC" VALUE	=	16.34 min
TOTAL FLOW	=	1,478± cfs

DIFFERENTIAL RUNOFF

PRE-DEVELOPED	=	1,260± cfs
POST-DEVELOPED	=	1,478± cfs
DIFFERENTIAL FLOW	=	+218± cfs

100-YEAR, 24-HOUR PEAK FLOW RATE COMPARISON

PRE-DEVELOPED	=	404± cfs
POST-DEVELOPED	=	1,142± cfs
DIFFERENTIAL FLOW	=	-55± cfs

THIS PROJECT HAS BEEN SUBMITTED TO MSD FOR CONCEPTUAL REVIEW (23CNCPB-00003).

ALL STORM SEWER AND DETENTION FACILITY CALCULATIONS AND REPORTS WILL BE SUBMITTED TO MSD AND CITY OF CREVE COEUR FOR FINAL APPROVAL PRIOR TO CONSTRUCTION.

In addition to the drainage plan, a preliminary stormwater management report has been prepared by the developer's engineering firm, CMT. This report documents the pre-developed and anticipated post-developed drainage conditions of the site along with the design methodology for the hydrologic analysis. The conclusion of the report states that the proposed detention facilities have sufficient volumes to meet drainage requirements for the build-out. The report notes that several aspects of the development are still under design including storm sewer plans and BMP's for water quality and volume reduction. Additional plans will be submitted to MSD and the City for final approval prior to construction. The preliminary stormwater report, dated July 7, 2023, has been attached for reference.

REZONING ORDINANCE-ATTACHMENT B

The applicant has submitted development standards, referred to as Attachment B with this application, to provide regulations specific for this development, along with the Site Concept Plan as a substitute to the traditional zoning ordinance requirements. Once approved, the Site Concept Plan and the planned district ordinance, including the specific requirements provided in Attachment B, will govern the use, parking, loading, signage, space and yard regulations applicable to the property. Attachment B includes the requirements for the site pertaining to permitted uses for the site, shown with the document as Table A, the sub-district category building standards for the 4 categories for the development, dimensional

regulations, bulk regulations, parking and loading regulations, landscaping and tree requirements, sign, light and architectural requirements, access management, public and private road improvements, pedestrian circulation, traffic impact study, public art requirements and miscellaneous. The following is a highlight summary of the document.

Permitted Uses
Table A lists the permitted uses for each of the four sub-district categories. The submitted table follows the City's land use table by utilizing NAICS Use Codes. All uses listed within the table are permitted and there will be no Conditional Uses which means that the Planning and Zoning Commission and City Council will not conduct further review over individual uses within the site after approval of this application. The allowable uses are organized by the four sub-district components of the project: Main Street, Mixed-Use, Office, and Residential.

Some uses are permitted but are subject to the additional requirement that they shall not be permitted on the street facing ground floor units within the Main Street District. These uses are denoted with an asterisk and would not be conducive to an active streetscape but would be an appropriate use in the office space above the retail units or elsewhere on the site as permitted. Generally, these uses are office-related and do not involve walk-in traffic.

There are a few uses that require additional discussion by the applicant and the Commission. New car and motorcycle dealers are listed as permitted in some areas of the development with no outside surface storage or display allowed. New car dealerships typically involve service departments which has not been addressed. Marijuana uses such as dispensaries, cultivation facilities, manufacturing facilities are also allowed within certain areas. Staff believes that dispensaries might be acceptable as a retail use, however all other marijuana-related facilities seem inappropriate and incompatible with the overall development. Drive-through services, except restaurants, would be allowed in the Mixed-Use District. There is not currently any information on whether drive through restaurants would be allowed and if so, in what districts.

For the residential component, high density multi-family (greater than 20 units an acre) would be allowed in the Main Street and Mixed Use Districts. For the residential district on the southern portion of the development, the table shows single family residential, attached single family, low and medium density multi-family as permitted uses. Allowing a wide variation of housing types in this district does not correspond with the Site Concept Plan which shows townhomes in this area. Staff believes only attached single family and perhaps detached villas such as what is found at Villas on Mosley should be permitted in this portion of the development.

Staff requests further discussion and direction by the Commission on the proposed uses.

Sub-District Category Standards
The Olia Village Planned Mixed-Use Development includes 4 subdistrict categories, Main Street, Mixed-use, General Office and Residential, which each include their own set of standards including building volume, building floor heights, projecting facade elements, and parking.

The Main Street development category will allow buildings to be built not to exceed 8 stories or 100 feet measured from the primary sidewalk entrance level while also permitting additional lower levels accessed from the side or rear. Parking shall not be permitted as a primary use in this category and private off-street surface parking is prohibited. Structured, public surface or on street parking is permitted.

The Mixed-Use development category will allow buildings to be built not to exceed 5 stories or 60 feet measured from the primary sidewalk entrance level while also permitting additional lower levels accessed from the side or rear. Structured, public surface, on street parking and private off-street parking are permitted.

The General Office development category will allow buildings to be built not to exceed 4 stories or 70 feet measured from the primary sidewalk entrance level while also permitting additional lower levels accessed from the side or rear. Structured, public surface, on street parking and private off-street parking are permitted.
The Residential development category has no placement requirements.

Dimensional Regulations
The maximum site coverage will be determined globally for the entire Planned Mixed-Use development, not by individual lot or site, and shall not exceed 70%. The Site Concept Plan shows proposed Site Coverage at approximately 54%. The maximum floor area ratio shall not exceed 0.7 for the entire site. Currently proposed is an FAR of 0.59. The lot size minimum requirements are determined based on the subcategory.

Parking and Loading
The required parking for the development is proposed to be calculated cumulatively for each phase of the development as shown on the Site Concept Plan based upon the square footage of individual land uses as described in the City's zoning code, with a 15% reduction in total spaces. The 15% reduction would not apply to the Residential District (D) on the southern end of the site.

At this stage of the plan review, the above approach to parking seems reasonable with the reduction accounting for the shared parking arrangement. Nonetheless, parking information will need to submitted with each phase and reviewed against the specific uses that are proposed as part of that phase. Even then, it may not be known what specific tenants (such as restaurants) may occupy the buildings which could require variations in parking. One way to verify information based on specific tenants is for parking verification to be handled by staff as part of the occupancy permit phase. A shared parking agreement covering the entire development, with the exception of the Residential component (D) is expected to be submitted along with the restrictive covenants at the time of final plat approval.

The allocation for loading spaces are depicted in the document, however, flexibility is key based upon the shared, mixed-use nature of the development. Specific details for loading spaces will need to be submitted with the Site Development Plan for each phase.

Landscaping and Tree Requirements
The landscape standards appear to be adequate. It should be noted that the developer has included appropriate provisions for irrigation and notes the limitations of disturbance involved with the existing City of St. Louis Water easement. Of note is the request is for existing parking lots that are to remain, to be exempt from the City's landscaping requirements. The exemption would apply to Lots 8, 9, 12, 14 & 15. For some of these lots, the existing landscaping conditions seem acceptable, however, staff believes the City should reserve the right to review this on a case-by-case basis at the Site Development Plan stage for each phase to determine if any enhancements are needed within these parking areas.

Architectural Requirements, Signage & Public Art
The applicant has proposed general architectural standards that would apply to the development as a whole. Notably, the standards would require masonry and glass as the primary exterior building materials. Accent materials can include metal, cementitious siding, and EIFS.

Staff believes the proposed architectural standards are appropriate for this type of development to provide

general guidance with a detailed review occurring at the Site Development Plan stage. The only exception would be the allowance of EIFS, even as a secondary material. Staff believes there are more durable and higher quality products available compared to EIFS.

Signage will be approved based upon the submittal of a master sign plan for the entire development at a later date. Master Sign Plans require review and approval by the Commission and City Council.

Public art that is proposed for the project, will be reviewed the City's Arts Committee with final approval by the Planning and Zoning Commission based upon final maintenance agreements established by the City Council at the time of review.

Roadways and Access
The development standards include roadway details that have been reviewed by the City's Public Works Department. In general, these standards are acceptable pending final review by Public Works and MoDOT with respect to improvements on Olive Boulevard. As noted previously, right-of-way that is dedicated to the City will only involve pavement and curbs. Sidewalks, paths and trails as well as streetlights will be privately maintained.

MISCELLANEOUS
There were a few additional items that the Commission where further information was requested. These include public restrooms for the park and during special events, provisions for inclusionary housing, and security of the trails. This information has not been provided with this re-submittal, however, staff has discussed these items with the applicant, and their intention is to address these comments in their presentation. The applicant will also present more detailed information on the buffers including sightlines and the layering of landscaping and other screening treatments to mitigate noise and light concerns.

With the proposed changes staff believes most of the review and design criteria as well as the public benefits requirements of the Planned Zoning District ordinance (Section 405.390, sub-sections E, F.6.a., and I) have been satisfied. The exception is Review Criteria, item #14 which states the following:

> *Any proposed direct impacts on public services, including public improvements proposed for dedication to the public, do not impose an unacceptable burden on the City, taking into account new City revenues projected to be realized from the development.*

Staff has received preliminary information from the developer regarding the potential/anticipated revenue generated from this development. The City's planning consultant has reviewed this information with staff and they have requested additional information regarding these figures. In addition, the City is in the process of obtaining cost information for city services for street maintenance and policing. This information will be presented to the Commission at the following meeting.

Any further requests to satisfy the City's planned zoning district ordinance review, design and public benefit criteria should be discussed by the Commission with direction given to the applicant.

SUMMARY AND RECOMMENDATION
After the submission of the revisions, the majority of the requirements have been effectively addressed in the devleopment. Staff recommends that the Commission hear from residents at the public hearing, and provide direction identifing areas to provide final comment to staff or the applicant before preperation of the ordinance for approval at the next meeting.

Areas of discussion that Staff would like the Commission to give the applicant direction on include the revisions to the wooded buffer between residential and the subject property, the proposed uses listed in Table A for the site, and the reconfigured pedestrian plan, including the shared use path and whether the Commission would like a direct neighorhood connection to the Sunswept neighborhood, if agreeable to

the credit union. Addititional comments generated from the items presented to the Commission by the applicant at this meeting should also be considered.

No decision is requested at this time. Therefore, Staff requests that following presentations and disusssion, the Planning and Zoning Commission then vote to continue the matter to the next regularly scheulded Planning and Zoning Commission meeting.

SUGGESTED ACTION

If the Planning and Zoning Commission agrees that a recommendation should be held until a subsequent meeting, the following is an example motion for a continuance:

"I move to continue the public hearing on applications #23-027 and #23-028, the rezoning, site concept plan, site development plan and preliminary plat for the Olia Village Planned Mixed-Use Development to October 2, 2023, to allow for Staff and the applicant to address any concerns or comments brought forth by the Planning and Zoning Commission."

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

city of CREVE COEUR

300 North New Ballas Road • Creve Coeur, Missouri 63141

(314) 432-6000 • www.crevecoeurmo.gov

APPLICATIONS TO PLANNING AND ZONING COMMISSION #23-027 AND #23-028: FOR A REZONING FROM "RO" RESEARCH OFFICE DISTRICT TO THE OLIA VILLAGE "PMD" PLANNED MIXED-USE DEVELOPMENT DISTRICT WITH A SITE CONCEPT PLAN, PHASE ONE SITE DEVELOPMENT PLAN AND ASSOCIATED PRELIMINARY PLAT FOR THE 96 ACRE PROPERTY AT 10300 OLIVE BOULEVARD

FOR THE MEETING OF: October 2, 2023

LOCATION: 10300 Olive Boulevard, former Bayer West Campus, located south of Olive Boulevard and west of Lindbergh Boulevard

REQUEST: Matt Pfund, of Jack Matthews Development, representing 10300 Olive, LLC, has submitted an application to amend the Official Zoning Map of the City of Creve Coeur to change the zoning of the property of approximately 96 acres located at 10300 Olive Boulevard, from "RO" Research Office to "PMD" Planned Mixed Use Development District, referred to as Olia Village. In accordance with Section 405.390 of the Zoning Code for Planned Zoning Districts, the applicant has submitted the Site Concept Plan and Phase One Site Development Plan for review and approval by the City. The proposed uses within the overall development include commercial buildings, restaurants, mixed-use buildings with ground floor retail/commercial uses and multi-family dwelling units on the upper floors within a "Main Street" type setting, hotels, apartments, office and research office buildings, as well as attached townhomes. The existing buildings formerly used by Bayer are shown to remain and will be repurposed for office and residential uses. A subdivision of the property is also proposed. The application was continued from the September 5, 2023 and September 18, 2023 meetings.

ADDITIONAL INFORMATION: The submitted Site Development Plan for Phase One consists of site clearing, grading, site utilities and roadway construction. Building construction and related site improvements will be submitted for review by the City at a later date in association with each of the outlined phases as provided in the Site Concept Plan. A preliminary plat has been submitted to subdivide the property into individual lots and to establish streets and easements.

Key Issues:

- Does the request further the goals and/or implement the Comprehensive Plan?
- Does the request meet with the criteria for Planned Zoning Districts as provided in Section 405.390?
- Does the project provide Public Benefits and meet the Design Criteria as a Planned Mixed-Use Development District?

Creve Coeur 2030 Plan References

- Mixed Use Innovation Campus District (MUIC)
- 39 North Master Plan
- Comprehensive Plan and 39 North Master Plan Amendment for the Former Bayer West Site

Zoning Code References

- Section 405.390 Planned Zoning Districts

APPLICANT'S REPRESENTATIVE: Matt Pfund, Jack Matthews Development, 90 Edwardsville Professional Park, Edwardsville, IL 62025

PROPERTY OWNER: 10300 Olive, LLC, 90 Edwardsville Professional Park, Edwardsville, IL 62025

REPORT PREPARED BY: BETHANY L. MOORE, CITY PLANNER
JASON JAGGI, AICP DIRECTOR OF COMMUNITY DEVELOPMENT

ATTACHMENTS: Applicant's Materials received September 26, 2023
MSD Conceptual Review dated February 3, 2023
Wetland Delineation Report and Impact Summary dated March 22, 2023
MoDOT TIS Response Letter dated September 26, 2023

BACKGROUND

At the previous meeting, which represented the continuation of the public hearing from September 5th, the applicant presented revised Site Concept Plans as well as the elements of the Phase One Site Development Plan. Staff presented the proposed development standards and uses and additional comments were received from the public. The Planning and Zoning Commission continued this item's discussion from the September 5th and September 18th meetings to allow the applicant additional time to address comments raised by the Commission, Staff, and the residents and provide further information. The applicant has provided revised plan information and a response letter to the issues that were raised in the prior meetings. The revised plans were posted on the City's website, September 27, 2023.

PLANNING AND ZONING COMMISSION REVIEW TIMELINE

Due to the size of this proposal, this application has been noticed for Public Hearings before the Planning and Zoning Commission for two meetings, September 5th and September 18th. Based on feedback from the Commission given at the September 5th meeting, an additional meeting date was requested in order to address comments received and to present a final draft version of the submission. A motion to continue the item and leave open the public hearing until tonight's October 2, 2023, Planning and Zoning Commission meeting occurred at the last meeting. After the Planning and Zoning Commission review is completed and the Commission has made a recommendation on the application, the application will be forwarded to the City Council for their review and final determination.

SUMMARY OF COMMENTS FROM SEPTMEBER 18, 2023 PLANNING & ZONING COMMISSION MEETING

The September 18th meeting public hearing allowed for the public to address the Commission and the applicant for the project with concerns that they had with the proposal as submitted. The majority of the public comments were from residents of the neighborhoods adjacent to the project. Below is a summary of the comments received:

- Residential Buffer Yard-concerns in terms of tree removal and visibility from residential properties to the proposed development, more information requested about retaining wall height and proposed additional landscaping.
- Concerns about the location of Dielmann Creek on site and the stream bank buffer requirements.
- Concerns about the allowed building heights and allowable uses for the development, particularly as they affect adjacent residential property.

This staff report will focus on the revisions made since the previous meeting. Discussion on other items pertaining to this application can be found in the previous staff reports from September 5, 2023 and September 18, 2023, along with prior versions of the plans and supplemental information.

REVISED PLANS SUBMITTED IN RESPONSE TO SEPTEMBER 18TH P&Z REVIEW

The applicant submitted revised plans on September 26th in order to address the comments received at the previous meeting. The following is a summary and analysis of the revisions submitted.

<u>Site Concept Plan</u>

The Site Concept Plan has been revised to address the comments received from Staff, the Commission and the public at the previous hearings. At the September 18th meeting, the applicant presented revised plans showing the residential buffer on the western edge of the property where the development abuts single-family residential uses as extended from 35 feet to 40 feet and without the pedestrian path or retaining wall within the 40 feet. The revised plans still reflect this previous change and the applicant has stated that it is their intent to keep this buffer largely undisturbed. This will allow for the retention of more existing trees in the buffer as well as the planting of additional trees to create a denser screen between the residences and the project site. More details about the proposed landscaping in the buffer were submitted and will be discussed as part of the revisions to the Site Development Plan for Phase 1.

Additional information about the retaining wall has also been provided and reflected on the plans on Sheet C-101 of the Site Concept Plan. The retaining wall will have a maximum height of 20 feet on the portion that faces inward toward the site. Due to the existing grade changes on site, the retaining wall height will vary but will not exceed 20 feet. When the wall faces the project site, it will be up to 20 feet tall and when the wall faces the residential lots, it will be up to 14 feet in height. The proposed material is Redi-Rock Ledgestone which is designed to replicate rough stone and comes in a variety of face molds to give the retaining wall a more natural look with less repetition in patterns. Sheet C-101 has also been updated to include a new architectural bus shelter at the existing bus stop along Olive Boulevard but no additional details have yet been submitted. Attachment B has also been updated to include language about the shelter. The use table has also been updated to include "Office/Research" as a general use description for Lots 9 and 13 and "Single Family/Townhome" for Lot 16. The green houses proposed for Lot 17 have been removed.

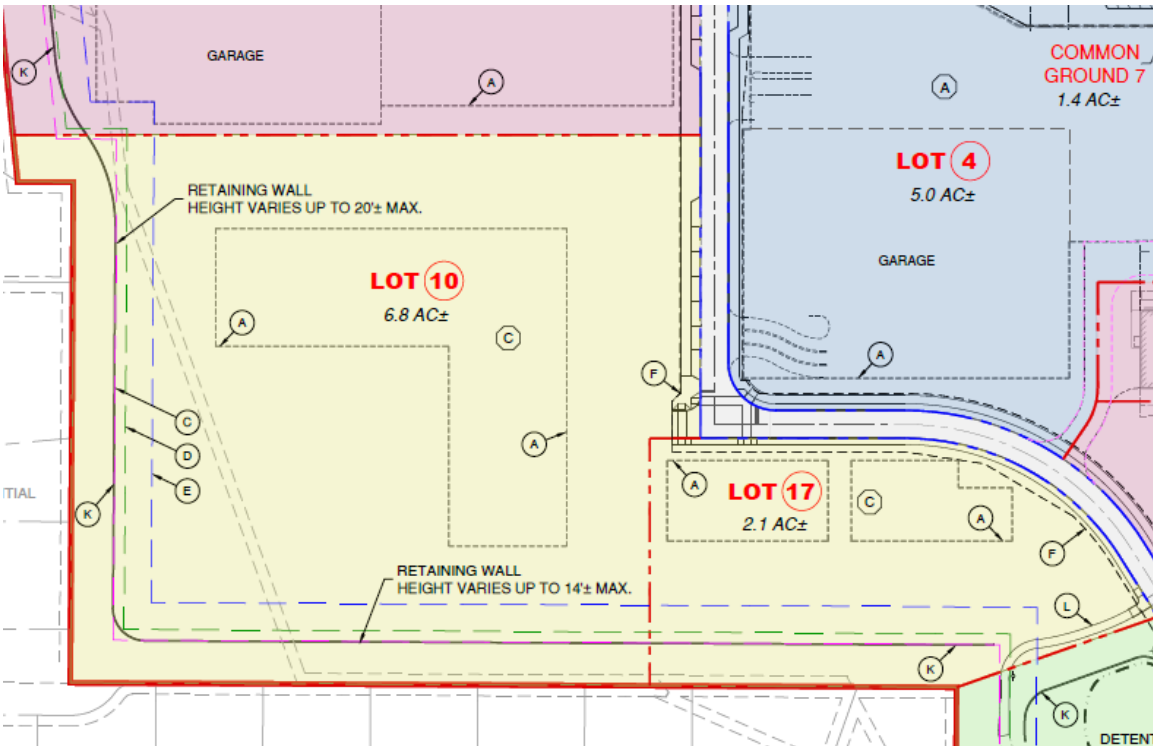


Figure 1: Sheet C-101 of Site Concept Plan showing retaining wall location outside residential buffer yard.

Figure 2: Retaining wall material.

The Pedestrian Plan on Sheet C-108 was revised to show the new location of the shared use path throughout the site including the new orientation of the path around the outside of Lot 7 adjacent to Twisted Branch road following comments from Staff. Staff was concerned that the previous location of the 8-foot-wide shared use path in front of the building along Main Street would be disruptive to an active, walkable streetscape. The applicant has addressed this concern by rerouting the shared use path along the northeastern edge of Lot 7 instead. The sidewalks along Main Street, within the Main Street district between Arbor Lane and Twisted Branch, now provide an unobstructed 8 feet wide path. The angled on-street parking stalls were shortened from 21 feet to 19 feet to accomplish this. The rest of the sidewalks in the Main Street district will be a minimum of 7 feet wide. Public restrooms for the Main Street district, park area and shared use path will be available in the leasing office on Lot 4 adjacent to the garage entrance at the end of Pavilion Drive and immediately southeast of the park area.

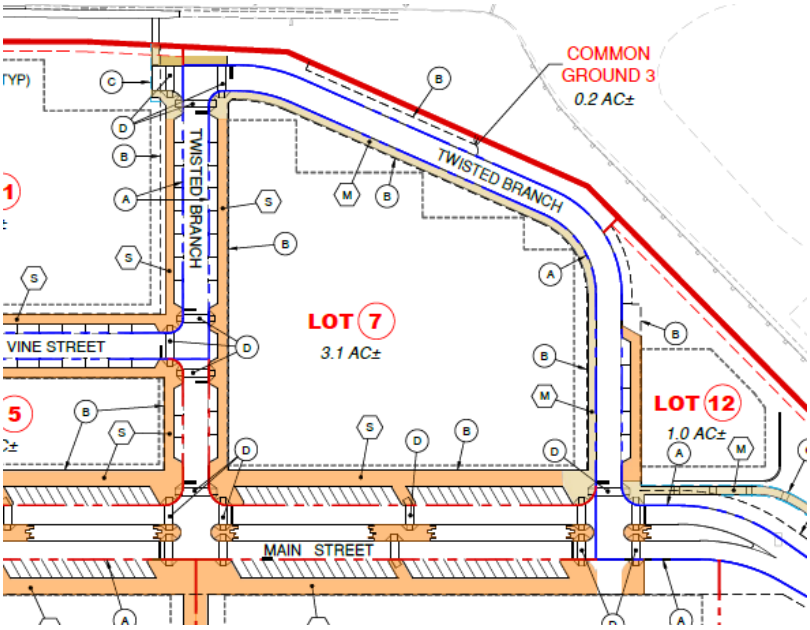


Figure 3: Sheet C-108 Pedestrian Plan showng revised location of shared use path around northern portion of Lot 7

Phase One Site Development Plan

Phase One of the development includes site clearing (including tree removal), mass grading, site utilities, retaining wall and roadway construction for the development. This site work phase will prepare the site for future build-out that will occur in phases. All building construction will take place in Phases 2-5. The amendments to the Site Concept Plan are also reflected in the Site Development Plan. The Site Development Plan also includes a more detailed concept landscaping plan for Phase One, as asked for by Staff. The revised landscaping plan includes a plant schedule of all proposed plantings in this phase including type and size at time of planting. There is a significant amount of landscaping proposed to be included within the 40-foot residential buffer yard in front of the retaining wall. The landscaping includes a continuous, dense row of evergreen trees mixed with the remaining existing trees to help block the visibility from the residential properties to the proposed development in order to help reduce light or noise pollution and provide screening for the wall itself for the portion that is visible to the adjacent properties. Staff recommends that the final landscaping plan should be amended to show the evergreens to be 8 feet tall at time of planting and all other trees to be 2.5 caliper inches at time of planting within this buffer area. Further, a condition could be added to require additional plantings, if necessary, based on "as-built" conditions in association with the site improvement permit final landscaping inspection. This condition has been provided in the draft ordinance to ensure sufficient screening is in place.

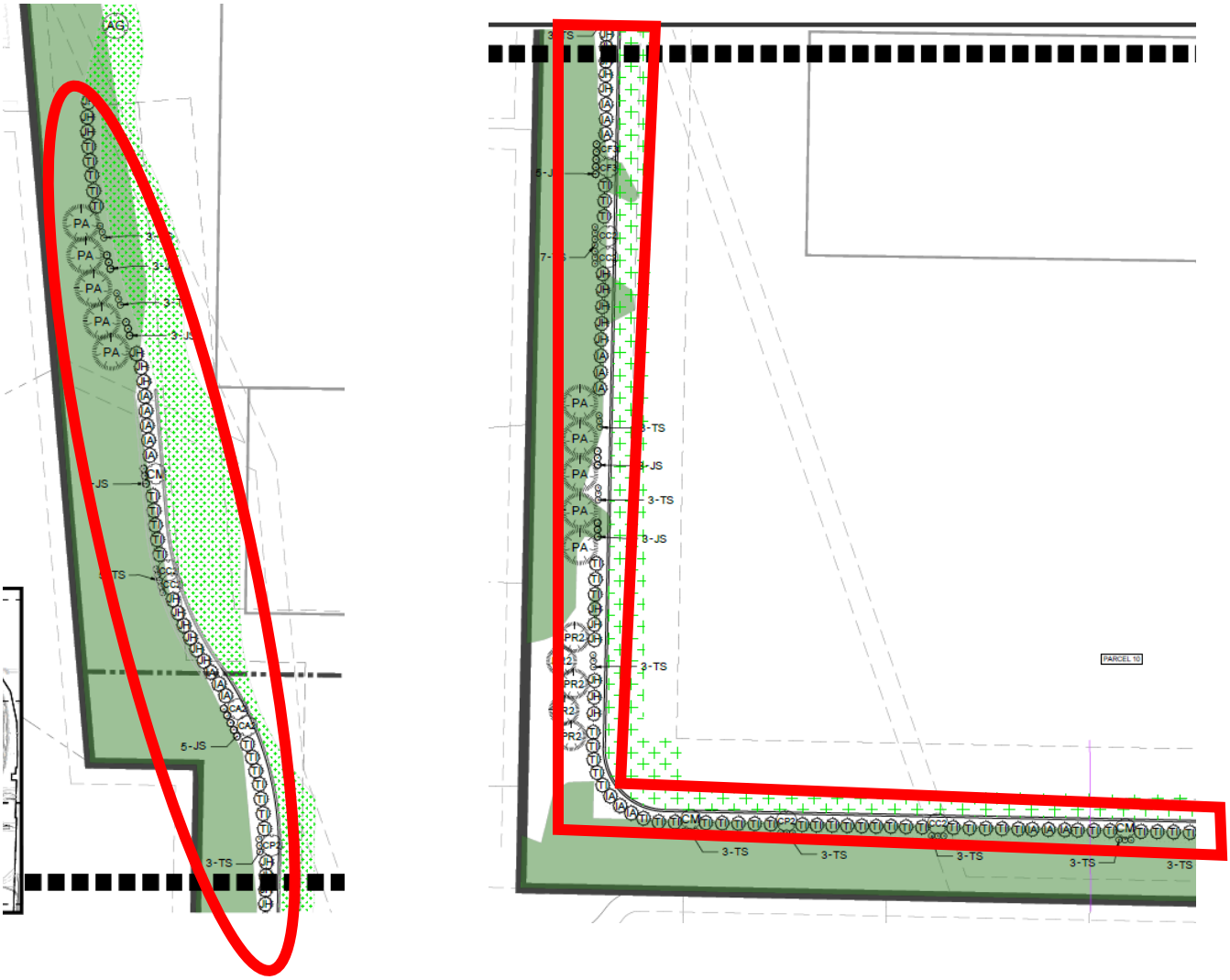


Figure 4: Sheets L-141 and L-144 showing details of proposed additional landscaping in the residential buffer yard.

Preliminary Plat

The preliminary subdivision plat should provide sufficient information regarding a proposed subdivision of land to allow the Commission to evaluate the site development concept as it relates to the City's goals and objectives. The Preliminary Plat has been amended to reflect all relevant changes to the proposed development and fix minor errors that were present. The Tree Conservation Plan, a component of the Preliminary Plat (Sheet LD-100), has been updated to reflect that no more than 50% of all existing trees greater than 6-inches in diameter and tree masses on site will be removed, which is down from 61% previously proposed. This revised percentage reflects the conclusion of the topographic survey of the site and takes into account the ability to save more trees through the extension of the residential buffer yard and retaining wall and removal of the pedestrian path from the buffer. Staff would like to have a better understanding of the methodology and calculations used to meet with the tree preservation requirements of the subdivision ordinance. Staff has included a condition of approval by the Planning and Zoning Commission that the applicant will need to provide more details for the tree conservation plan to show their methodology and supporting calculations for staff review prior to final consideration and vote by the City Council.

Traffic Study

On September 26, 2023, MoDOT approval of the Traffic Impact Study was received and a letter from MoDOT has been provided by the applicant. The developer will have to submit final roadway plans for review and obtain the appropriate permits from MoDOT prior to any construction of these improvements. A condition in the draft ordinance has been added to require MoDOT approval.

Development Standards (Attachment B) and Use Table Revisions

An important component of this rezoning is the establishment of specific development standards that will apply only to this development. These standards are unique to this project and will supersede the normal standards of the zoning code. If approved, these standards must be followed and will be enforced for all phases of the development during the review process for each Site Development Plan application. The development standards also include a list of permitted uses arranged for each sub-district within the plan.

The proposed development standards, as submitted by the applicant and discussed with staff, were presented at the last meeting. This document has been amended based on additional discussions with staff and the feedback received at the last meeting.

The amendments are as follows:

Section B. Sub-District Category Standards:

3. Category C: General Office. The height of buildings is limited to 3 stories or 50 feet for Lots 10 and 17 which are the lots immediately adjacent to existing residential areas.

4. Category D: Residential Development. Added details stating attached single family dwellings (townhouses) can be up to 40-feet or 3-stories in height and detached single family houses can be 2 ½ stories or 35-feet in height.

Section F. Landscape and Tree Requirements

A requirement has been added to acknowledge that the existing surface parking lots to remain may require additional landscaping which will be determined during the Site Development Plan review process. Landscaped areas on Lots 10 and 17 within the General Office Sub-District are also required to be irrigated.

Section H. Light Requirements
Added requirements to minimize impacts to adjacent residential areas for lighting on Lots 10 and 17 to require occupancy sensors and full cut-off and shielded fixtures. In addition, light poles for parking facilities immediately adjacent to single family residential will be limited in height to 16-feet.

Section K. Public/Private Improvements, Including Pedestrian Circulation
Revised the street design standards for public roads within the development per Public Works requirements. All roads to be dedicated to the City will be concrete.

Section M. Miscellaneous
Retaining Walls—the standards state that retaining wall height will not be limited. A revision has been included to acknowledge height maximums that are shown on the site concept or development plan.

EV Charging Stations—EV stations will be considered during the Site Development Plan stage for individual lots.

Bus Shelter—the developer will construct a new bus shelter on Olive with the specific proposal to follow Site Development Plan procedures.

Public Art—clarified that public art is required for this development with the specific proposal to follow City review procedures for public art.

Planned Zoning District Review Criteria #14: Projected Revenues and Municipal Service Costs

The Planned Zoning District ordinance requires satisfaction of 14 Review Criteria. Criterion #14 states the following:

> *14. Any proposed direct impacts on public services, including public improvements proposed for dedication to the public, do not impose an unacceptable burden on the City, taking into account new City revenues projected to be realized from the development.*

A spreadsheet prepared by the City's Director of Finance, Lori Obermueller, has been included which summarizes the City's anticipated costs for road maintenance and to provide municipal services related to this development is attached. Expenses relating to police, public works and building inspections are summarized as follows:

Personnel 1st Year	**Maintenance 1st Year**	**Capital Expenditures Ove 20 Years**	**20-year Costs with 3% Inflation Rate**
$394,150	$298,636	$2,813,134	$12,406,347

The City's planning and development finance consultant, PGAV, is in the process of reviewing revenue projections that have been submitted by the developer's consultant. At this stage of the review, the projected revenues are not complete and, therefore, are not being provided at this time.

Although the revenue estimates are not complete at this time, City staff anticipates the revenues generated by this project will be sufficient to offset the additional costs to the City to provide municipal services. The Commission's recommendation could include a condition on satisfying the criteria that the revenue analysis indicate revenues in excess of anticipated municipal expenditures.

SUMMARY AND RECOMMENDATION

After the submission of the revisions, staff believes the majority of the requirements have been effectively addressed in the development, subject to the recommendations provided in the draft ordinance and the following two conditions:

- The applicant provide more details on the Tree Conservation Plan showing the methodology and supporting calculations for staff review and determination of compliance with the Tree Preservation requirement prior to final consideration and vote by the City Council on the rezoning application.
- Compliance with Review Criteria #14 of the Planned Zoning District Ordinance is met with the revenue analysis demonstrating revenues in excess of anticipated municipal expenditures prior to final consideration and vote by the City Council on the rezoning application.

Staff recommends that the Commission hear any new comments from residents at the public hearing, and upon conclusion of the public hearing, the Commission should deliberate on the components of this request: Rezoning Ordinance, Development Standards and Use Table, Site Concept Plan, Phase One Site Development Plan, and Preliminary Plat. Staff will be prepared to present this information at the meeting in order to faciliate a point-by-point review to assist the Commission with its recommendation to the City Council.

ACTION AND MOTION

The following is an example of an appropriate motion for this application:

> "I move to recommend approval on applications #23-027 and #23-028, of the rezoning, site concept plan and site development plan and to approve the preliminary plat for the Olia Village Planned Mixed-Use Development, subject to the conditions discussed in the Staff Report and Draft Ordinance for the meeting of October 2, 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

09/26/2023

Mr. Jason Jaggi
Director of Community Development
300 North New Ballas Road
City of Creve Coeur, MO 63141

Re: **Applications #23-027 & #23-028**
Olia Village Mixed-Use Development
CMT Project No. 23005201.00

Mr. Jaggi,

The following revisions have been made to the Site Concept Plan, Site Development Plan & Preliminary Plat dated 09/13/23 in response to the 2nd Planning & Zoning Public Hearing held on 09/18/23 and follow up correspondence with City staff. Additionally, edits to Attachment B & Table A have been included.

SITE CONCEPT PLAN / SITE DEVELOPMENT PLAN / PRELIMINARY PLAT:

1. Retaining Wall Heights. After making additional adjustments to the grading around the perimeter of the development, the maximum wall height within the development will be set at 20-feet. Currently, the maximum wall height in the "L" is 20-feet when the wall faces the development and 14-feet when the wall faces the neighborhood to the south. Per Section 410.27.C of the City's ordinance regarding Long Term Erosion Control, "such walls shall not **normally** exceed a height of six (6) feet." As such, no variance is being requested for this work.

2. Residential Buffers. Where the proposed development abuts a single-family residential development, a buffer yard of forty (40) feet will be provided. No impervious surfaces or other amenities otherwise allowed by the City's PMD ordinance are being proposed within the buffer yard as the back of the retaining wall will be placed at 40'. It is the developer's intent that the buffer yard will remain largely undisturbed. Immediately adjacent to the retaining wall and just inside of the buffer yard along Lots 1, 10 & 17, a 10' wide landscape screen will be provided to include a mixture of appropriate materials predominantly consisting of 6'-8' tall evergreens to increase the buffer's density and improve its screening quality.

3. Stream buffer protection requirements. The USGS Topo Map for this site, which was presented during the public hearing portion of the last meeting, is inaccurate, which is more than not the case for national mapping services which do not have the support of site-specific studies to back the mapping data such as in this instance. To determine the exact limits of jurisdictional streams and wetlands, a site delineation is required which has been completed by CMT's environmental team as part of the US Army Corps of Engineers (USACOE) permitting process. CMT's environmental professionals conducted a site visit on February 15-16, 2023, to evaluate the presence of wetlands and delineate Waters of the US as both were presumed to be present onsite based upon a cursory review of the national online databases (US Fish & Wildlife Service & USGS Topo). As part of this visit, the physical locations of two (2) jurisdictional wetlands and two (2) jurisdictional streams were identified within the project area. Through development of the Olia Village plans during the concept phase of this project, it has been determined that impacts to both a portion of the streams and existing jurisdictional wetlands to remain will be required. A total of 915 LF of stream (both Dielmann & Monsanto/Sunswept Creek) and 0.1 acres of jurisdictional wetland will be impacted. As such, coordination is required with the USACOE to obtain permits from the USACOE, MoDNR, US Fish & Wildlife &

USEPA. Our team is currently nearing the completion of this effort and expects a final permit within a few weeks or less from the USACOE. A complete report was submitted to the USACE on March 10, 2023, as part of the application process, and has been revised twice since that time as part of the USACOE review process. A copy of the most current report has been attached to this response letter for the City's use.

Please note that the streams discussed during the public comment portion of the Planning & Zoning meeting on 9/18 were delineated in the field by our professional team in February. As shown on Page 15 of the report, Dielmann Creek was relocated and enclosed previously with a 48" diameter storm sewer by Bayer/Monsanto and **does not** pass through the homeowners' back yards on Spoede Woods Drive or the 48" culvert as incorrectly presented at the public hearing during the last P&Z meeting. As it stands, the watershed area currently draining in the back yards and into the 48" culvert will be decreased as part of this project.

4. Sidewalks on Main Street & within Main Street District. The sidewalk width along Main Street between Arbor Lane & Twisted Branch has been updated to a minimum 8' wide unobstructed. To accomplish this, the on-street parking dimension has been changed 19' for angled parking stalls (in lieu of the original 21'), with a 3' overhang (as allowed in Section 405.810.A.b of the City's Zoning Ordinance) to provide for the minimum 8' sidewalk clear width. All other sidewalks within the Main Street District have been updated to a minimum of 7-feet wide unobstructed where storefront exists.

5. Bus Stops. The Site Concept Plan has been updated to include one (1) architectural bus shelter at the existing bus stop location on the south side of Olive Boulevard west of Pavilion Drive. Additional language has been added to Attachment B as well.

6. Shared Use Path. The plans have been updated to show the new shared use path alignment on the north and east sides of Lot 7.

7. Public Restrooms. Public restrooms will be made available in the leasing office on Lot 4 adjacent to the garage entrance at the end of Pavilion Drive and immediately southeast of the Village Green space.

8. General Uses. The table on Sheet C-101 has been updated to include "Office / Research" general use description for Lots 9 & 13 and "Single-Family / Townhome" for Lot 16. The Architectural Site Plan (A-101) has been updated to remove the greenhouses on Lot 17.

9. MoDOT Approval. MoDOT approval of the Traffic Impact Study has been received and a copy of the approval letter has been attached for the City's use.

10. EV Charging Stations. Consideration for EV charging stations will be reviewed during the individual lot Site Development Plans. Additional language has been added to Attachment B as well.

11. Tree Conservation Plan. The topographic survey originally completed for the 96-acre parcel included collecting individual trees 6" in diameter and above as well as tree masses where collecting individual trees was not practical. To better understand the quantity of individual trees 6" in diameter and above within the tree masses, our team spent days counting by hand all such trees within the tree mass areas. During this time, our team also identified any dead or invasive tree species. In total, 4,634 trees were counted as part of this effort. Assuming an even distribution of 6" diameter and above trees within the tree mass areas, we are currently proposing to remove 2,317 trees or 50%.

12. Detailed Phase 1 Landscape Plan. Additional landscape plan sheets have been included to provide additional preliminary detail for the Phase 1 landscaping. The plan includes a dense planting area to fill in and supplement existing vegetation to remain within the residential buffer. Predominate plant material for buffer planting includes 6'-8'-tall mixture of evergreens at time of planting to supplement the natural buffer to remain.

13. Retaining Wall Details. A cut sheet including proposed wall type, material and color has been included for the proposed retaining wall behind Lots 1, 10 & 17.

14. Preliminary Plat. Easements have been updated for the revised shared-use path alignments noted above. Additionally, Ramblewood Lane immediately west of the proposed development is now being shown as private.

ATTACHMENT B / TABLE A:

1. Revisions have been made to Attachment B & Table A as shown in the redline attachment based upon public comments and city staff recommendations to include, but not limited to:

    a. Limiting the allowable building height on Lots 10 & 17 to a maximum of three (3) stories or fifty (50) feet.

    b. Limiting the allowable residential building height on Lot 16 to three (3) stories or forty (40) feet for attached single-family dwellings or two & half (2.5) stories or thirty-five (35) feet for detached single-family dwellings.

    c. Providing additional lighting restrictions on Lots 10 & 17 only to include requiring occupancy sensors, full cut-off / shielded fixtures, maximum light pole heights within parking lots to sixteen (16) feet.

    d. Updating the Public Street Design Standards to allow only concrete pavement sections.

    e. Restricting additional allowable uses in the Office District (Lots 10 & 17) as indicated in the redline markups of Table A.

    f. Removing all references to "Multifamily" in Table A.

Thank you,

Matthew J. Pfund
President – Jack Matthews Development

Christopher J. Stritzel, P.E.
Project Manager - CMT

CC: Kristie Bailey, Fireside Financial
Michael Bailey, Fireside Financial
Toby Heddinghaus, Gray Design Group
Wes Haid, SWT Design
Jamie Mansfield, Armstrong Teasdale

PRELIMINARY SUBDIVISION PLAT
OLIA VILLAGE

CREVE COEUR, MO

A TRACT OF LAND BEING PART OF LOTS 9, 10, 11 AND 12 OF MAJOR THOMAS SUBDIVISION
SITUATED IN THE SOUTHWEST QUARTER AND THE NORTHWEST QUARTER OF SECTION 1
TOWNSHIP 45 NORTH, RANGE 5 EAST, CITY OF CREVE COEUR, ST. LOUIS COUNTY, MISSOURI

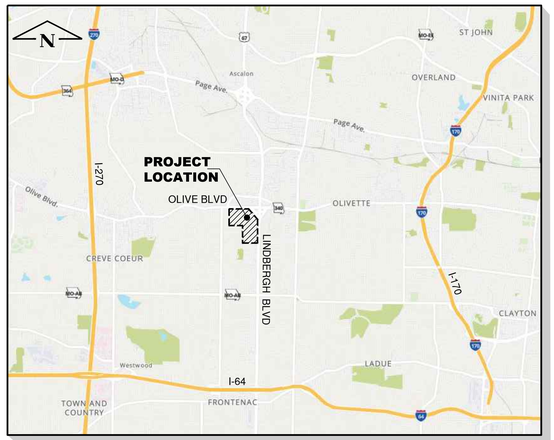
SEPTEMBER 26, 2023

SITE INFORMATION

SITE ACREAGE	=	95.8 AC ±
SITE ADDRESS	=	10300 OLIVE BOULEVARD, CREVE COEUR, MO 63141
OWNER	=	10300 OLIVE, LLC
LOCATOR NUMBER	=	17M420026
EXISTING ZONING	=	RO - RESEARCH & PARK DISTRICT
PROPOSED ZONING	=	PMD - PLANNED MIXED-USE DEVELOPMENT
CITY	=	CREVE COEUR, MO
ZIP CODE	=	63141
FEMA FLOOD MAP	=	29189C0191K (REVISED 2/4/2015) (ZONE X) 29189C0192K (REVISED 2/4/2015) (ZONE X)
WUNNENBERG MAP	=	PAGE 24, SECTIONS 17T & 18T
SCHOOL DISTRICT	=	LADUE SCHOOL DISTRICT
FIRE DISTRICT	=	CREVE COEUR FIRE DISTRICT
WATER SHED	=	RIVER DES PERES WATERSHED, DEER CREEK SUB-SHED
SEWER DISTRICT	=	METROPOLITAN ST. LOUIS SEWER DISTRICT
CABLE SERVICE	=	CHARTER COMMUNICATIONS
ELECTRIC SERVICE	=	AMEREN MISSOURI
GAS SERVICE	=	SPIRE ENERGY
PHONE SERVICE	=	AT&T
WATER SERVICE	=	MISSOURI AMERICAN WATER COMPANY
WATER SERVICE	=	CITY OF ST. LOUIS WATER DEPARTMENT (TRANSMISSION MAINS)
BUILDING TYPE	=	N/A (NO BUILDINGS PROPOSED)
BLDG. CONST. TYPE	=	N/A (NO BUILDINGS PROPOSED)

OWNER / DEVELOPER :

10300 OLIVE, LLC
1034 S. BRENTWOOD, SUITE 2300 PH-1D
ST. LOUIS, MO 63117
MATT PFUND
(618) 692-9502



VICINITY MAP
(NOT TO SCALE)

SHEET INDEX

V-100	TITLE SHEET
V-101	PRELIMINARY SUBDIVISION PLAT
C-101	SITE OVERVIEW
C-105	GRADING PLAN
C-106	UTILITY & DRAINAGE PLAN
C-107	STREET PLAN

LEGAL DESCRIPTION

A TRACT OF LAND BEING PART OF LOTS 9, 10, 11 AND 12 OF MAJOR THOMAS SUBDIVISION, SITUATED IN THE SOUTHWEST QUARTER AND NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 45 NORTH, RANGE 5 EAST, ST. LOUIS COUNTY, MISSOURI, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WEST RIGHT OF WAY LINE OF STATE HIGHWAY 67, LINDBERGH (VARIABLE WIDTH-PUBLIC RIGHT OF WAY) BOULEVARD WITH THE NORTH LINE OF LAND NOW OR FORMERLY OF VANTAGE CREDIT UNION, AS RECORDED BY DEED IN BOOK 23850, PAGE 141 OF THE ST. LOUIS COUNTY, MISSOURI RECORDER'S OFFICE;

THENCE ALONG SAID NORTH LINE AND THE NORTH LINE OF SUNSWEPT PLAT 3, A SUBDIVISION AS RECORDED IN PLAT BOOK 87 PAGE 4 AND SUNSWEPT PLAT 2, A SUBDIVISION AS RECORDED IN PLAT BOOK 87 PAGE 23, ALL OF SAID RECORDER'S OFFICE, NORTH 89 DEGREES 11 MINUTES 17 SECONDS WEST, A DISTANCE OF 1352.62 FEET TO THE EAST LINE OF LAND NOW OR FORMERLY OF DONALD J AND MARGRETTA CASSMEYER, ETAL, AS RECORDED BY DEED IN BOOK 11070, PAGE 767 OF SAID RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE AND THE EAST LINE OF LAND NOW OR FORMERLY OF JAVED MUHAMMAD ALI AND ALZUBEIDI DUHA, AS RECORDED BY DEED IN BOOK 23726, PAGE 3547; TIMOTHY C TOWNSEND, ETAL, AS RECORDED BY DEED IN BOOK 23562, PAGE 160, ALL OF SAID RECORDER'S OFFICE, NORTH 01 DEGREES 12 MINUTES 14 SECONDS EAST, A DISTANCE OF 500.19 FEET TO THE EAST LINE OF SPOEDE HILLS, A SUBDIVISION AS RECORDED IN PLAT BOOK 54, PAGE 26 OF SAID RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE AND THE EAST LINE OF SPOEDE WOODS, A SUBDIVISION FORMERLY KNOWN AS GAS LIGHT SQUARE, AS RECORDED IN PLAT BOOK 104, PAGE 18 OF SAID RECORDER'S OFFICE, NORTH 01 DEGREES 08 MINUTES 11 SECONDS EAST, A DISTANCE OF 831.21 FEET TO THE NORTH LINE OF SAID SPOEDE WOODS;

THENCE ALONG SAID NORTH LINE, NORTH 88 DEGREES 51 MINUTES 14 SECONDS WEST, A DISTANCE OF 826.36 FEET TO THE EAST LINE OF MISSION HILLS, A SUBDIVISION AS RECORDED IN PLAT BOOK 59, PAGE 36 OF SAID RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE AND THE EAST LINE OF RAMBLEWOOD, A SUBDIVISION AS RECORDED IN PLAT BOOK 59, PAGE 58 AND THE EAST LINE OF LAND NOW OR FORMERLY OF MDC COAST 22 LLC, AS RECORDED BY DEED IN BOOK 25302, PAGE 4186, ALL OF SAID
RECORDER'S OFFICE;

THENCE ALONG SAID EAST LINE, THE FOLLOWING COURSES AND DISTANCES: NORTH 01 DEGREES 12 MINUTES 15 SECONDS EAST, A DISTANCE OF 466.53 FEET; NORTH 88 DEGREES 57 MINUTES 33 SECONDS WEST, A DISTANCE OF 51.85 FEET AND NORTH 04 DEGREES 53 MINUTES 33 SECONDS WEST, A DISTANCE OF 682.38 FEET TO THE SOUTH RIGHT OF WAY LINE OF MISSOURI STATE HIGHWAY 340, A.K.A. OLIVE (VARIABLE WIDTH - PUBLIC RIGHT OF WAY) BOULEVARD;

THENCE ALONG SAID SOUTH RIGHT OF WAY LINE, THE FOLLOWING COURSES AND DISTANCES: ALONG A NON- TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 11,358.19 FEET, WITH A CENTRAL ANGLE OF 00 DEGREES 49 MINUTES 02 SECONDS, WHICH CHORD BEARS SOUTH 89 DEGREES 27 MINUTES 38 SECONDS EAST, A CHORD DISTANCE OF 162.03 FEET, THROUGH AN ARC LENGTH OF 162.03 FEET; SOUTH 89 DEGREES 03 MINUTES 07 SECONDS EAST, A DISTANCE OF 427.12 FEET; NORTH 01 DEGREES 00 MINUTES 53 SECONDS EAST, A DISTANCE OF 20.00 FEET; SOUTH 89 DEGREES 03 MINUTES 07 SECONDS EAST, A DISTANCE OF 723.00 FEET AND SOUTH 86 DEGREES 13 MINUTES 52 SECONDS EAST, A DISTANCE OF 200.26 FEET TO THE SOUTHWEST RIGHT OF WAY TRANSITION BETWEEN STATE HIGHWAY 340 AND STATE HIGHWAY 67, A.K.A. LINDBERGH (VARIABLE WIDTH - PUBLIC RIGHT OF WAY) BOULEVARD;

THENCE ALONG SAID SOUTHWEST RIGHT OF WAY LINE, THE FOLLOWING COURSES AND DISTANCES: SOUTH 65 DEGREES 03 MINUTES 50 SECONDS EAST, A DISTANCE OF 328.98 FEET; SOUTH 43 DEGREES 48 MINUTES 52 SECONDS EAST, A DISTANCE OF 413.64 FEET; SOUTH 32
DEGREES 46 MINUTES 12 SECONDS EAST, A DISTANCE OF 248.25 FEET AND SOUTH 11 DEGREES 42 MINUTES 30 SECONDS EAST, A DISTANCE OF 250.82 FEET TO THE WEST RIGHT OF WAY LINE OF THE AFOREMENTIONED LINDBERGH BOULEVARD;

THENCE ALONG SAID WEST RIGHT OF WAY LINE, THE FOLLOWING COURSES AND DISTANCES: SOUTH 01 DEGREES 00 MINUTES 47 SECONDS EAST, A DISTANCE OF 256.89 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 105.09 FEET; NORTH 88 DEGREES 06 MINUTES 17 SECONDS WEST, A DISTANCE OF 10.00 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 50.00 FEET; NORTH 88 DEGREES 06 MINUTES 17 SECONDS WEST, A DISTANCE OF 30.00 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 50.00 FEET; SOUTH 88 DEGREES 06 MINUTES 17 SECONDS EAST, A DISTANCE OF 40.00 FEET; SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 300.00 FEET; SOUTH 88 DEGREES 06 MINUTES 17 SECONDS EAST, A DISTANCE OF 10.00 FEET AND SOUTH 01 DEGREES 53 MINUTES 43 SECONDS WEST, A DISTANCE OF 847.31 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED TRACT OF LAND CONTAINING 4,171,444 SQUARE FEET OR 95.763 ACRES IS BASED UPON AN ACTUAL URBAN CLASS BOUNDARY SURVEY DONE IN ACCORDANCE WITH THE CURRENT MISSOURI STANDARDS FOR PROPERTY BOUNDARY SURVEYS, SUBJECT TO ALL EASEMENTS, RESTRICTIONS, RESERVATIONS, CONDITIONS OF RECORD AND NOT OF RECORD, IF ANY.

UTILITY NOTE :

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND INFORMATION, AND, THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NON-EXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE FACILITIES, STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS. THE UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319 RSMo.

DISCLAIMER :

CRAWFORD, MURPHY & TILLY, INC. AND THE UNDERSIGNED ENGINEER HAVE NO RESPONSIBILITY FOR SERVICES PROVIDED BY OTHERS TO IMPLEMENT THE IMPROVEMENTS SHOWN ON THIS PLAN AND ALL OTHER DRAWINGS WHERE THE UNDERSIGNED ENGINEER'S SEAL APPEARS. THE CONSTRUCTION MEANS AND METHODS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND CONTRACTOR. CRAWFORD, MURPHY & TILLY, INC. HAS NO RESPONSIBILITY TO VERIFY FINAL IMPROVEMENTS AS SHOWN ON THIS PLAN UNLESS SPECIFICALLY ENGAGED AND AUTHORIZED TO DO SO BY THE OWNER OR CONTRACTOR.

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	!PRELIMINARY-PLAT.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	---
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2023

SHEET TITLE

TITLE SHEET

V-100

SHEET OF --

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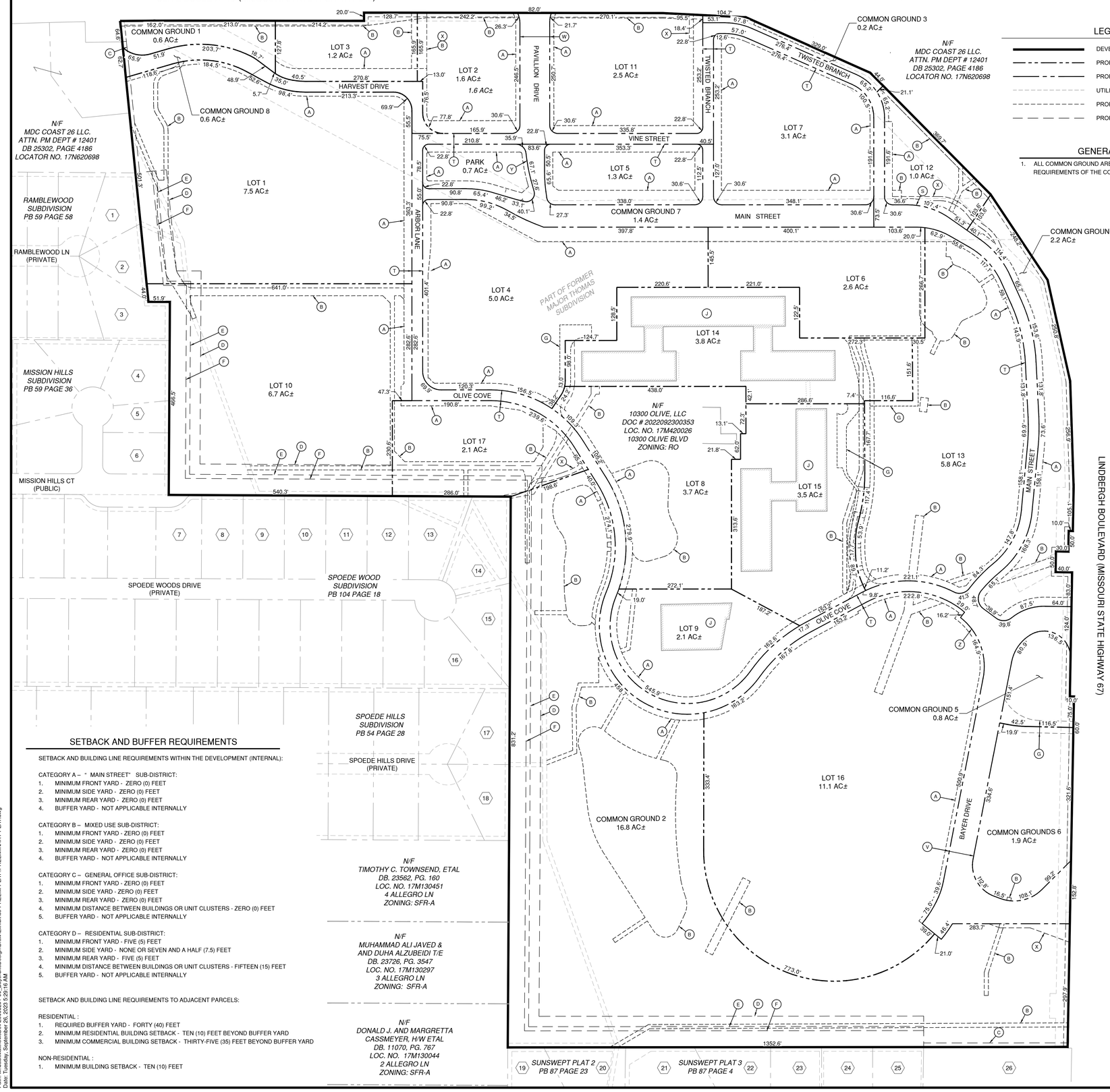
Date: Tuesday, September 26, 2023 5:30:04 AM

PRELIMINARY SUBDIVISION PLAT
OLIA VILLAGE

A TRACT OF LAND BEING PART OF THE LOTS 9, 10, 11 AND 12 OF MAJOR THOMAS SUBDIVISION, SITUATED IN THE SOUTHWEST QUARTER AND THE NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 45 NORTH, RANGE 5 EAST
CITY OF CREVE COEUR, ST. LOUIS COUNTY, MISSOURI



SETBACK AND BUFFER REQUIREMENTS

SETBACK AND BUILDING LINE REQUIREMENTS WITHIN THE DEVELOPMENT (INTERNAL):

CATEGORY A – " MAIN STREET" SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY B – MIXED USE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY C – GENERAL OFFICE SUB-DISTRICT:
1. MINIMUM FRONT YARD - ZERO (0) FEET
2. MINIMUM SIDE YARD - ZERO (0) FEET
3. MINIMUM REAR YARD - ZERO (0) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - ZERO (0) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

CATEGORY D – RESIDENTIAL SUB-DISTRICT:
1. MINIMUM FRONT YARD - FIVE (5) FEET
2. MINIMUM SIDE YARD - NONE OR SEVEN AND A HALF (7.5) FEET
3. MINIMUM REAR YARD - FIVE (5) FEET
4. MINIMUM DISTANCE BETWEEN BUILDINGS OR UNIT CLUSTERS - FIFTEEN (15) FEET
5. BUFFER YARD - NOT APPLICABLE INTERNALLY

SETBACK AND BUILDING LINE REQUIREMENTS TO ADJACENT PARCELS:

RESIDENTIAL :
1. REQUIRED BUFFER YARD - FORTY (40) FEET
2. MINIMUM RESIDENTIAL BUILDING SETBACK - TEN (10) FEET BEYOND BUFFER YARD
3. MINIMUM COMMERCIAL BUILDING SETBACK - THIRTY-FIVE (35) FEET BEYOND BUFFER YARD

NON-RESIDENTIAL :
1. MINIMUM BUILDING SETBACK - TEN (10) FEET

LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- UTILITY & DRAINAGE EASEMENT
- PROPOSED UTILITY & DRAINAGE EASEMENT
- PROPOSED BUILDING SETBACK LINE

GENERAL NOTES

1. ALL COMMON GROUND AREAS SHALL BE MAINTAINED PER THE REQUIREMENTS OF THE COMMUNITY ASSOCIATION COVENANTS.

KEYNOTES

- (A) PROPOSED ROADWAY, IMPROVEMENT, MAINTENANCE, UTILITY, SEWER, SIDEWALK EASEMENT (P.R.I.M.U.S.S.E.) (TYP)
- (B) PROPOSED UTILITY OR DRAINAGE EASEMENT (TYP)
- (C) PROPOSED COMMERCIAL 10' BUILDING SETBACK LINE
- (D) PROPOSED COMMERCIAL 35' BUILDING SETBACK LINE
- (E) PROPOSED RESIDENTIAL 10' BUILDING SETBACK LINE
- (F) PROPOSED RESIDENTIAL 40' BUFFER LINE
- (G) PROPOSED ACCESS EASEMENT
- (J) EXISTING STRUCTURE TO REMAIN
- (S) PROPOSED RIGHT OF WAY WIDTH VARIES 26'-54'
- (T) PROPOSED RIGHT OF WAY WIDTH 26'
- (U) PROPOSED RIGHT OF WAY WIDTH VARIES 26'-38'
- (V) PROPOSED RIGHT OF WAY WIDTH 60'
- (W) PROPOSED RIGHT OF WAY WIDTH 72'
- (X) PROPOSED SIDEWALK EASEMENT
- (Y) PROPOSED RIGHT OF WAY WIDTH VARIES 28'-45'
- (Z) PROPOSED RIGHT OF WAY WIDTH VARIES 50'-60'

PROPERTY OWNER INFORMATION

1. *BRANDON L & AMY JEFFERS H/W*
DB. 20819, PG. 681
LOCATOR # 17N620467
11 RAMBLEWOOD LN
ZONING: SFR-C

2. *KANGYUN & MA BAOZHEN WU T/E*
DB. 20819, PG. 681
LOCATOR # 17N620434
13 RAMBLEWOOD LN
ZONING: SFR-C

3. *DAVID E SCHRAMM TRUST ET AL*
DB. 22493, PG. 634
LOCATOR # 17N620357
12 RAMBLEWOOD LN
ZONING: SFR-C

4. *ALAN P & LAUREL T BURKE T/E*
DB. 23138, PG. 3554
LOCATOR # 17N622258
850 MISSION HILLS CT
ZONING: SFR-C

5. *TAMARA MARX*
DB. 20942, PG. 289
LOCATOR # 17N620193
DB. 20942, PG. 289
844 MISSION HILLS CT
ZONING: SFR-C

6. *SONG CAO SONG & GENGSHENG CHEN H/W*
DB. 20476, PG. 136
LOCATOR # 17N620126
840 MISSION HILLS CT
ZONING: SFR-C

7. *SINGER DAVID & DANIELLE SINGER T/E*
DB. 22676, PG. 1635
LOCATOR # 17N620753
6 SPOEDE WOODS ST
ZONING: SFR-B

8. *WILLIAM M & GAIL FRIEDMAN H/W*
DB. 12232, PG. 387
LOCATOR # 17M410094
7 SPOEDE WOODS ST
ZONING: SFR-B

9. *THE MANLEY FAMILY TRUST*
DB. 24934, PG. 1749
LOCATOR # 17M410027
8 SPOEDE WOODS ST
ZONING: SFR-B

10. *TOMISLAV ZIGO ETAL*
DB. 17318, PG. 4808
LOCATOR # 17M410061
9 SPOEDE WOODS ST
ZONING: SFR-B

11. *JEROME A & FRANCES S COHEN H/W*
DB. 21569, PG. 223
LOCATOR # 17M410038
10 SPOEDE WOODS ST
ZONING: SFR-B

12. *XUDONG LIANG & YILING MI H/W*
DB. 17419, PG. 1953
LOCATOR # 17M410049
11 SPOEDE WOODS ST
ZONING: SFR-B

13. *THE ROBERT H MAX & RACHEL E PROTZEL LIVING TRUST*
DB. 23635, PG. 213
LOCATOR # 17M410050
12 SPOEDE WOODS ST
ZONING: SFR-B

14. *DANIEL & DENA TRANEN T/E*
DB. 21484, PG. 3870
LOCATOR # 17M4100016
13 SPOEDE WOODS ST
ZONING: SFR-B

15. *MICHAEL P & CHIRAWAN C DEMOS H/W*
DB. 20052, PG. 2430
LOCATOR # 17M130275
14 SPOEDE WOODS ST
ZONING: SFR-B

16. *15 SPOEDE WOODS LLC*
DB. 23330, PG. 217
LOCATOR # 17M130211
15 SPOEDE WOODS ST
ZONING: SFR-B

17. *ALLAN H & FRANCES R RAMSEY H/W*
DB. 03865, PG. 523
LOCATOR # 17M130374
12 SPOEDE HILLS DR
ZONING: SFR-B

18. *ALEXIS TRAVERS & MELISSA BURGUND T/E*
DEED DOC. 202211230019 0
LOCATOR # 17M130385
13 SPOEDE HILLS DR
ZONING: SFR-B

19. *ELLEN M LATURNO ETAL, J/T*
DEED DOC. 2023040400345
LOCATOR # 17M130011
13 SUNSWEPT DR
ZONING: SFR-B

20. *BLAKE & ROBIN EASTWOOD T/E*
DB. 23734, PG. 769
LOCATOR # 17M130022
14 SUNSWEPT DR
ZONING: SFR-B

21. *JEFFERY & AMANDA DIECKHAUS T/E*
DB. 23414, PG. 2192
LOCATOR # 17M130033
10331 N. SUNSWEPT DR.
ZONING: SFR-B

22. *JYOTI ETAL BEHURA T/E*
DB. 24882, PG. 3484
LOCATOR # 17M140087
10327 N. SUNSWEPT DR.
ZONING: SFR-B

23. *ALAN B MARIAM & CLAUDIA TRUST FBO*
DB. 24351, PG. 70
LOCATOR # 17M140076
DB. 20942, PG. 289
10321 N. SUNSWEPT DR.
ZONING: SFR-B

24. *GABRIELLA JULIAN*
DB. 24286, PG. 3346
LOCATOR # 17M140043
10311 N. SUNSWEPT DR.
ZONING: SFR-B

25. *JOHN & SUE MURPHY H/W*
DB. 21426, PG. 3126
LOCATOR # 17M140032
10305 N. SUNSWEPT DR.
ZONING: SFR-B

26. *VANTAGE CREDIT UNION*
DB. 23850, PG. 141
LOCATOR # 17M140010
611 N LINDBERGH BLVD
ZONING: GC

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

100' 50' 0' 100' 200'
SCALE IN FEET

OWNER / SUBDIVIDER

10300 OLIVE, LLC
1034 S. BRENTWOOD, SUITE 2300 PH-1D
ST. LOUIS, MO 63117
MATT PFUND
(618) 692-9502

ENGINEER

CRAWFORD MURPHY & TILLY, INC.
1 MEMORIAL DRIVE #500
ST. LOUIS, MO 63102
PH (314) 5436-5500
ENGINEER: TODD EHLEN

SURVEYOR

CRAWFORD MURPHY & TILLY, INC.
2750 WEST WASHINGTON STREET
SPRINGFIELD, IL 62702
PH (217) 787-9050
SURVEYOR: MICHAEL E MIZEUR

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

SEPTEMBER 26, 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BLVD
CREVE COEUR, MO 63141

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
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DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	---
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SHEET TITLE

PRELIMINARY SUBDIVISION PLAT

V-101

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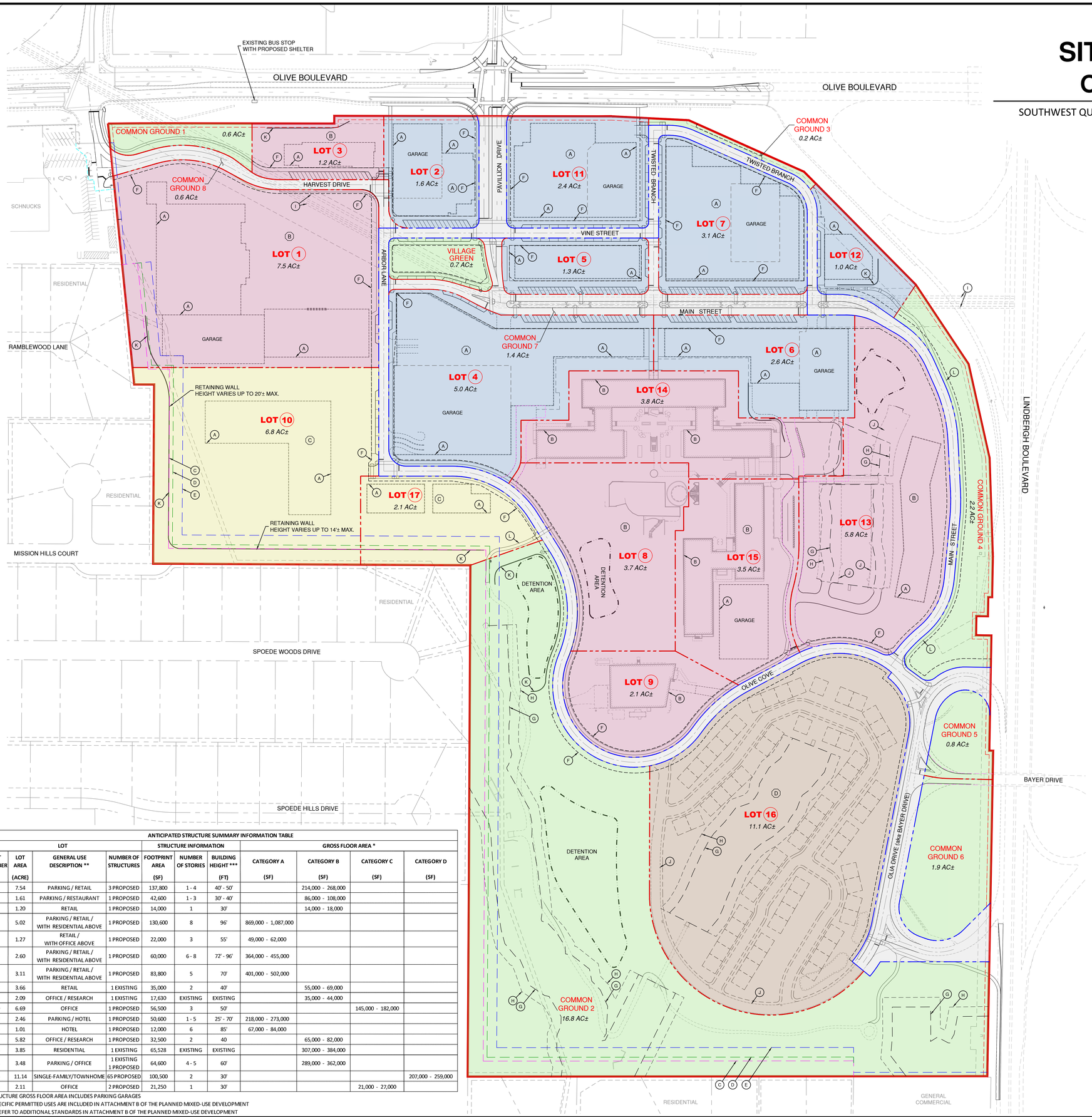
SITE OVERVIEW
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT
- (A) CATEGORY A - MAIN STREET DEVELOPMENT
- (B) CATEGORY B - MIXED USE DEVELOPMENT
- (C) CATEGORY C - GENERAL OFFICE DEVELOPMENT
- (D) CATEGORY D - RESIDENTIAL DEVELOPMENT

KEYNOTES

- (A) CONCEPTUAL BUILDING FOOTPRINT (TYP)
- (B) EXISTING BUILDING TO REMAIN AND BE REPURPOSED (TYP)
- (C) 40' RESIDENTIAL BUFFER YARD (TYP)
- (D) 10' RESIDENTIAL BUILDING SETBACK (BEYOND BUFFER)
- (E) 35' COMMERCIAL BUILDING SETBACK (BEYOND BUFFER)
- (F) 10' MINIMUM PROPOSED ROADWAY IMPROVEMENT MAINTENANCE UTILITY SEWER SIDEWALK EASEMENT (PRIMUSSE)
- (G) 50' NATURAL VEGETATION STREAM BUFFER
- (H) 25' NO-IMPERVIOUS STREAM BUFFER
- (I) EXISTING STL WATER CO. WATERMAIN CONDUITS
- (J) EXISTING PARKING LOT / DRIVE TO REMAIN
- (K) PROPOSED SITE RETAINING WALL (TYP) MECHANICALLY STABILIZED EARTH OR BLOCK GRAVITY WALL (TO BE DETERMINED UPON FINAL DESIGN)
- (L) PROPOSED WALKING TRAIL OR SIDEWALK (TYP) SEE PEDESTRIAN MOBILITY PLAN

ANTICIPATED STRUCTURE SUMMARY INFORMATION TABLE

LOT				STRUCTURE INFORMATION			GROSS FLOOR AREA *			
LOT NUMBER	LOT AREA (ACRE)	GENERAL USE DESCRIPTION **	NUMBER OF STRUCTURES	FOOTPRINT AREA (SF)	NUMBER OF STORIES	BUILDING HEIGHT *** (FT)	CATEGORY A (SF)	CATEGORY B (SF)	CATEGORY C (SF)	CATEGORY D (SF)
#1	7.54	PARKING / RETAIL	3 PROPOSED	137,800	1 - 4	40' - 50'		214,000 - 268,000		
#2	1.61	PARKING / RESTAURANT	1 PROPOSED	42,600	1 - 3	30' - 40'		86,000 - 108,000		
#3	1.20	RETAIL	1 PROPOSED	14,000	1	30'		14,000 - 18,000		
#4	5.02	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	130,600	8	96'	869,000 - 1,087,000			
#5	1.27	RETAIL / WITH OFFICE ABOVE	1 PROPOSED	22,000	3	55'	49,000 - 62,000			
#6	2.60	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	60,000	6 - 8	72' - 96'	364,000 - 455,000			
#7	3.11	PARKING / RETAIL / WITH RESIDENTIAL ABOVE	1 PROPOSED	83,800	5	70'	401,000 - 502,000			
#8	3.66	RETAIL	1 EXISTING	35,000	2	40'		55,000 - 69,000		
#9	2.09	OFFICE / RESEARCH	1 EXISTING	17,630	EXISTING	EXISTING		35,000 - 44,000		
#10	6.69	OFFICE	1 PROPOSED	56,500	3	50'			145,000 - 182,000	
#11	2.46	PARKING / HOTEL	1 PROPOSED	50,600	1 - 5	25' - 70'	218,000 - 273,000			
#12	1.01	HOTEL	1 PROPOSED	12,000	6	85'	67,000 - 84,000			
#13	5.82	OFFICE / RESEARCH	1 PROPOSED	32,500	2	40		65,000 - 82,000		
#14	3.85	RESIDENTIAL	1 EXISTING	65,528	EXISTING	EXISTING		307,000 - 384,000		
#15	3.48	PARKING / OFFICE	1 EXISTING 1 PROPOSED	64,600	4 - 5	60'		289,000 - 362,000		
#16	11.14	SINGLE-FAMILY/TOWNHOME	65 PROPOSED	100,500	2	30'				207,000 - 259,000
#17	2.11	OFFICE	2 PROPOSED	21,250	1	30'			21,000 - 27,000	

* STRUCTURE GROSS FLOOR AREA INCLUDES PARKING GARAGES
** SPECIFIC PERMITTED USES ARE INCLUDED IN ATTACHMENT B OF THE PLANNED MIXED-USE DEVELOPMENT
*** REFER TO ADDITIONAL STANDARDS IN ATTACHMENT B OF THE PLANNED MIXED-USE DEVELOPMENT

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PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

N

100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
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DRAWN BY:	JFM
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SHEET TITLE

SITE OVERVIEW

C-101

SHEET - OF --

GRADING PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO

OLIVE BOULEVARD
OLIVE BOULEVARD
HARVEST DRIVE
PAVILION DRIVE
TWISTED BRANCH
TWISTED BRANCH
VINE STREET
MAIN STREET
ARBOR LANE
SECTION A-A
SECTION B-B
A-A C-109
B-B C-109
RAMBLEWOOD LANE
MISSION HILLS COURT
SPOEDE WOODS DRIVE
SPOEDE HILLS DRIVE
LINDBERGH BOULEVARD
MAIN STREET
OLIVE COVE
OLIA DRIVE (aka BAYER DRIVE)
BAYER DRIVE
DETENTION AREA
DETENTION AREA
DETENTION AREA

LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- 660 EXISTING CONTOUR
- 660 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- CONCEPTUAL BLDG FOOTPRINT

KEYNOTES

- (A) PROPOSED STORM SEWER (TYP)
- (B) PROPOSED SITE RETAINING WALL (TYP)
- (C) 50' NATURAL VEGETATION BUFFER

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

N

100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
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SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
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GRADING PLAN

C-105

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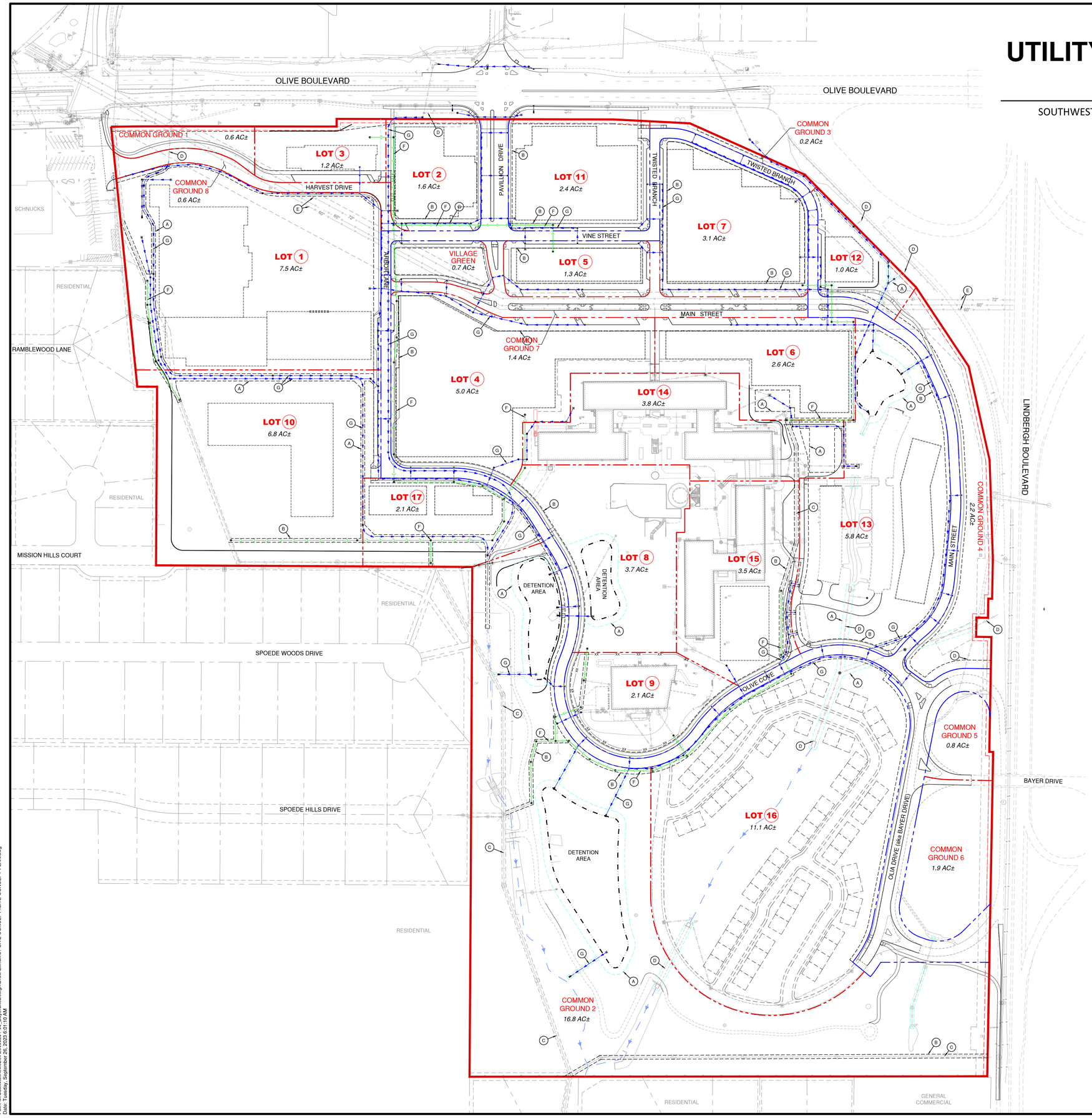
UTILITY & DRAINAGE PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO



LEGEND

- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED EASEMENT

KEYNOTES

- (A) DRAINAGE EASEMENT (TYP)
- (B) UTILITY EASEMENT (TYP)
- (C) EXISTING SANITARY SEWER
- (D) EXISTING STORM DRAINAGE SYSTEM
- (E) EXISTING STL WATER CO. WATERMAIN CONDUITS
- (F) PROPOSED SANITARY SEWER (TYP)
- (G) PROPOSED STORM DRAINAGE SYSTEM (TYP)

PRELIMINARY BUILDOUT STORMWATER CALCULATIONS

PRE-DEVELOPED RUNOFF

TOTAL AREA	=	227.90 ac
WEIGHTED "CN" VALUE	=	81.59
AVERAGE "TC" VALUE	=	19.86 min
TOTAL FLOW	=	1,260± cfs

POST-DEVELOPED RUNOFF

TOTAL AREA	=	227.90 ac
WEIGHTED "CN" VALUE	=	86.54
AVERAGE "TC" VALUE	=	16.34 min
TOTAL FLOW	=	1,478± cfs

DIFFERENTIAL RUNOFF

PRE-DEVELOPED	=	1,260± cfs
POST-DEVELOPED	=	1,478± cfs
DIFFERENTIAL FLOW	=	+218± cfs

100-YEAR, 24-HOUR PEAK FLOW RATE COMPARISON

PRE-DEVELOPED	=	404± cfs
POST-DEVELOPED	=	1,142± cfs
DIFFERENTIAL FLOW	=	-55± cfs

THIS PROJECT HAS BEEN SUBMITTED TO MSD FOR CONCEPTUAL REVIEW (23CNCPB-00003).

ALL STORM SEWER AND DETENTION FACILITY CALCULATIONS AND REPORTS WILL BE SUBMITTED TO MSD AND CITY OF CREVE COEUR FOR FINAL APPROVAL PRIOR TO CONSTRUCTION.

PREPARED BY:

CMT
Crawford, Murphy & Tilly

ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

N

100' 50' 0' 100' 200'

SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
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DRAWN BY:	JFM
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SHEET TITLE

UTILITY & DRAINAGE PLAN

C-106

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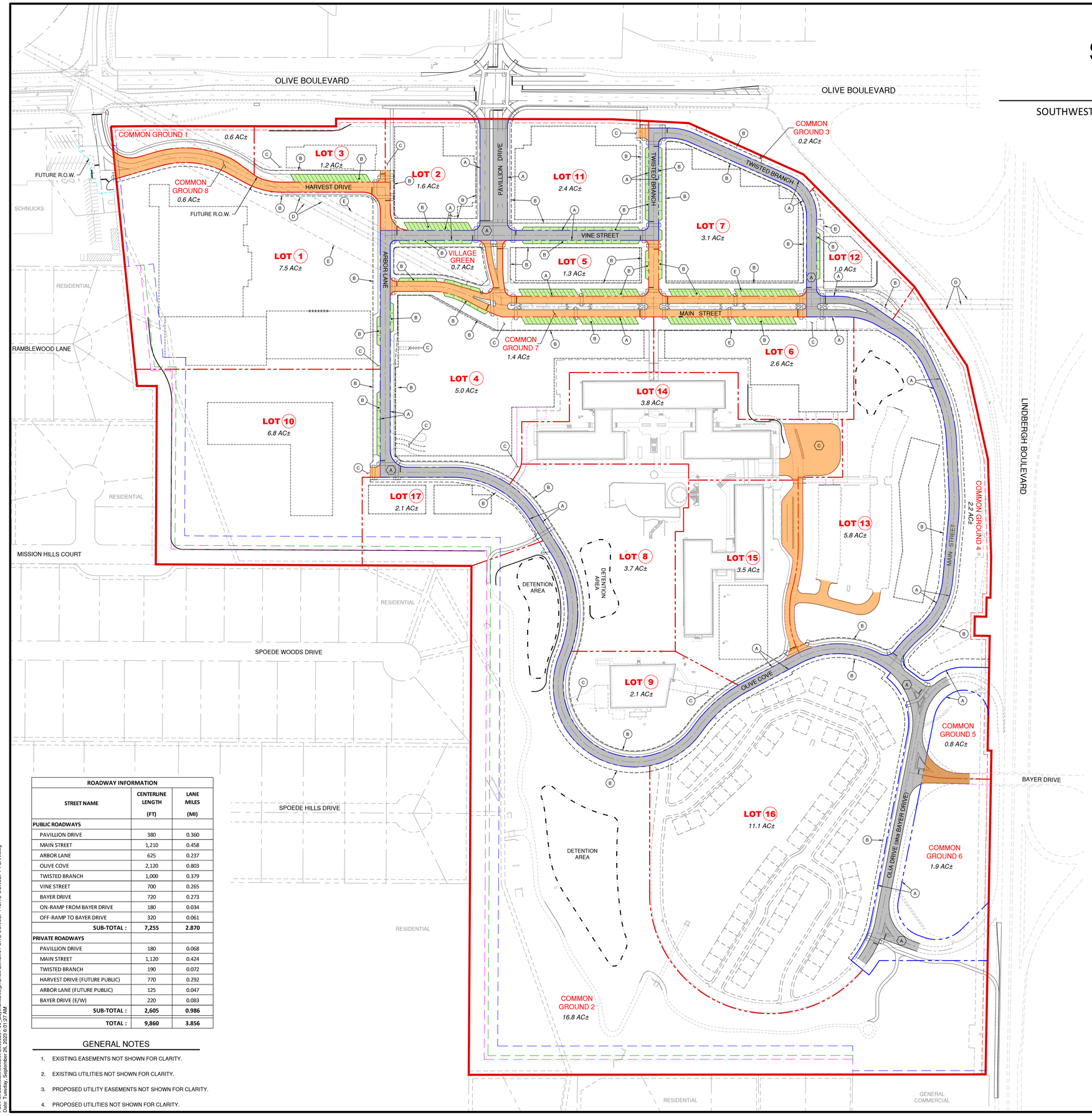
STREET PLAN
OLIA VILLAGE

SOUTHWEST QUADRANT OF OLIVE & LINDBERGH BOULEVARD
CREVE COEUR, MO

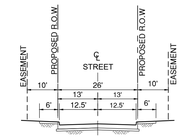


LEGEND

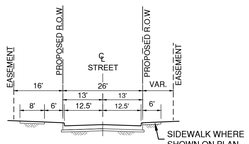
- DEVELOPMENT BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED R.O.W. LINE
- CONCEPTUAL BLDG FOOTPRINT
- PROPOSED R.I.M.U.S.S. EASEMENT
- (A) PROPOSED ROADWAY (WITHIN RIGHT-OF-WAY)
- (B) PROPOSED ON-STREET PARKING (WITHIN EASEMENT)
- (C) PROPOSED PRIVATE ROADWAY

KEYNOTES

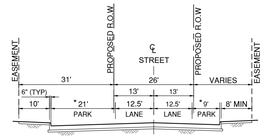
- (A) PROPOSED RIGHT-OF-WAY
- (B) PROPOSED ROADWAY IMPROVEMENT, MAINTENANCE, UTILITY, SEWER, SIDEWALK (R.I.M.U.S.S.) EASEMENT
- (C) CONCEPTUAL FUTURE ENTRANCE
- (D) EXISTING STL WATER MAIN CONDUITS
- (E) EXISTING STL WATER MAIN EASEMENT



TYPICAL SECTION #1
STANDARD STREET SECTION

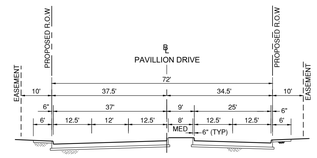


TYPICAL SECTION #2
OLIVE COVE

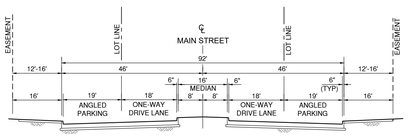


* PARKING VARIES:
9' PARALLEL PARKING
21' ANGLED PARKING

TYPICAL SECTION #3
STANDARD STREET SECTION
WITH ADJACENT PARKING



TYPICAL SECTION #4
PAVILLION DRIVE ENTRANCE



TYPICAL SECTION #5
MAIN STREET (MEDIAN SECTION)

ROADWAY INFORMATION		
STREET NAME	CENTERLINE LENGTH (FT)	LANE MILES (MI)
PUBLIC ROADWAYS		
PAVILLION DRIVE	380	0.360
MAIN STREET	1,210	0.458
ARBOR LANE	625	0.237
OLIVE COVE	2,120	0.803
TWISTED BRANCH	1,000	0.379
VINE STREET	700	0.265
BAYER DRIVE	720	0.273
ON-RAMP FROM BAYER DRIVE	180	0.034
OFF-RAMP TO BAYER DRIVE	320	0.061
SUB-TOTAL :	**7,255**	**2.870**
PRIVATE ROADWAYS		
PAVILLION DRIVE	180	0.068
MAIN STREET	1,120	0.424
TWISTED BRANCH	190	0.072
HARVEST DRIVE (FUTURE PUBLIC)	770	0.292
ARBOR LANE (FUTURE PUBLIC)	125	0.047
BAYER DRIVE (E/W)	220	0.083
SUB-TOTAL :	**2,605**	**0.986**
TOTAL :	**9,860**	**3.856**

GENERAL NOTES

1. EXISTING EASEMENTS NOT SHOWN FOR CLARITY.
2. EXISTING UTILITIES NOT SHOWN FOR CLARITY.
3. PROPOSED UTILITY EASEMENTS NOT SHOWN FOR CLARITY.
4. PROPOSED UTILITIES NOT SHOWN FOR CLARITY.

PREPARED BY:
CMT
Crawford, Murphy & Tilly
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MO 63102
OFFICE NO. (314) 436-5500
LICENSE NO. 184-000631

CONSULTANTS:

SITE CONCEPT PLAN

100' 50' 0' 100' 200'
SCALE IN FEET

STATE OF MISSOURI
TODD MATTHEW EHLEN
NUMBER PE-2006019649
PROFESSIONAL ENGINEER
09/26/2023
CIVIL ENGINEER PE-2006019649

PRELIMINARY
NOT FOR CONSTRUCTION
SEPTEMBER 26, 2023

OLIA VILLAGE DEVELOPMENT

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	ISITE-CONCEPT-PLAN.DWG
DESIGNED BY:	TME/JFM
DRAWN BY:	JFM
CHECKED BY:	CJS
APPROVED BY:	--
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2023

SHEET TITLE

STREET PLAN

C-107

SHEET - OF --

Path: M:\Jack\Matthew\Dev\23005201-00_Bayer\SiteDesign\Draw\Exhibit\01-SITE-CONCEPT\SITE-CONCEPT-PLAN.dwg
Date: Tuesday, September 26, 2023 5:01:27 PM

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- Trapezoidal shape allows convex and concave radii
- 5.5 inch (140 millimeter) deep texture
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- Ten individual face molds offer up to 115 square feet (10.5 square meters) of non-repeating patterns
- Wet-cast concrete gives a greater level of detail and durability

R002-A085-LD01

R002-A085-LD02

R002-A085-LD03

R002-A085-LD04

R002-A085-LD05

R002-A085-LD06

R002-A085-LD07

R002-A085-LD08

R002-A085-LD09

R002-A085-LD10

larger detail and other options ▸

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R002-A085-LD02

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R002-A085-LD04

R002-A085-LD05

R002-A085-LD06

R002-A085-LD07

R002-A085-LD08

R002-A085-LD09

R002-A085-LD10

R002-A187-LD01 / LD02

42.5 in Curved Face Mold

R002-A193-LD01

Half Face Mold

Corner Face Molds

R003-A066-LD01

R003-A066-LD02

R003-A084-LD01

Half Corner Mold

Metropolitan St. Louis Sewer District
2350 Market Street
St. Louis, MO 63103-2555
(314) 768-6200

February 3, 2023

Mr. Todd Ehlen
Crawford, Murphy & Tilly
One Memorial Drive, Suite 500
St. Louis, MO 63102

Re: Lindbergh/Olive Mixed Use Master Plan – 10300 Olive Blvd.
Preliminary Site Plan Conceptual Review
MSD Ref. No. 23CNCPB-00003

Dear Mr. Ehlen:

MSD has completed the **conceptual review** of the referenced preliminary site plan. Based upon same, the following comments are provided:

This project site is located in the Lemay WWTP service area, the River des Peres watershed, and the Deer Creek sub-shed. Jack Matthews Development is proposing to raze some existing building structures, parking areas, and campus roadway, to accommodate the proposed mixed-use complex that will include retail, commercial, dining, office space, apartments, townhomes, hotels, and parking. Three wet detention ponds were shown on the plan sheet provided. The submitted plans did not indicate the area of disturbance or the stormwater runoff differential.

Plans previously submitted to MSD for review at the 10300 Olive Blvd. property can be found under records P000394600-04, P001074900-01, P001578400-01, P002697800, P003065200, and 19MSD-00340. Plans that were submitted for the property, but subsequently withdrawn, can be found under records P001578402, P003115000, and 21MSD-00059/21FLPLS-00006. Information records for the property are 19INFOR-00067, 20INFOR-00578, and 22INFOR-00209. The project files can be found online by searching on MSD's project tracking system (https://aca-prod.accela.com/STLMSD/Default.aspx)

Stormwater – Water Quality/Volume Reduction/Detention/Channel Protection

Over 20% of the site is impervious and the development activities proposed on this plan will occur predominately on impervious portions of the site. Therefore, this project is categorized as "Redevelopment" for purposes of establishing storm water management goals and compliance requirements with respect to our region's MS4 permit. Onsite watershed boundaries, drainage area acreages and discharge points shall be maintained as close to their pre-developed condition as possible. Current MSD records indicate downstream stormwater problems that will require the site to use the undeveloped or "back to grass" existing site condition for all disturbed areas when determining the runoff

differential and stormwater management goals for this site.

The site disturbance appears to be over one acre, which will require post construction Best Management Practices (BMPs) to be installed to treat the water quality volume (WQv) per MSD regulations, in which case volume reduction BMPs should be implemented wherever possible. The likely runoff differential surpassing the 2 cfs threshold will require post construction Best Management Practices (BMPs) to treat Channel Protection Volume (CPv) and Flood Protection (Qp) for the site. The Deer Creek watershed release rate for routed detention facilities is a "zero increase" watershed. Volume reducing techniques including bioretention, permeable pavement, amended soils, etc. are acceptable. A maintenance agreement and reserve areas are required for BMPs and are to be provided by the landowner.

Wet detention ponds were shown on the submitted plan sheet, but no specifications were given. The wet ponds should be designed to MSD standards. Please also reference the Maryland Manual. The minimum drainage area to a wet pond is 25 acres. Please refer to the Maryland Manual for information about safety and aquatic benches, pond buffer, non-clogging Low Flow Orifice, riser, pond drain, valves, and safety features. Wet pond evaporation is not considered volume reduction by MSD.

Two reports will need to be submitted during formal plan review. The Stormwater Management Facilities Report: Calculations should contain an executive summary, all calculations, MEP spreadsheets, and drainage area maps. An outline of what to include can be found at https://msdprojectclear.org/what-we-do/stormwater-management/bmp-toolbox/calculation-and-report-preparation-tools/stormwater-management-facilities-report/ . A separate report for the Operations and Maintenance Plan should also be submitted, including the maintenance plan, checklists, and information about reporting. A link for the outline of the Operations and Maintenance Plan can be found at the link above.

A BMP Drainage Area Map should be submitted with the formal plan submittal. See the attached document MSD BMP Drainage Area Map.docx. Any proposed BMPs are to be sized based on their tributary areas. Maintenance of any proposed BMPs will be the obligation of the property owner of the parcel the stormwater facilities are located on. The record property owner of the parcel containing the storm water controls will be required to execute a maintenance agreement with MSD, establish a reserve area for the stormwater facilities, and assume responsibility for their maintenance.

The engineer should carefully outline the drainage areas to the sewers affected by this development and be prepared to submit sewer capacity hydraulics with the formal submittal. It is recommended that the hydraulic capacities be run through any relocated/new sewers as well as any sewers to which the development is tributary. Those "in-place" hydraulics should extend a minimum of two reaches downstream of any proposed work. Further site storm water attenuation may be required should sewers not have sufficient capacity. There should be no deviation from the current service level as a result of this project.

A floodplain study is required since runoff will exceed a 60" pipe per previous conversations about the site. See 22INFOR-00209 for previous correspondence regarding the subject site. Please reference chapter 5 of MSD's *Rules and Regulations and Engineering Design Requirements for Sanitary Sewer and Stormwater Drainage Facilities, 2018* for general floodplain requirement criteria.

Sanitary

Existing sanitary laterals shall be identified on the plans. Any laterals being removed or abandoned shall be noted as such on the plans and shall comply with MSD standard specifications.

Please provide sanitary loading calculations for the existing and proposed conditions up to manhole 17M4-109S. If the system does not have capacity, sanitary mitigation may be required.

The conceptual plans did not indicate basement levels or relative sewer connection elevations. The requirement for strapped plumbing will be evaluated during formal review and may apply.

An exterior grease trap and sampling manhole will be required for any kitchens with three-compartment sinks. Each internal use should have its own dedicated sanitary lateral available for sampling (ie, kitchens, restrooms, etc.). A separate lateral shall be installed to service the restrooms and shall remain separate until the sampling manhole, after which the laterals can be a single lateral. Please refer to latest plumbing code for other requirements that may apply. Sanitary design shall be in compliance with section 3.030.09.11.

Details for any grease/oil separators should be included in the plan sheets during the formal review process. The plumbing drawings for the proposed buildings should be submitted during the formal plan review.

All covered parking space will require drainage to be routed through a sand/oil separator prior to the sanitary sampling apparatus. Access drives and ramps that are exposed to direct rainfall are to be routed separately to the storm sewer.

Other Issues

All known existing easements should be shown on the plan sheets with the plat book and page or deed book and page indicated with the easement. Proposed public sewers, if any, will need to be within an existing easement or a new easement must be granted for the public sewer. Easements are to be a minimum 10' wide and centered on the sewer. If easements are recorded with a subdivision plat, the required notes should be included. See document *MSD Standard Plan Notes.docx* attached to record 23CNCPB-00003 for more information.

A connection fee will be required based on the number and size of any new domestic water service taps. Existing water taps destroyed by this project or previously destroyed will factor in as a credit that will be applied towards the project's connection fee. Information from Missouri-American Water concerning the service may also be requested during the formal plan submittal. The credit available for tap destroys as well as new connection fees based on the proposed domestic services can be found at the following link. (https://msdprojectclear.org/doing-business/development-review/required-documents-checklists/connection-fees/)

Current MSD records do not indicate any known hazardous areas around the site. Other federal, state, and local authorities that have jurisdiction should be contacted to determine the presence of any hazardous material as MSD does not have jurisdiction and MSD's records may not be as accurate as the authority with jurisdiction.

Provide the MSD structure names that are shown on the attached MSD base map. If an MSD structure name does not exist for a structure, label the structure as "NO MSD ID". Provide diameters and materials of all existing pipe (e.g., brick sewer). Provide top and flowline elevation information for the existing structures. This information needs to be shown on the plans during formal plan review.

There are no surcharge or sub-district/recoupment fees associated with this site. This site is not within the Green Infrastructure program area.

Coordination should occur with the site and the Army Corps of Engineers. Work within MODOT right-of-way will require a letter of approval from MODOT stating that they are okay with the proposed work.

Detailed improvement plans for this project are not under formal review by the District currently. Those plans and the supporting engineering calculations shall be formally submitted to MSD for review, approval and permits prior to commencement of construction activities.

Unless otherwise indicated, any requirement mentioned in the conceptual review should be addressed during the formal plan review process. Conceptual review is normally done only once. Any new questions or other additional changes to the originally submitted plans should normally be resolved during the formal plan review.

These conceptual comments are based on the submitted preliminary plans and data and are provided as an initial guide. Understand that this conceptual review has been completed based upon the information available at the time. Note, if site and surrounding area conditions, weather conditions, as well as available information changes at any time in the future such changes could impact and/or change the comments made in this letter.

Conceptual review is subject to requirements of detailed review of final design plans and is subordinate to the review and approval of said final design plans. This project is not currently under review of final project plans.

Sincerely,

Sara Kammerer

Sara Kammerer
Assistant Engineer
MSD Engineering / Planning – Development Review

Cc: File – 23CNCPB-00003

Wetlands and Other Waters of the United States Delineation Report and Impact Summary

Olia Village Development Project
Creve Coeur, St. Louis County, Missouri

MARCH 22, 2023

REVISED MAY 10, 2023

REVISED June 7, 2023

PREPARED BY:

CRAWFORD, MURPHY & TILLY, INC.
ONE MEMORIAL DRIVE, SUITE 500
ST. LOUIS, MISSOURI 63102

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APPENDICES

Appendix A Project Mapping

Appendix B Site Plan and Cross-sections

Appendix C Wetland Delineation Data Forms

Appendix D Site Photographs

1.0 EXECUTIVE SUMMARY

This report has been prepared at the request of Jack Matthews Development. The purpose of this report is to document the surface water resources located within the project area for the Olia Village Development Project in Creve Coeur, St. Louis County, Missouri. Project mapping is provided in Appendix A.

The Clean Water Act defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils." Thus, in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and the Midwest Regional Supplement, for an area to be considered a wetland, it must meet all of the following criteria, under normal circumstances: wetland hydrology, a dominance of hydrophytic vegetation and hydric soils.

Two (2) federally jurisdictional wetlands that connect to a Traditional Navigable Water (TNW) downstream of the project area were identified in the project area. An additional two (2) wetlands in the project area were delineated and determined to be isolated wetlands based on a lack of connection to a TNW downstream and are likely not federally jurisdictional. These isolated features were created as a result of previous site development and have been designated as stormwater features for the purposes of this report. Two (2) additional constructed stormwater features were identified but not delineated. Two (2) streams, Dielmann Creek, and Monsanto-Sunswept Creek, are present in the project area. Federal jurisdiction was determined by USACE in connection to a previous project. Both streams have been previously disturbed by segmentation, placement of riprap, and encapsulation. As a result of stream disturbance on a previous project without a Section 404 permit in place, riparian restoration was required in two (2) areas. Riparian restoration areas will not be disturbed during construction.

Summary of Features

- 2 federally jurisdictional wetlands,
- 2 isolated wetlands designated as stormwater features,
- 2 constructed stormwater features, and
- 2 streams, each with an associated USACE regulated riparian restoration corridor.

2.0 METHODOLOGY

2.1 WETLANDS

The on-site evaluation of the project area was conducted during a site visit on February 15-16, 2023. When evaluating for the presence of wetlands, CMT personnel used the routine method presented in the 1987 Corps of Engineers Wetlands Delineation Manual and the Midwest Regional Supplement. In order for an area to be classified as a jurisdictional wetland, the area has to have a dominance of hydrophytic vegetation, hydric soils and wetland hydrology. The specific indicators used for each of the three parameters are noted in the following paragraphs. Routine Wetland Determination Data Forms were completed for both the wetland and upland data points and are provided in Appendix C.

2.1.1 HYDROPHYTIC VEGETATION

According to Tiner (2012), a hydrophyte is a vascular plant that grows in water or on a substrate that is saturated at a frequency and duration during the growing period sufficient to affect plant occurrence. Using this definition, the U.S. Army Corps of Engineers released the National Wetland Plant List. This list categorizes species according to their probability of occurrence in wetlands based on the ecological region. The list identifies five general plant indicator status categories:

- Obligate (OBL): almost always is a hydrophyte, rarely in uplands
- Facultative Wetland (FACW): Usually is a hydrophyte but occasionally found in uplands
- Facultative (FAC): Commonly occurs as either a hydrophyte or non-hydrophyte
- Facultative Upland (FACU): Occasionally is a hydrophyte but usually occurs in uplands
- Obligate Upland (UPL): Rarely is a hydrophyte, almost always in uplands

In order to satisfy the hydrophytic vegetation criteria required for a jurisdictional wetland, the area had to be dominated (over 50 percent) by obligate wetland plants, facultative wetland plants and facultative plants.

The method used during this survey for determining vegetation dominance was the 50/20 method. Using this method, plant species in each stratum are ranked according to their percent aerial cover and then cumulatively summed until 50 percent of the total dominance measure is exceeded. All species contributing to that cumulative total plus any additional species that have at least 20 percent of the total dominance measure are considered dominants in their respective stratum.

2.1.2 HYDRIC SOIL

Hydric soil is soil formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Hydric soil indicators included low chroma soil colors and depleted matrices.

2.1.3 WETLAND HYDROLOGY

Wetland hydrology is defined as an area that is inundated or saturated at or near the surface for at least five percent of the growing season in most years. This can include areas that are ponded, flooded or those areas that have a water table at or near the surface. Primary indications of wetland hydrology included surface water, saturation and groundwater. Indicators such as geomorphic position, the FAC neutral test and sparse vegetation were also used to indicate wetland hydrology.

2.1.4 WETLAND LOCATION

The wetland boundary was surveyed using a handheld GPS device with sub-foot accuracy. The wetland boundaries are found on maps in Appendix A.

2.2 STREAMS

Streams were evaluated for their jurisdictional status based on the definition of waters of the United States, which requires the presence of an ordinary high water mark (OHWM) and ultimate connection to downstream TNWs.

The following USACE definitions for the three streams types were used:

> **Ephemeral streams** have flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
>
> **Intermittent streams** have flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
>
> **Perennial Streams** have flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

The determination of stream designation is based on an evaluation of the size of the watershed for each stream, the presence of flow during the on-site evaluation and the evidence observed of the frequency of flow and the presence of aquatic life.

An evaluation of whether the stream flows continuously at least seasonally and is likely considered a Relatively Permanent Water (RPW) was also completed.

3.0 BACKGROUND INFORMATION

3.1 PROJECT DESCRIPTION

A mixed-use development will be constructed on a 95-acre site and consist of commercial, retail, office, recreational, and residential uses. A 1.5-mile-long walking path, a park, three (3) retention ponds, retaining walls, and surface and structured parking are also components of the project. The project area is shown in Figure 1 below.

FIGURE 1 – PROJECT AREA

3.2 PROJECT LOCATION

The project area is located in the southwest quadrant of Olive Boulevard/ MO340 and Lindbergh Avenue/ US67 in the City of Creve Coeur, St. Louis County, Missouri. The project area is the former West Bayer Campus development. Features include buildings, parking lots, paved roads, landscaped areas, and forested riparian corridors bordering two streams. The site is bordered by roads to the north and east, and residences to the west and south.

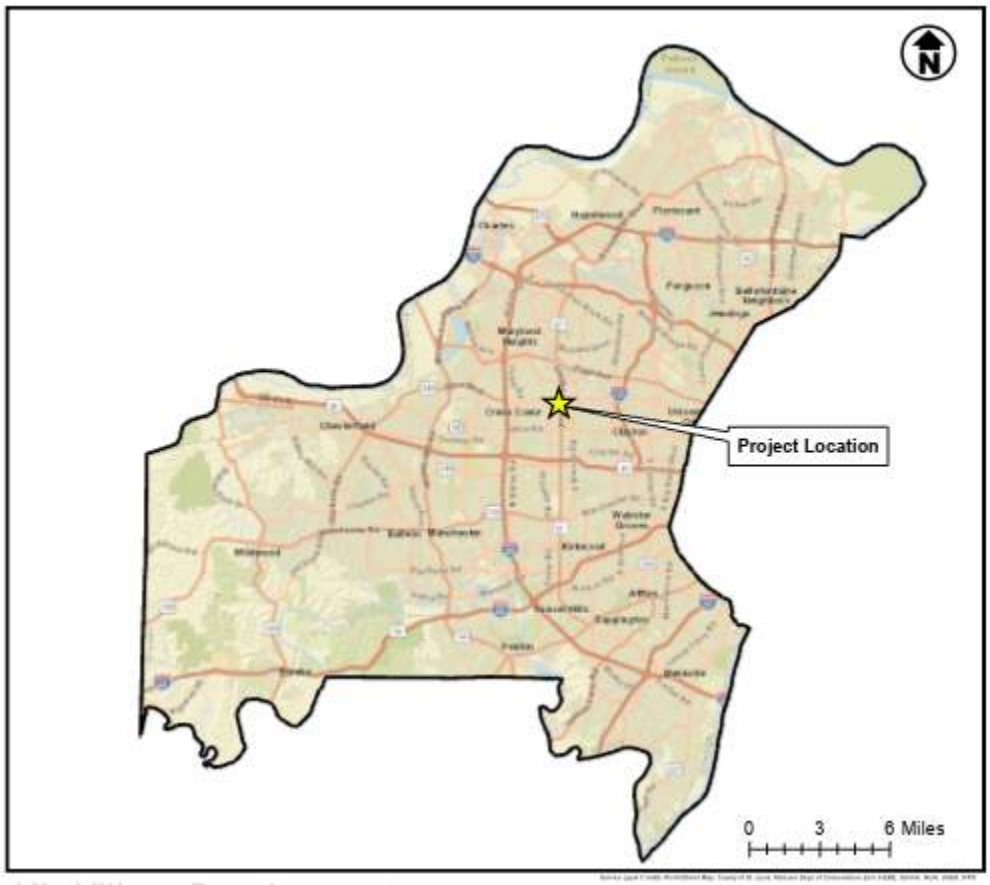


FIGURE 2 – COUNTY LOCATION MAP

3.3 HISTORICAL OR PUBLISHED INFORMATION

The major water course that travels through this region is the Mississippi River, located east of the project area. The project area is located within the headwaters of the Cahokia- Joachim watershed, within the 8-digit Hydrologic Unit Code (HUC) 07140101.

The Natural Resources Conservation Service (NRCS) St. Louis County Soil Survey indicates the following soils are dominant within the project area, several of which are indicated to be hydric:

- 60025 – Urban land-Harvester complex, 2 to 9 percent slopes, not hydric
- 60223 – Urban land-Harvester complex, 9 to 20 percent slopes, not hydric

The National Wetlands Inventory (NWI) map indicates two riverine features within the project area: Diehlmann Creek and Monsanto-Sunswept Creek.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) map indicates that the project area is partially located within FEMA Flood Zone A, which corresponds to the 1% annual chance of a flood with base flood elevations provided.

According to the Missouri 2018 303(d) Listed Waters web mapper, no impaired waters are identified in the project area or Deer Creek downstream of the project area.

Soil, NWI and floodplain mapping is provided in Appendix A.

4.0 RESULTS

Two (2) jurisdictional wetlands and two (2) streams were identified within the project area during the February 15-16, 2023 site visit. The Aquatic Resources Map provided in Appendix A depicts the location of these resources on an aerial photograph. Details on the soil, hydrology and dominant vegetation are provided on the Routine Wetland Determination Data Forms in Appendix C. Site photographs are provided in Appendix D.

4.1 WETLANDS

A total of two (2) jurisdictional wetlands were identified within the project area. A summary of these wetlands is provided in the table below.

WETLAND SUMMARY							
Wetland ID	Location	Connection to Downstream TNW	Preliminary USACE Jurisdictional Status	Wetland Type	MWMM		Acres
					Aquatic Resource	Existing Condition	
A	Northwest corner of the site	Adjacent to Dielmann Creek which ultimately flows to the Mississippi River.	Federally Jurisdictional a(4)	Scrub-Shrub	B	Fully Functional	0.1
B	Southcentral portion of the site	Adjacent to Monsanto-Sunswept Creek which ultimately flows to the Mississippi River.	Federally Jurisdictional a(4)	Emergent	B	Fully Functional	0.02

4.1.1 WETLAND A

Wetland A is a 0.1-acre scrub-shrub wetland located in the northwest corner of the project area. This wetland is adjacent to Deilmann Creek. Due to the predominance of hydrophytic vegetation, presence of hydric soils, and wetland hydrology, Wetland A meets the three wetland criteria.

4.1.2 WETLAND B

Wetland B is a 0.02-acre palustrine emergent wetland located east of the Monsanto-Sunswept Creek. Due to the predominance of hydrophytic vegetation, presence of hydric soils, and wetland hydrology, Wetland B meets the three wetland criteria.

4.2 STREAMS

A total of two (2) streams were identified within the project area. A summary of these streams is provided in the table below. Both are heavily segmented by culverts and underground piping and have channelized riprap sections. Monsanto-Sunswept Creek is divided into reaches on project mapping to more easily identify impacts and photographic documentation. US Geological Survey (USGS) Stream Stats software was used to delineate the drainage area. Aquatic Resources and USGS watershed maps are included in Appendix A.

Approximately half of Dielmann Creek within the project area was not delineated since it will not be disturbed during construction. Contours mapping the non-delineated portion of stream were obtained from site specific topographic survey data and used to draw the stream boundary. This portion is designated as a desktop delineation on project mapping.

As a result of stream disturbance on a previous project without a Section 404 permit in place, riparian restoration was required in one location on each stream in the southeast corner of the project area. Riparian restoration areas are shown on mapping in Appendix A and will not be disturbed during construction. Approximate boundaries were mapped based on the October 2022 Riparian Enhancement Completion Report supplied by USACE.

STREAM SUMMARY

Stream Name	Receiving Waters	Preliminary USACE Jurisdictional Status	Stream Type	Drainage Area[1] (Sq.Mile)	MSMM[2] Assessment		Linear Feet within Study Area
					Priority Waters	Existing Condition	
Dielmann Creek	Mississippi River	Federally Jurisdictional a(2)	Perennial	0.17	Tertiary Priority	Functionally Impaired	3,000
Monsanto-Sunswept Creek	Mississippi River	Federally Jurisdictional a(2)	Perennial	0.2	Tertiary Priority	Functionally Impaired	2,337

[1]As calculated by USGS Stream Stats at most downstream location within the project area
[2]MSMM - Missouri Stream Mitigation Method

4.3 OTHER SURFACE WATER RESOURCES

Four (4) features functioning as stormwater detention were identified. Features 1 and 2 were delineated as wetlands but do not drain to a TNW. They collect run-off from buildings and roadways and were created in conjunction with the development of the site. They are not known to connect to any other surface water and are likely not considered a jurisdictional water of the U.S. due to the lack of apparent hydrologic connectivity to known waters of the U.S. These isolated features have been designated as stormwater features for the purposes of this report.

Features 3 and 4 were constructed specifically for stormwater detention. Feature 3 was constructed in 2021 based on aerial photography, devoid of vegetation and has an outlet structure. Feature 4 has topographic contours indicative of a constructed detention basin and an outlet structure. Three (3) constructed concrete ditches and two (2) drainage features that did not meet the definition of a stream were also identified and are shown on the aquatic resources map. Features 3 and 4 were observed but not delineated in the field. Contours of the features were obtained from site specific topographic survey data and used to draw the boundaries.

SUMMARY OF STORMWATER FEATURES				
ID	Location	Preliminary JD Status	Type	Acres
1	NW quadrant of site	Non-jurisdictional b(1)	Isolated Wetland	0.09
2	Center of site	Non-jurisdictional b(1)	Isolated Wetland	0.004
3	Center of site	Non-jurisdictional b(10)	Constructed Basin	0.16
4	SW corner of site	Non-jurisdictional b(10)	Constructed Basin	0.08
Total				**0.33**

5.0 DELINEATION CONCLUSIONS

Two (2) federally jurisdictional wetlands that connect to a TNW downstream of the project area were identified in the project area. An additional two (2) wetlands in the project area were delineated and determined to be isolated wetlands based on a lack of connection to a TNW downstream, and are likely not federally jurisdictional. Two (2) additional constructed stormwater features were identified.

Two (2) streams, Dielmann Creek and Monsanto-Sunswept Creek, are present in the project area. Federal jurisdiction was determined by USACE in connection to a previous project. Both streams have been previously disturbed by segmentation, placement of riprap and encapsulation.

Summary of Features

- 2 federally jurisdictional wetlands,
- 2 isolated wetlands designated as stormwater features,
- 2 constructed stormwater features, and
- 2 streams, each with a USACE regulated riparian restoration corridor.

Wetlands and other surface water resources that are considered waters of the U.S. are subject to regulation under Section 404 of the Clean Water Act and the jurisdictional regulatory authority lies with the U.S. Army Corps of Engineers.

6.0 SURFACE WATER IMPACTS

Although surface water resource avoidance measures were employed throughout the development of alternatives, waters of the United States will be unavoidably affected. The project will permanently impact Wetland A, Dielmann Creek and Monsanto-Sunswept Creek. Fill will be used to significantly raise the current grade and allow construction of buildings and parking lots. This will result in soil fill of wetland A and of a portion of Dielmann Creek and Monsanto-Sunswept Creeks. Existing water flow will be encapsulated and re-routed. Plan and cross-section views of the impact areas are provided in Appendix B.

SUMMARY OF IMPACTS				
Resource	Acres	Linear Feet	Cubic Yards	Type of Impact
Dielmann Creek	0.01	590	NA	Earthen Fill
Monsanto-Sunswept Creek	0.07	325	NA	Earthen Fill
Wetland A	0.1	NA	160	Earthen Fill
Total Impact	**0.19**	**915**	**160**	

The Missouri Stream and Wetland Mitigation Methods were used to determine the amount of credits required for compensatory mitigation. Results are included in the worksheets below. A total of one (1) wetland credit and 3,563 stream credits are required as shown in the tables below.

ADVERSE IMPACT FACTORS WORKSHEET - DEBITS								
FACTORS								
Aquatic Resource Type	Type C		Type B		Type A			
	-1.0		2.0		3.0			
Priority Category	Tertiary		Secondary		Primary			
	0.5		1.5		2			
Existing Condition	Very Impaired		Impaired		Slightly Impaired		Fully Functional	
	-1.0		1.0		2.0		2.5	
Impact Duration	Temporary					Permanent		
	0.2					2.0		
Dominant Impact	Clear	Dredge	Drain	Impound	Fill			
	1.0	1.5	2.0	2.5	3.0			
Cumulative Impact	0.05							

WETLAND ADVERSE IMPACT FACTORS WORKSHEET	
Factor	Wetland A
Aquatic Resource Type	B
	2.0
Priority Category	Tertiary
	0.5
Existing Condition	Fully Functional
	2.5
Impact Duration	Permanent
	2.0
Dominant Impact	Fill
	3.0
Cumulative Impact	0.10
Sum of Factors (M)	10.1
Impacted Area (AA)	0.10
Credits = M x AA	1.01
Compensation Ratio	1:1

ADVERSE IMPACT FACTORS WORKSHEET										
FACTORS										
Stream Type Impacted	Ephemeral			Intermittent			Perennial			
	0.3			0.4			0.8			
Priority Waters	Tertiary			Secondary			Primary			
	0.1			0.4			0.8			
Existing Condition	Functionally Impaired			Moderately Functional			Fully Functional			
	0.1			0.8			1.6			
Impact Duration	Temporary					Permanent				
	0.5					0.3				
Impact Activity	Armor	Below Grade Culver	Clearing	Detention	Fill	Impoundment	Morphological Disturbanc	Pipe	Utility Crossing/Bridge Footin	
	0.5	0.3	0.05	0.75	2.5	2	1.5	2.2	0.15	
Linear Impact Calculation	0.0002 multiplied by linear feet of stream impact recorded in each column below									

STREAM ADVERSE IMPACT FACTORS WORKSHEET		
Factor	Dielmann Creek	Monsanto Sunswept Creek
Stream Type Impacted	Perennial	Perennial
	0.8	0.8
Priority Waters	Tertiary	Tertiary
	0.1	0.1
Existing Condition	Functionally Impaired	Functionally Impaired
	0.1	0.1
Impact Duration	Permanent	Permanent
	0.3	0.3
Impact Activity	Fill	Fill
	2.5	2.5
Linear Impact Calculation	0.118	0.05
Sum of Factors (M)	3.918	3.85
Linear Feet of Impact (LF)	590	325
Credits = M x LF	2311.62	1251.250
Compensation Ratio*	1:1	
TOTAL CREDITS REQUIRED	**3563**	

*Compensation ratio can be greater than 1:1 when outside of service area for bank or in-lieu fee program.

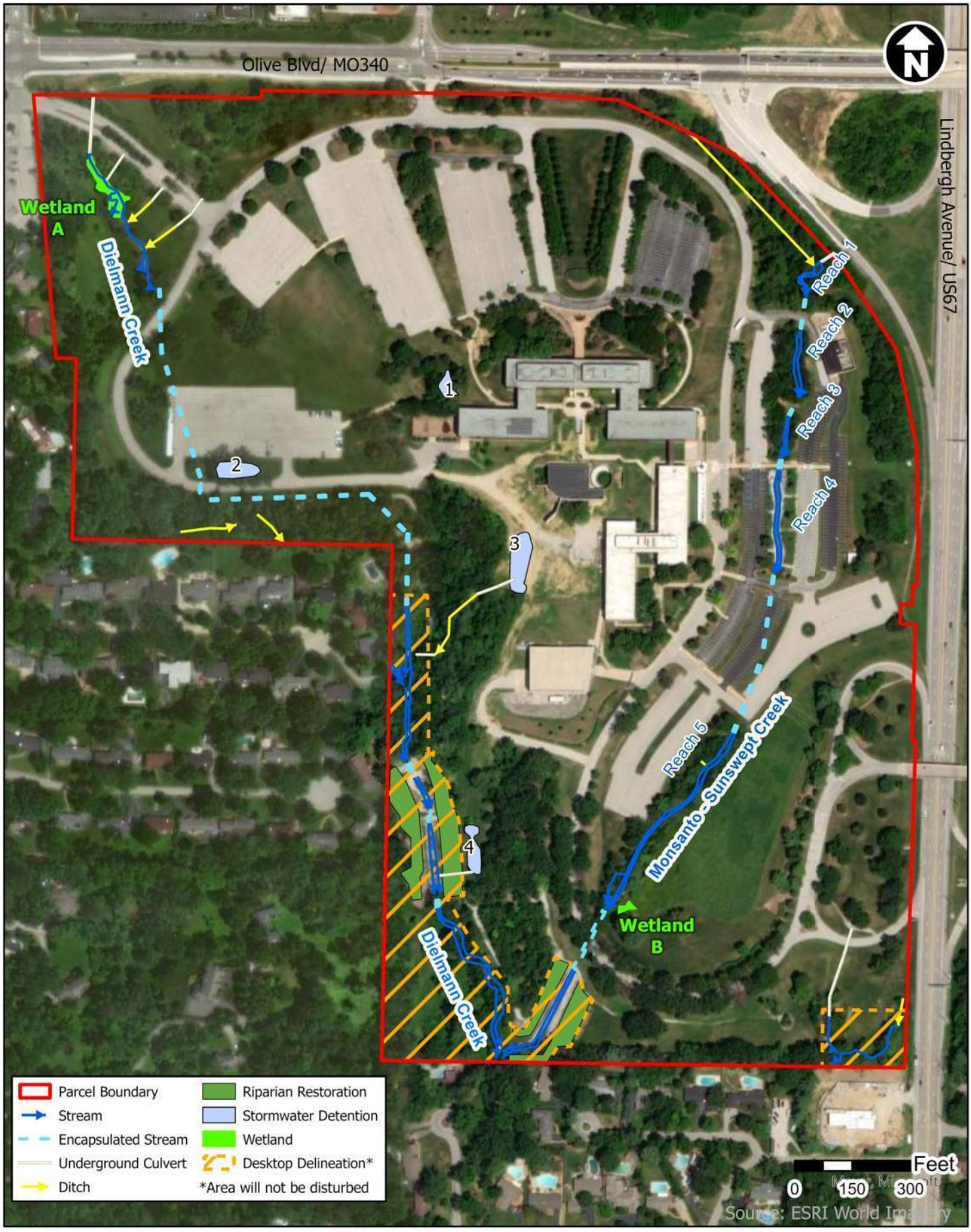
7.0 REFERENCES

The following references were consulted during the investigation:

- Brown, Lauren, Grasses an Identification Guide. Houghton Mifflin Company. New York, 1979.
- Brown, Lauren, 1997. Wildflowers and Winter Weeds. W.W. Norton and Company. New York.
- Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Biological Survey Program FWS/OBS-79/31.
- Knobel, Edward, Field Guide to the Grasses, Sedges and Rushes of the United States. Dover Publications, Inc. New York, 1977.
- Munsell Soil Color Charts. 1994 Revised Edition. Macbeth Division of Kollmorgen Instruments Corporation. New Windsor, New York.
- Natural Resources Conservation Service (NRCS) Soil Survey of St. Louis County. Issued September 2017. Data accessed March 2023 using the Web Soil Survey. Web Soil Survey - Home (usda.gov)
- Newcomb, Lawrence, Newcomb's Wildflower Guide. Little, Brown and Company, Boston, New York, Toronto, London, 1977.
- National Wetland List of Plant Species That Occur in Wetlands, Missouri. U.S. Fish and Wildlife Service, May 2016.
- Tiner, Ralph W. Defining Hydrophytes for Wetland Identification and Delineation ERDC/CRREL CR-12-1. January 2012.
- U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- United States Department of Agriculture (USDA), NRCS 1999. The PLANTS database (http://plants.usda.gov/plants). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- USGS Streams Stats Web Application. StreamStats | U.S. Geological Survey (usgs.gov). Accessed March 10, 2023.

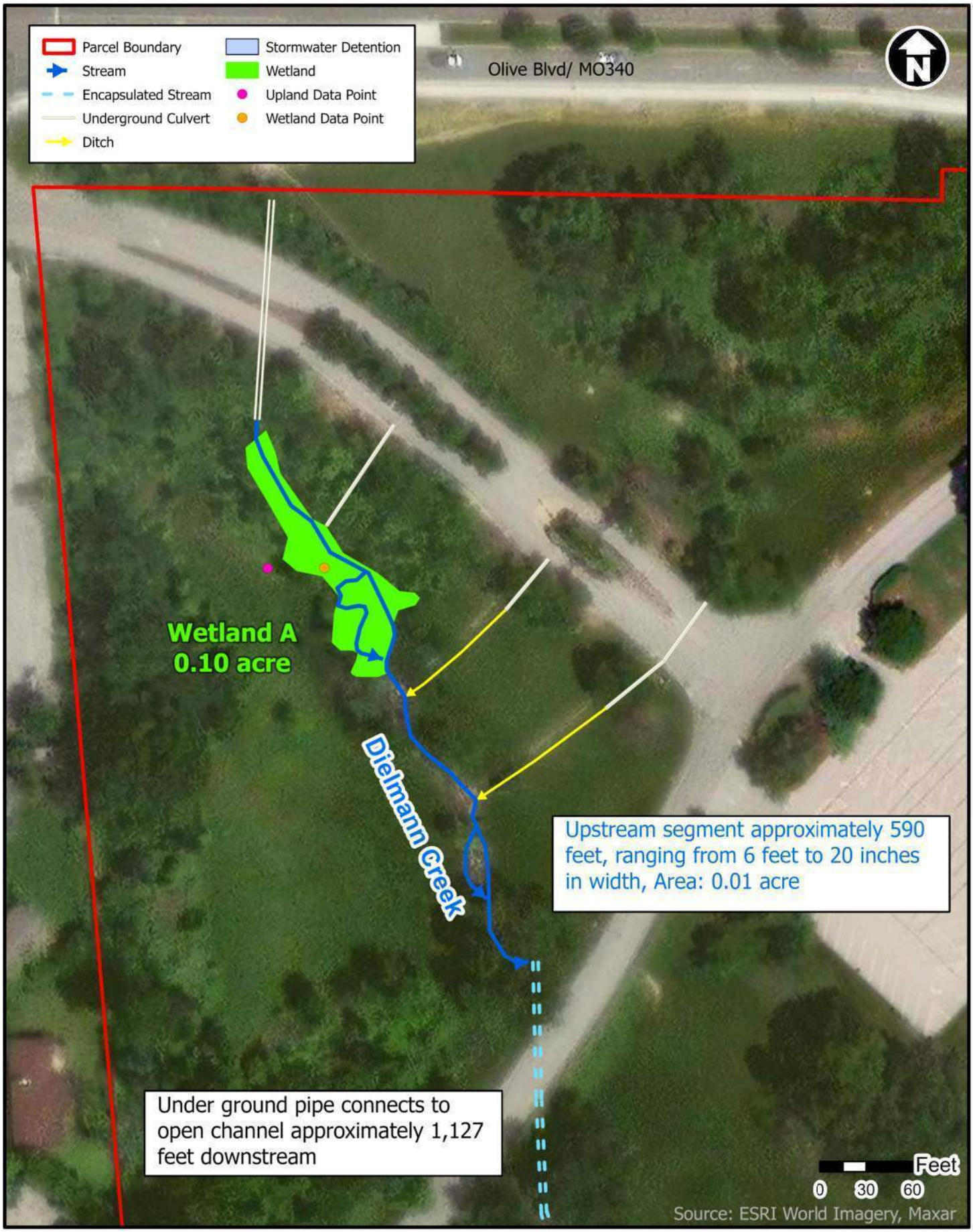
Olia Village Development Project

APPENDIX A: PROJECT MAPPING



Olia Village Development
Aquatic Resources

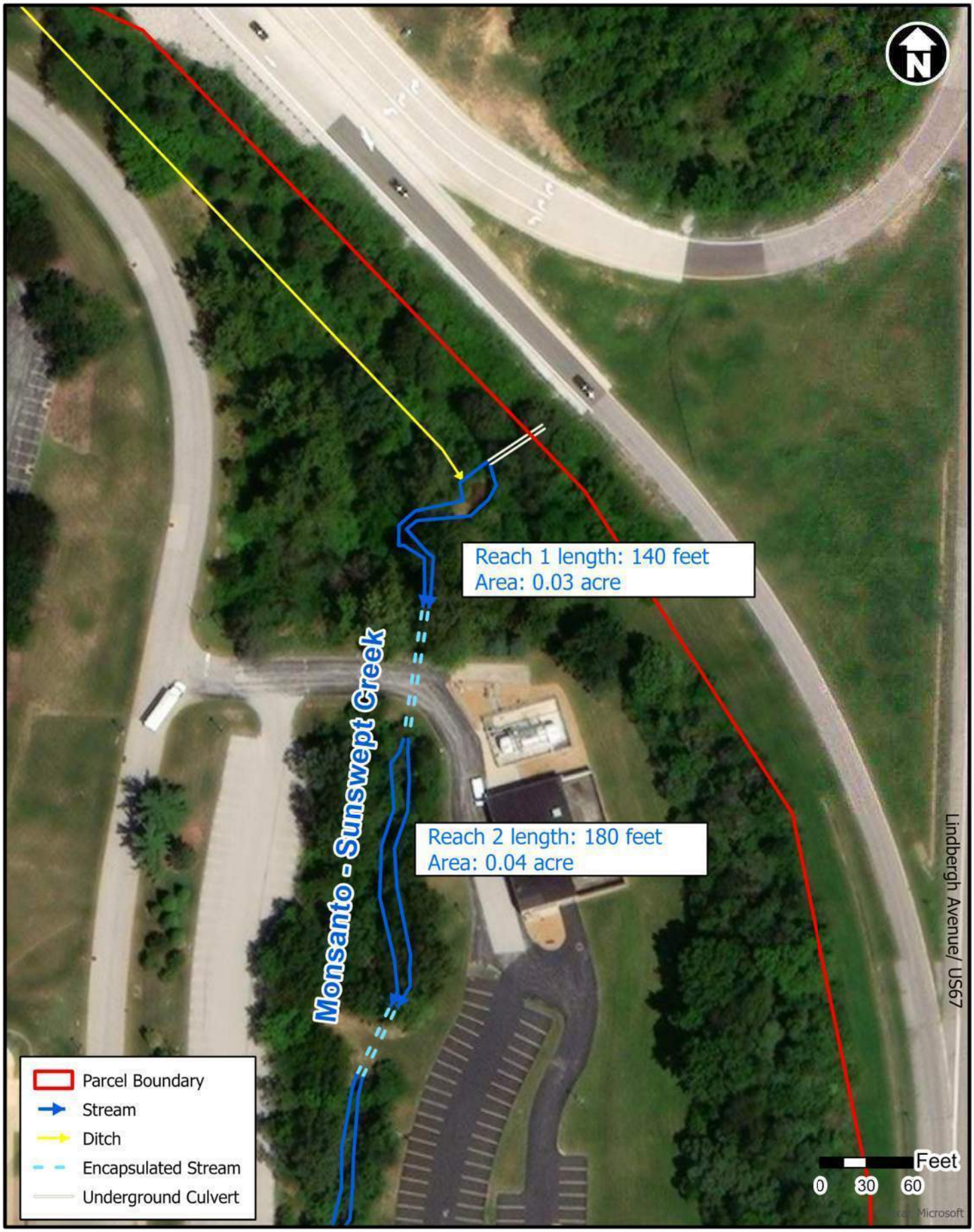
CMT
Crawford, Murphy & Tilly



Olia Village Development

Wetland A and Dielmann Creek

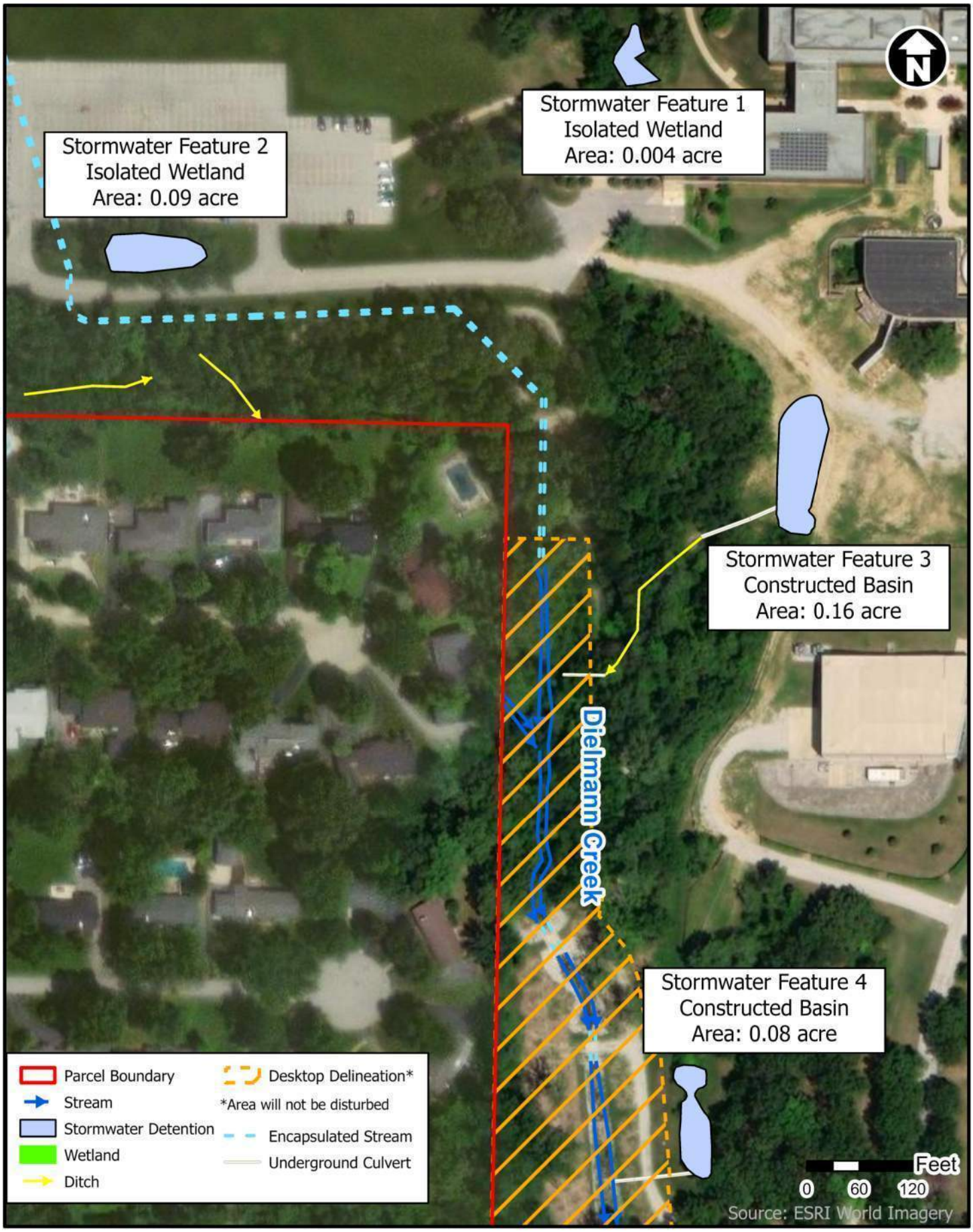
CMT
Crawford, Murphy & Tilly



Olia Village Development

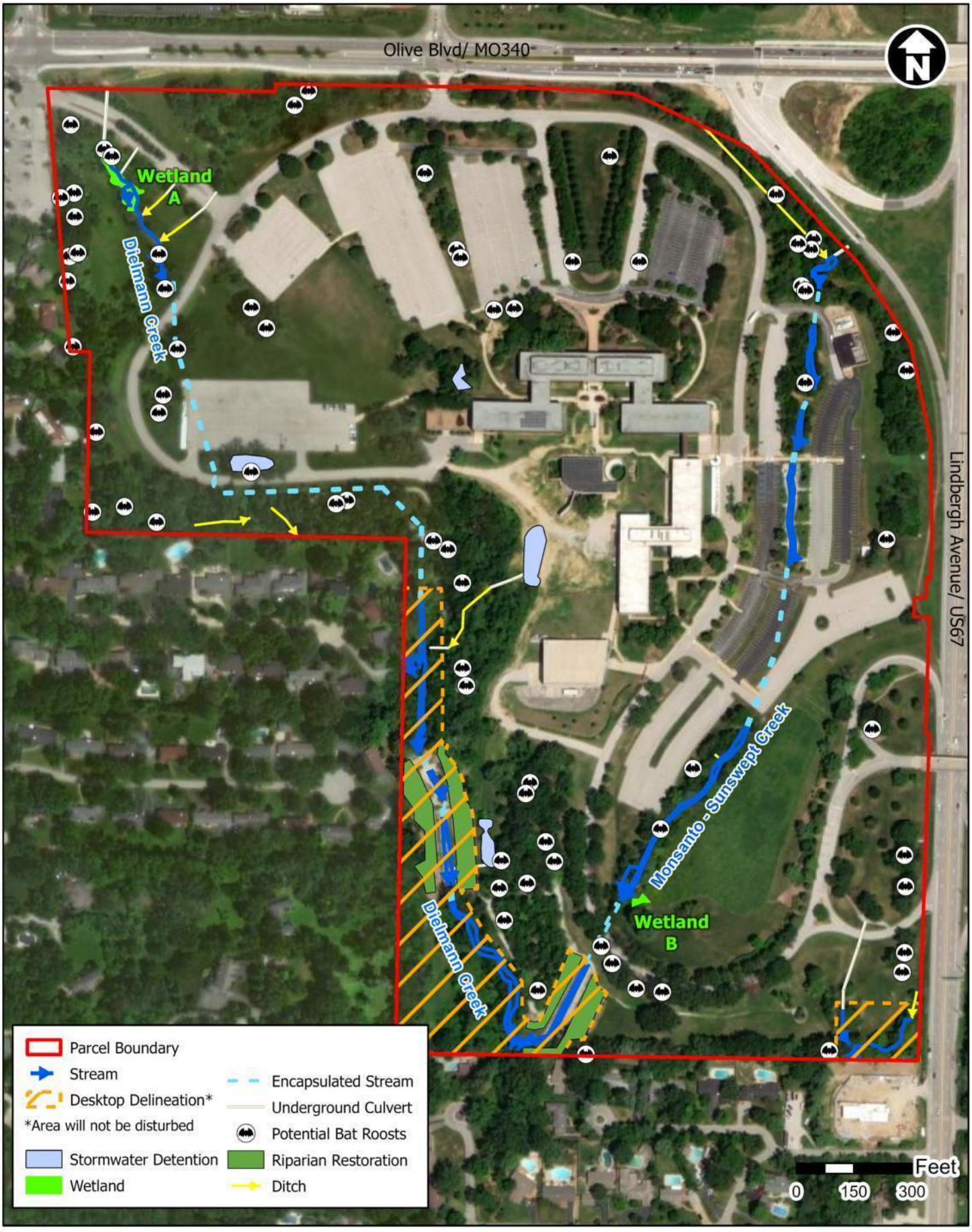
Monsanto-Sunswept Creek Impact Area

CMT
Crawford, Murphy & Tilly



Olia Village Development
Stormwater Features

CMT
Crawford, Murphy & Tilly

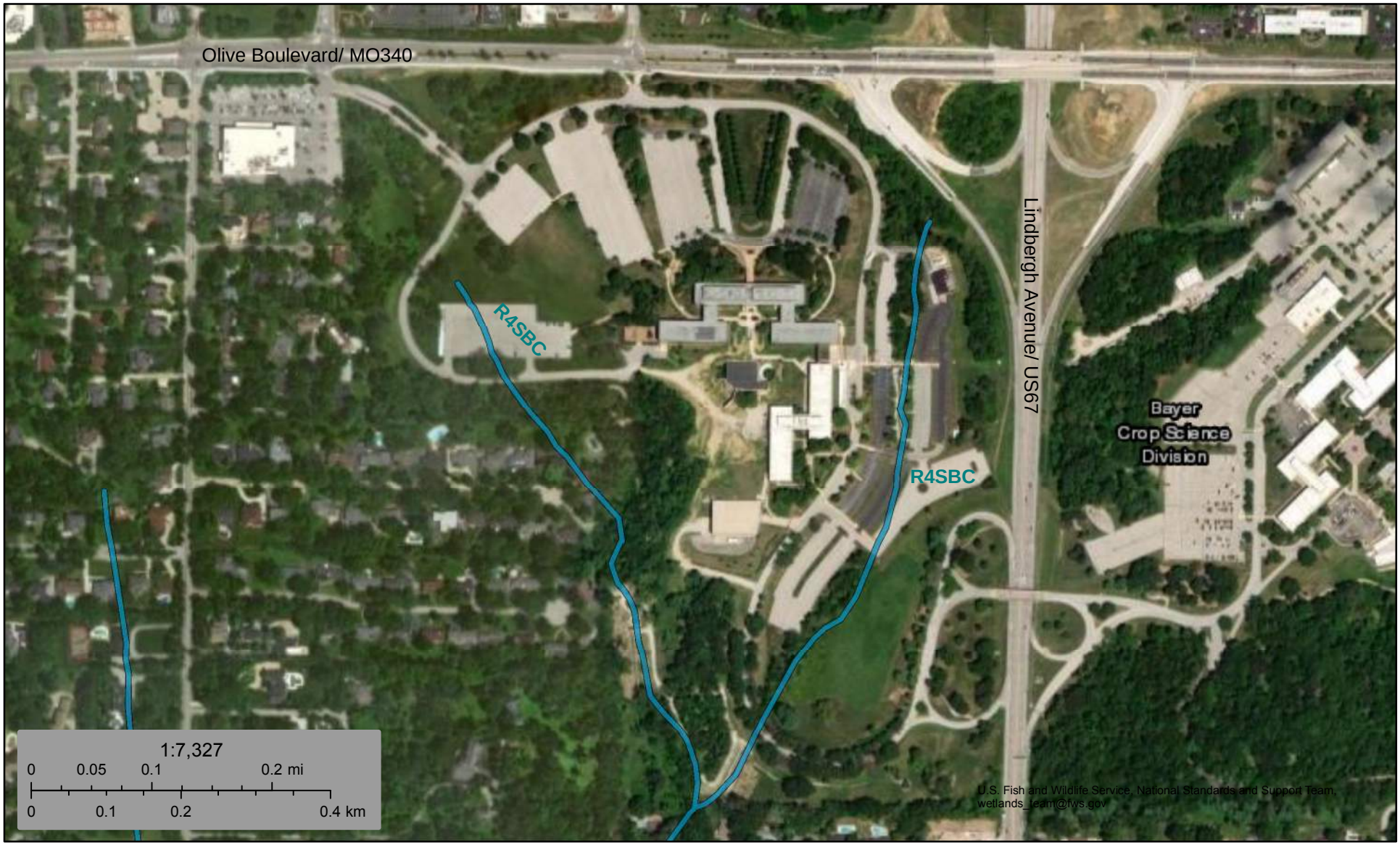


Olia Village Development
Combined Environmental Resources

CMT
Crawford, Murphy & Tilly

U.S. Fish and Wildlife Service
National Wetlands Inventory

Bayer West Campus/ Olia Development



March 22, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

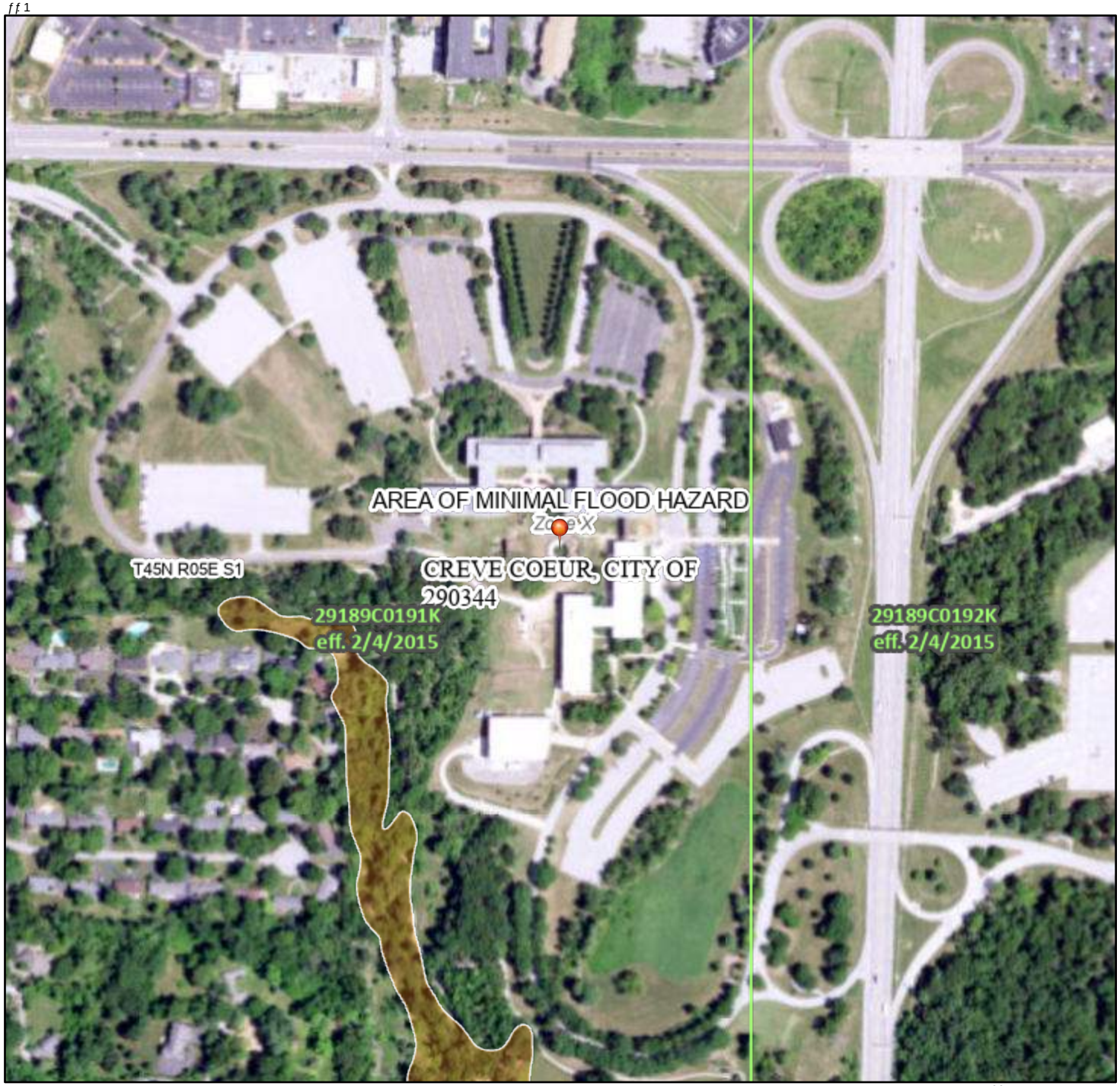
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

1DWLRQDO)ORRG+D]DUG/DHU)6WWH

FEMA

ff 1



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L:WKRXW %DVH)ORRG(OHYDWLRQ %()
=RQH$ 9 $
L:WK%(RUHBSWK =RQH$ $ 9 9($
5HGXFHG5LVNGXH WR/HYHH6\VWHP

$QQXDO &KDQFH)ORRG+D]DUG $UHDV
R DQQXDO FKDQFHIORRGZDWHUDH
GHSWKOHVV WKDQRQHIRRW RU ZLWK GUDLQDJH
DUHDV R OHVV WKDQ VTXDUH PLOH=RQH;

)XWXUH&RQGLWLRQV $QQXDO
&KDQFH)ORRG+D]DUG =RQH;
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(IIHFWLYH/LQH
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&KDQQHO &RQYH\DQFH RU6WRUP6HZHU
/HYHH'LNH RU)ORRGZDOO

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&RDVWDO7UDQVHFW
%DVH)ORRG(OHYDWLRQ/LQH %()
/LPLW R6WUXFW
-XULVGLFWLRQ%RXQGDU\
&RDVWDO7UDQVHFW%DVHOLQH
3URWHFWHG%DVHOLQH
+LJKUHVROXWLRQ)DWXUH

L'LWDO DWD$YDLODEOH
1R'LWDO DWD$YDLODEOH
8QPDSSHG

7KHSLQGLVSOD\HGRQWKHSLVDQDSSURSULDWH
SRQW VHOHFWHGEWKHXVHU DQGGRHVQRW UHSUHV
DQDWKRULWDWLYHSURSHUW\ORFDWLRQ

7KLVPSFRROLHVZLWKJVVWDQGDUGIRUWKHXHR
GL.LWDO IORRGPS/LI LW LVQRW YRLGV/GHVFULEHGEHORZ
7KHEDVHPHSVKRZFRROLHVZLWKJVEDVHPHS
DFFXUDWHWDQGDUG/

7KHIORRGKDUGLQRUPDWLQLVGHULYHGLUHFWO\IURPWKH
DWHUHXWDWLYH/HYHEVHUYLFHV SURYLGHGEJ 7KLVPS
ZVHSUWHGRQ DW 3 DQGGRHVQW
UHOHFW FKDQHVRU DQGRQWV VXEVHXHQW WRWKLVGDWHDQG
WLFH 7KHJHDQGHIHFWLYHLQRUPDWLQRQBFKDQHRU
EHFRPXSUVHGEQHZGDWDRYHU WLFH

7KLVPSLBHLVYRLGLI WKHRQHRU RUHR WKHIOORZLQJPS
HOHQWV GR QRW DSSHDU EDVHPSLBHU\ IORRGRQHOBEHOV
OHHQG VFDOHBEU PSFUHDWLRQGDWH FRQLW\LGHQWLILHUV
)5$DQG QXEU DQG)5$IIHFWLYHGDWH DSLBHV IRU
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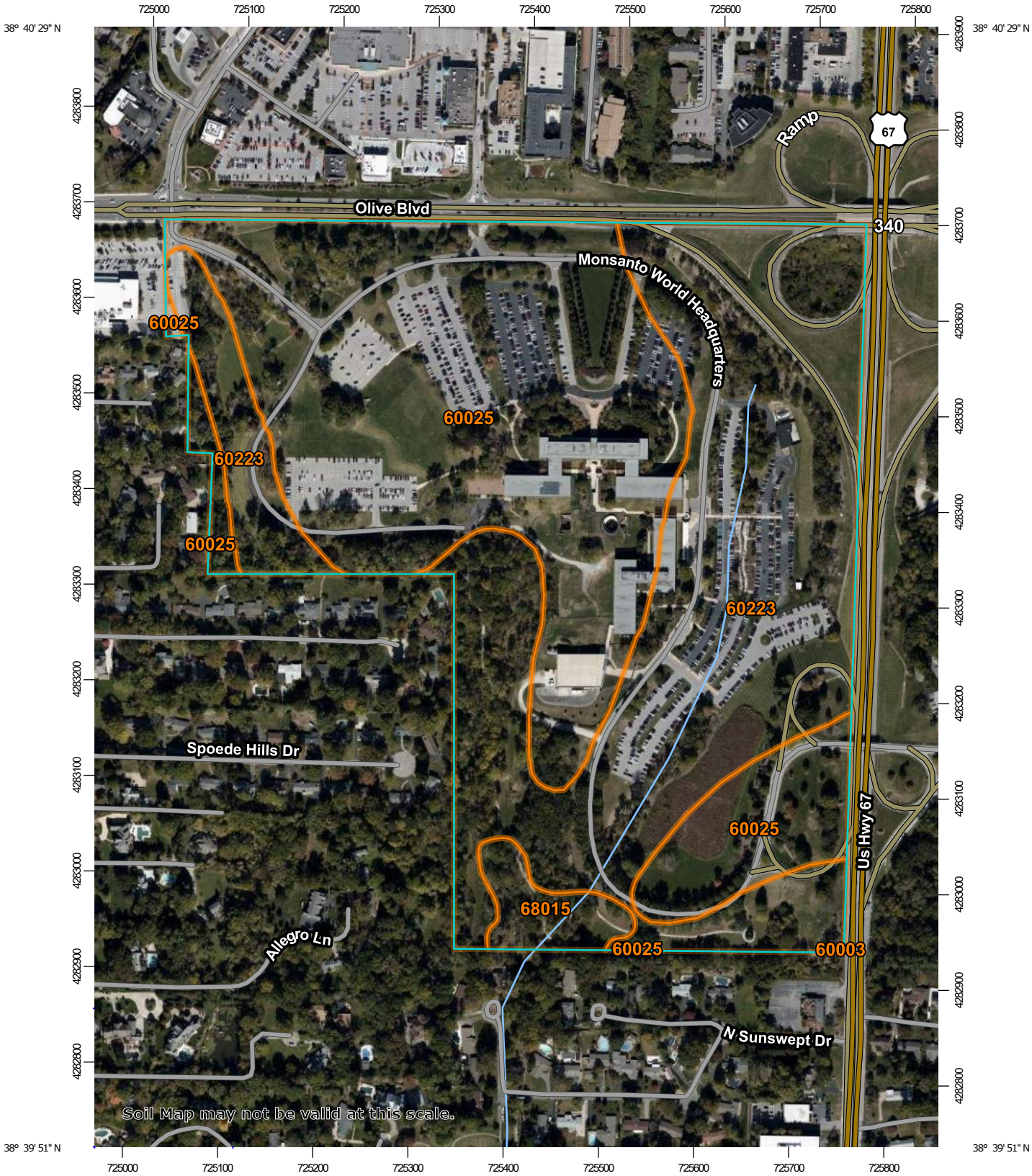
Soil Map—St. Louis County and St. Louis City, Missouri
(Bayer West Campus Development)



Map Scale: 1:5,710 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Louis County and St. Louis City, Missouri
Survey Area Data: Version 23, Sep 7, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 17, 2018—Oct 24, 2018

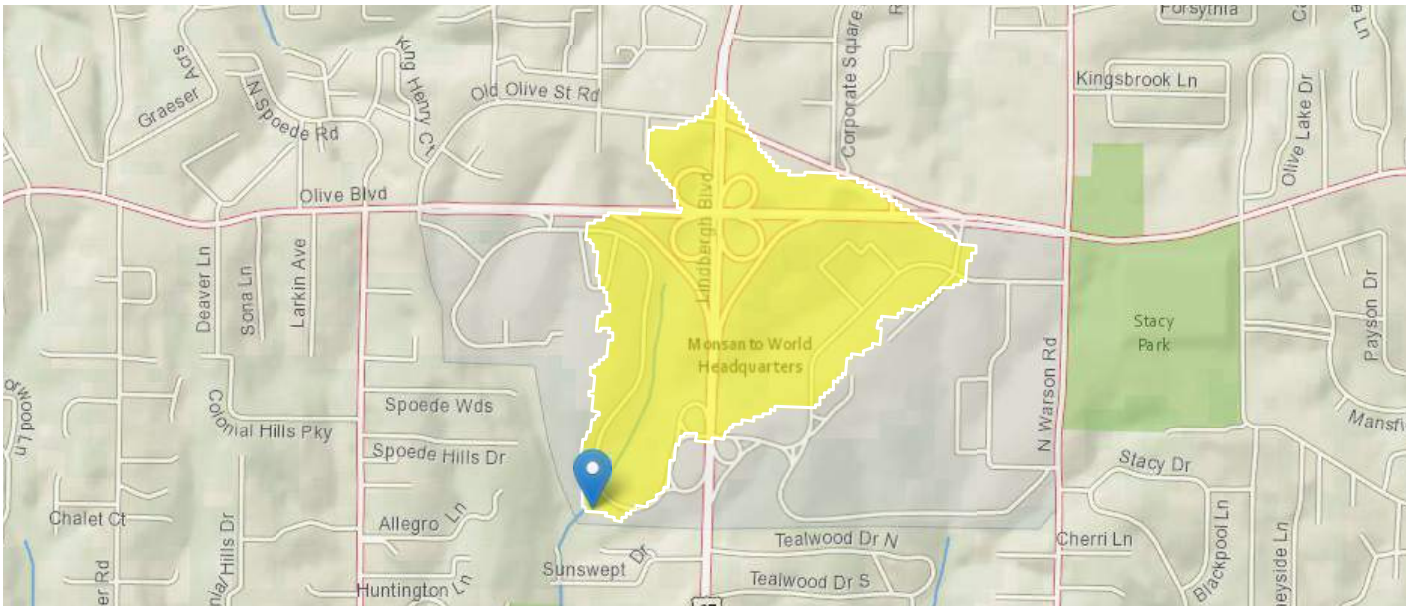
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60003	Menfro silt loam, 9 to 14 percent slopes, eroded	0.0	0.0%
60025	Urban land-Harvester complex, 2 to 9 percent slopes	51.3	48.8%
60223	Urban land-Harvester complex, 9 to 20 percent slopes	51.1	48.6%
68015	Fishpot-Urban land-Freeburg complex, 0 to 3 percent slopes	2.7	2.5%
Totals for Area of Interest		**105.2**	**100.0%**

Monsanto-Sunswept Creek

Region ID: MO
Workspace ID: MO20230310211240176000
Clicked Point (Latitude, Longitude): 38.66655, -90.40840
Time: 2023-03-10 15:12:32 -0600



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSHAPE	Basin Shape Factor for Area	2.66	dimensionless
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	165	feet per mi
DRNAREA	Area that drains to a point on a stream	0.2	square miles
IMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	47.1	percent
LFPLENGTH	Length of longest flow path	0.73	miles
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0	percent
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.72	dimensionless

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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Dielmann Creek

Region ID: MO
Workspace ID: MO20230310211632648000
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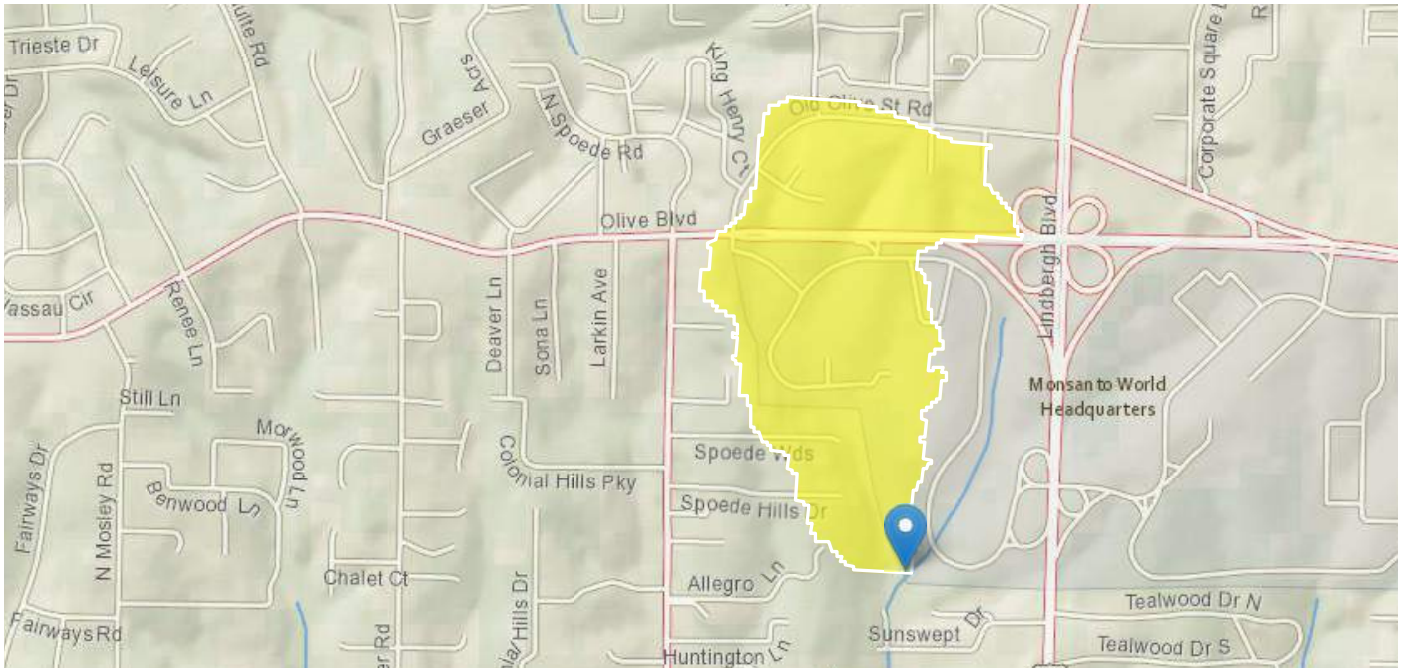
Time: 2023-03-10 15:16:23 -0600



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSHAPE	Basin Shape Factor for Area	4.45	dimensionless
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	134	feet per mi
DRNAREA	Area that drains to a point on a stream	0.17	square miles
IMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	40.5	percent
LFPLENGTH	Length of longest flow path	0.86	miles
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0	percent
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.72	dimensionless

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.13.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Olia Village Development Project

APPENDIX B: PLANS AND CROSS-SECTIONS

OLIA VILLAGE

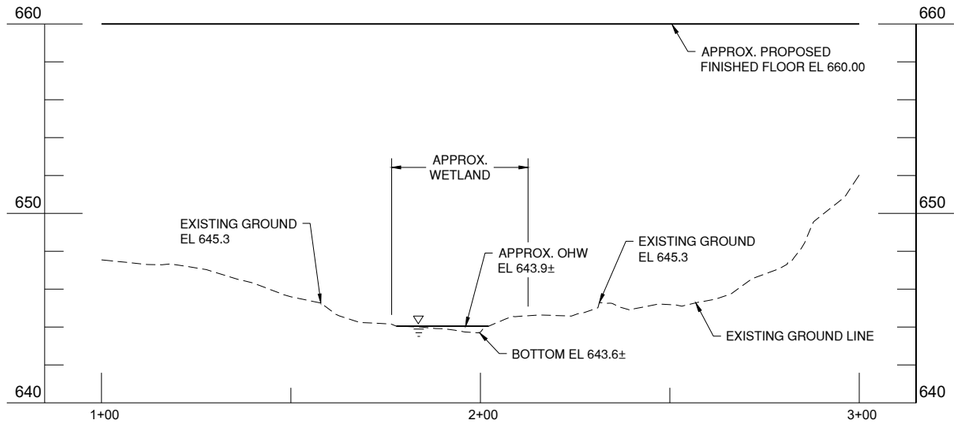
THE HEART OF CREVE COEUR

A NEW MIXED-USE MASTER PLAN

10300 Olive Boulevard, Creve Coeur, MO

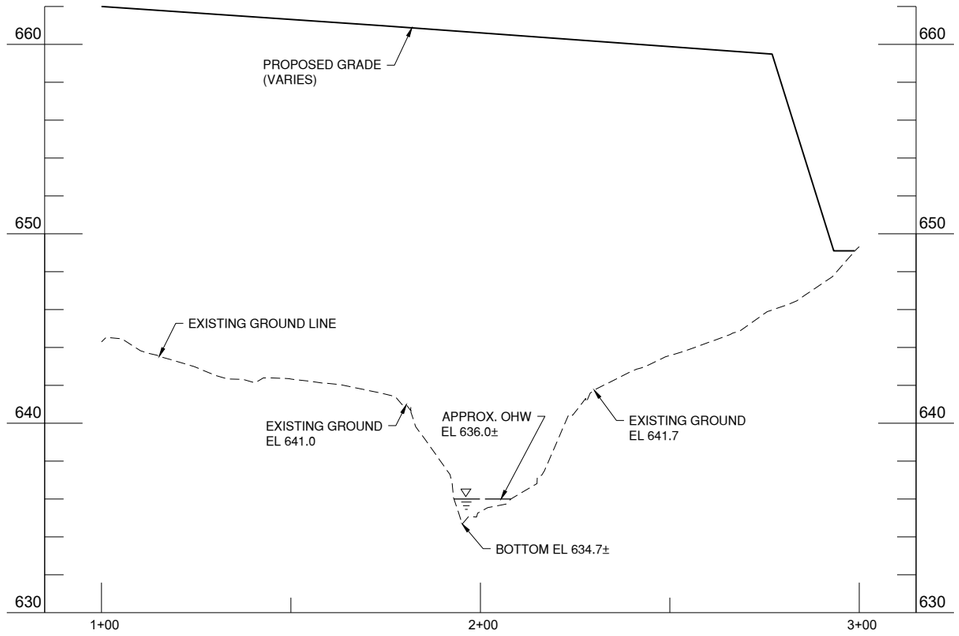
MASTER PLAN	22478.00	03.09.2023

JACK MATTHEWS DEVELOPMENT · FIRESIDE FINANCIAL · gray



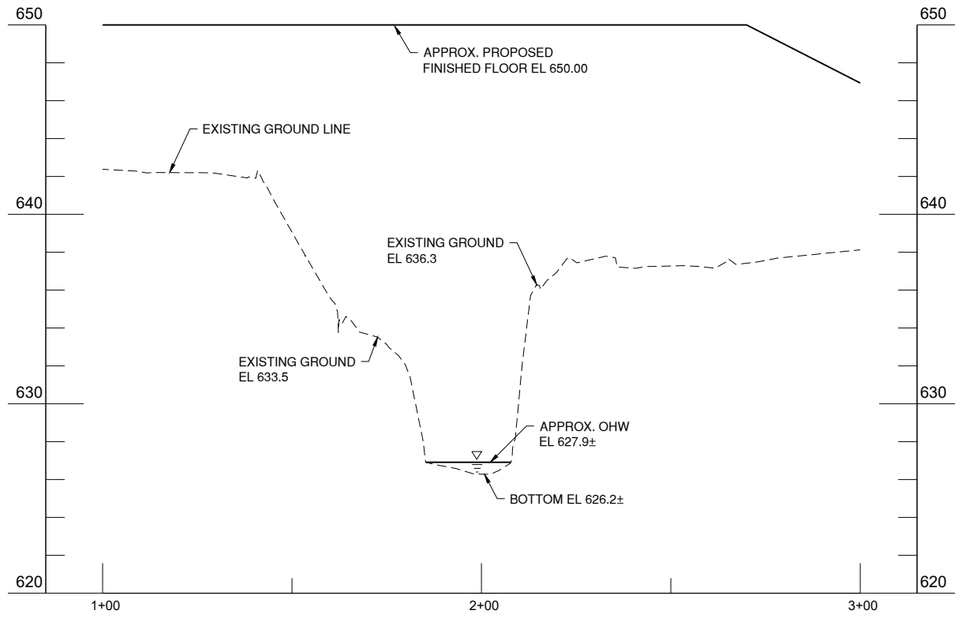
A CROSS SECTION A-A
N.T.S.

Dielmann Creek and Wetland A



B CROSS SECTION B-B
N.T.S.

Monsanto-Sunswept Creek



C CROSS SECTION C-C
N.T.S.

Monsanto-Sunswept Creek

FILE: M:\JACK\MATTHEWS\DEV\23005201-00_BAYERSITEDESIGN\DRAW\EXHIBIT\USCOE_STREAMEXHIBIT-STREAMXS.DWG

Olia Village Development Project

APPENDIX C: DATA FORMS

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Bayer West Campus/ Olia Village | City/County: Creve Coeur | Sampling Date: 3/15/23
Applicant/Owner: Jack Matthews Development | State: MO | Sampling Point: Wet A
Investigator(s): AMZ | Section, Township, Range: S1 T45N R5E
Landform (hillside, terrace, etc.): Floodplain | Local relief (concave, convex, none): Concave
Slope (%): 0 | Lat: 38.67232 | Long: -90.412549 | Datum: NAD 83 MO East
Soil Map Unit Name: Urban land harvester complex, 2- 9 percent slope | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Wetland A surrounds Dielmann Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	20	Yes	FACW
2. *Acer saccharinum*	10	Yes	FACW
3. *Populus deltoides*	5	No	FAC
4.			
5.			
	35	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix interior*	10	Yes	FACW
2. *Lonicera maackii*	3	Yes	UPL
3.			
4.			
5.			
	13	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	40	Yes	FAC
2. *Carex sp.*	20	Yes	
3. *Solidago canadensis*	10	No	FACU
4. *Typha X glauca*	5	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
	75	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1. *Toxicodendron radicans*	1	No	FAC
2. *Vitus riparia*	1	No	FACW
	2	=Total Cover	

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	41	x 2 =	82
FAC species	46	x 3 =	138
FACU species	10	x 4 =	40
UPL species	3	x 5 =	15
Column Totals:	105 (A)		280 (B)
Prevalence Index = B/A =			2.67

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Wet A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	98	10YR 4/6	2	C	PL/M	Loamy/Clayey	Prominent redox concentrations
4-18	10YR 3/2	30	10YR 4/6	50	C	M	Loamy/Clayey	Prominent redox concentrations
			10YR 5/2	50	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Bayer West Campus/ Olia Development City/County: Creve Coeur Sampling Date: 3/15/23

Applicant/Owner: Jack Matthews Development State: MO Sampling Point: Upl A

Investigator(s): AMZ Section, Township, Range: S1 T45N R5E

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 38.672319 Long: -90.412678 Datum: NAD 83 MO East

Soil Map Unit Name: Urban land harvester complex, 2- 9 percent slope NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera maackii*	5	Yes	UPL
2.			
3.			
4.			
5.			
	5 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Schizachyrium scoparium*	88	Yes	FACU
2. *Solidago canadensis*	10	No	FACU
3. *Panicum*	2	No	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1. *Vitus riparia*	1	No	FACW
2.			
	1 =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	98	x 4 =	392
UPL species	5	x 5 =	25
Column Totals:	104 (A)		419 (B)

Prevalence Index = B/A = 4.03

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upl A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Loamy/Clayey	
3-18	10YR 4/2	80	10YR 5/6	20	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 13

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bayer West Campus/ Olia Village City/County: St Louis Sampling Date: 3/16/23

Applicant/Owner: Jack Matthews Development State: MO Sampling Point: Wet B

Investigator(s): MKO/ AMZ Section, Township, Range: S1 T45N R5E

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 38.667237 Long: -90.407866 Datum: NAD 83 MO East

Soil Map Unit Name: Urban land harvester complex, 9- 20 percent slope NWI or WWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✗ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✗ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✗ No _____	**Is the Sampled Area within a Wetland?** Yes ✗ No _____
Hydric Soil Present?	Yes ✗ No _____	
Wetland Hydrology Present?	Yes ✗ No _____	

Remarks:

Wetland B is approximately 15 feet east of Monsanto- Sunswept Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.		Y	
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Panicum virgatum*	30	Y	FAC
2. *Bidens fondrosa*	10	Y	FACW
3. *Prunella vulgaris*	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		140 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

✗ Dominance Test is >50%

✗ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✗ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Wet B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	95	10YR 5/4	5	C	M	Silty clay	
8+	10YR 4/2	70	7.5YR 5/8	20	C	M	Clay	
			10YR 5/4	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ✗ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✗ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✗ High Water Table (A2)
- ✗ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ✗ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✗ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✗ Depth (inches): ___

Water Table Present? Yes ✗ No ___ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ✗ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✗ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Some of the saturation may have been due to rain within 8 hours of delineation.

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bayer West Campus/ Olia Village City/County: St Louis Sampling Date: 3/16/23

Applicant/Owner: Jack Matthews Development State: MO Sampling Point: Upl B

Investigator(s): MKO/ AMZ Section, Township, Range: S1 T45N R5E

Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): convex

Slope (%): 2 Lat: 38.667214 Long: -90.407761 Datum: NAD 83 MO East

Soil Map Unit Name: Urban land harvester complex, 9- 20 percent slope NWI or WWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✗ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✗ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✗	**Is the Sampled Area within a Wetland?** Yes _____ No ✗
Hydric Soil Present?	Yes _____	No ✗	
Wetland Hydrology Present?	Yes _____	No ✗	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Echinacea sp.*	80	Y	UPL
2. *Paniucm sp.*	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	80	x 5 =	400
Column Totals:	90 (A)		430 (B)

Prevalence Index = B/A = 4.78

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✗

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upl B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Silty clay	
4-18	10YR 5/4	90	7.5YR 5/8	10	C	M	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No ✗

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✗ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✗ Depth (inches): _____
Water Table Present? Yes _____ No ✗ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ✗ No _____ Depth (inches): _____ 4 _____

Wetland Hydrology Present? Yes _____ No ✗

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The top 4 inches of soil was saturated but the lack of concentrations in the top 4 inches of soil and the fact that no water table was found beneath indicate that the saturation was due to rain within 8 hours prior to delineation.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Olia Village Development | City/County: St. Louis | Sampling Date: 2/15/23
Applicant/Owner: Jack Matthews Development | State: MO | Sampling Point: Wet Iso 1
Investigator(s): MKO/ MEW | Section, Township, Range: S1 T45N R5E
Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave
Slope (%): 0 | Lat: 38.670938 | Long: -90.409463 | Datum: NAD 83 MO East
Soil Map Unit Name: Urban land harvester complex, 2-9 percent slope | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil x, or Hydrology x significantly disturbed? Are "Normal Circumstances" present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Depression near buildings that was created due to construction of existing site. This area collects stormwater runoff from infrastructure.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	40	Yes	FAC
2. *Quercus phellos*	20	Yes	FACW
3.			
4.			
5.			
	60	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex sp.*	40	Yes	
2. *Symphyotrichum lanceolatum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		220 (B)
Prevalence Index = B/A =			2.75

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
Herb stratum more sparsely vegetated outside sample point. Cover was difficult to determine due to seasonal conditions.

SOIL

Sampling Point: Wet Iso 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	84	10YR 5/8	6	C	M	Loamy/Clayey	Prominent redox concentrations
7-15	10YR 5/6	75	10YR 4/3	25	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Native soils excavated or disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Local runoff from infrastructure outlets to this area.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Olia Village Development City/County: St. Louis Sampling Date: 2/15/23

Applicant/Owner: Jack Matthews Development State: MO Sampling Point: Upl Iso 1

Investigator(s): MKO/ MEW Section, Township, Range: S1 T45N R5E

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 38.671010 Long: -90.409463 Datum: NAD 83 MO East

Soil Map Unit Name: Urban land harvester complex, 2-9 percent slope NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Festuca rubra*	40	Yes	FACU
2. *Carex sp.*	20	Yes	
3. *Solidago canadensis*	10	No	FACU
4. *Symphyotrichum lateriflorum*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	60 (A)		220 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upl Iso 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/2	100						
7-18	10YR 4/3	90	10YR 4/6	10	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No 0 Depth (inches): ___

Water Table Present? Yes ___ No 0 Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No 0 Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Olia Village Development City/County: St. Louis Sampling Date: 2/15/23
Applicant/Owner: Jack Matthews Development State: MO Sampling Point: Wet Iso 2
Investigator(s): MKO/ MEW Section, Township, Range: S1 T45N R5E
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0 Lat: 38.670304 Long: -90.411415 Datum: NAD MO East
Soil Map Unit Name: Urban land harvester complex, 2-9 percent slope NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
This depression is between the road and parking lot.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	40	Yes	FAC
2. *Ulmus americana*	25	Yes	FACW
3.			
4.			
5.			
	65	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
		=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	65 (A)		170 (B)

Prevalence Index = B/A = 2.62

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Wet Iso 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	98	10YR 5/8	2	C	M	Loamy/Clayey	Prominent redox concentrations
7-15	10YR 4/4	70	10YR 4/6	30	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This depression is 2-3 feet deep. No herbs or shrubs are present. Native material was likely removed and replaced with fill during construction of the existing development.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___

Water Table Present? Yes ___ No x Depth (inches): ___

Saturation Present? Yes ___ No x Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Olia Village Development City/County: St. Louis Sampling Date: 2/15/23
Applicant/Owner: Jack Matthews Development State: MO Sampling Point: Upl Iso 2
Investigator(s): MKO/ MEW Section, Township, Range: S1 T45N R5E
Landform (hillside, terrace, etc.): Roadside Local relief (concave, convex, none): None
Slope (%): 0 Lat: 38.670263 Long: -90.411408 Datum: NAD 83 MO East
Soil Map Unit Name: Urban land harvester complex, 2-9 percent slope NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	15	Yes	FAC
2. *Ulmus americana*	15	Yes	FACW
3.			
4.			
5.			
	30	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	80	Yes	FAC
2. *Festuca rubra*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	95	x 3 =	285
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	130 (A)		395 (B)
Prevalence Index = B/A =			3.04

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Trees from the adjacent wetland overhang the upland data point. The prevalence index indicating nonwetland is considered accurate.

SOIL

Sampling Point: Upl Iso 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/1	100						
10-18	10YR 5/6	80	10YR 4/3	20	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No 0 Depth (inches): ___

Water Table Present? Yes ___ No 0 Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No 0 Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Olia Village Development Project

APPENDIX D: SITE PHOTOGRAPHS

1. View northwest of Wetland A.

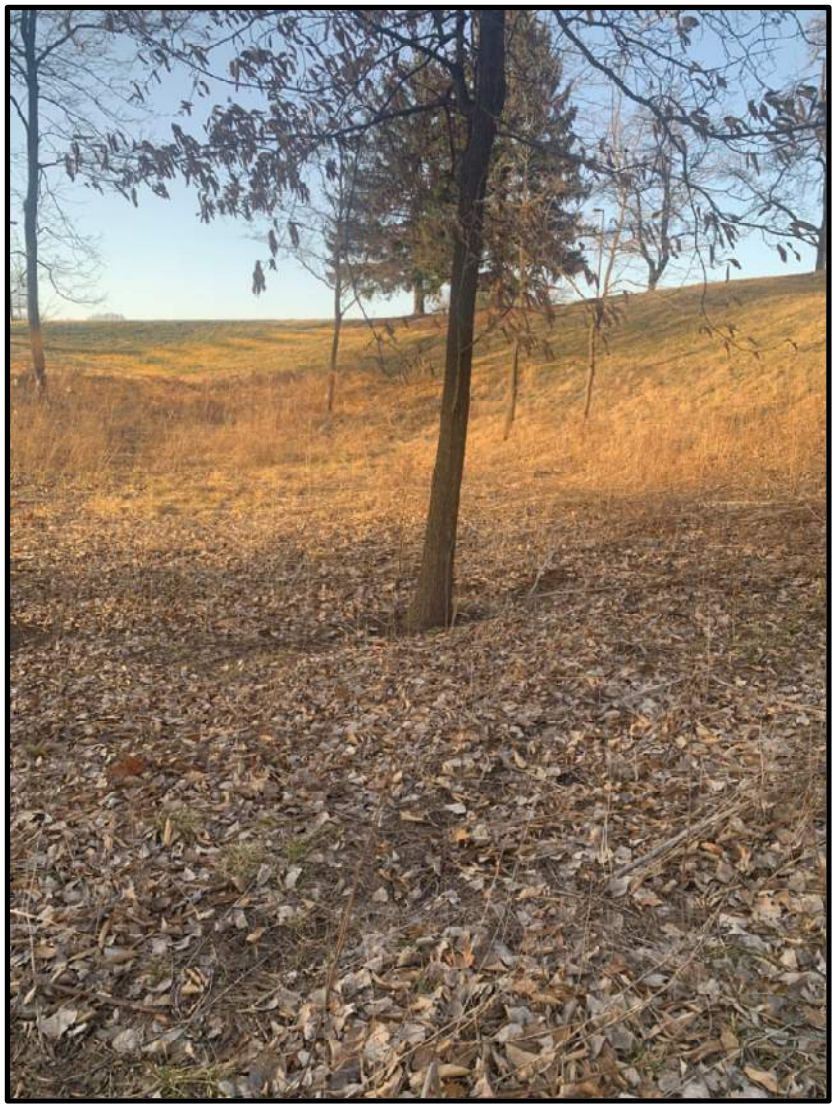
2. View southeast of Wetland A.

3. View southeast of Wetland A and Dielmann Creek.

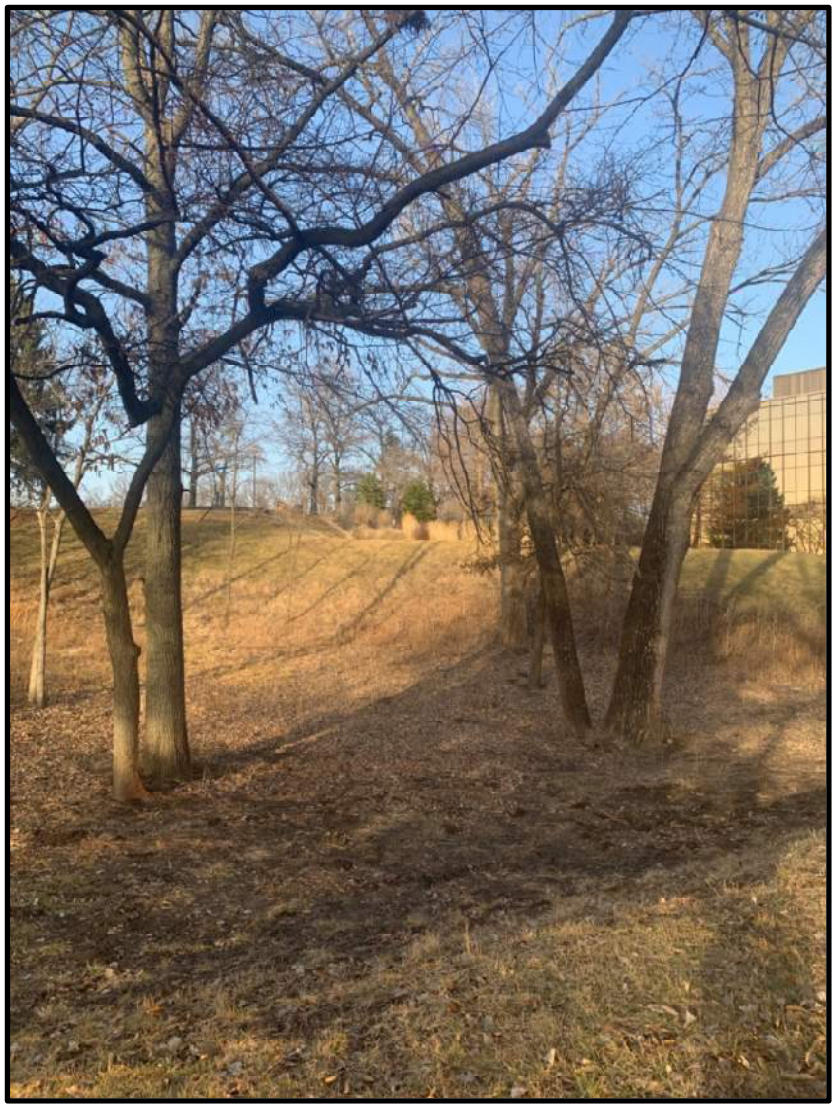
4. View southeast of Dielmann Creek, looking downstream from northern culvert.

5. View southwest of Dielmann Creek, looking downstream.

6. View northwest of Dielmann Creek, looking upstream.



7. View north of Stormwater Feature 1- Isolated Wetland.



8. View northeast of Stormwater Feature 1- Isolated Wetland.

9. View northeast of Stormwater Feature 2- Isolated Wetland.

10. View west Stormwater Feature 2- Isolated Wetland.

11. View southeast of Stormwater Feature 3- Constructed Basin.

12. View west of Stormwater Feature 4- Constructed Basin.

13. View northeast of Monsanto-Sunswept Creek, looking upstream at northern inlet.

14. View west of Monsanto-Sunswept Creek, looking downstream at Reach 1.

15. View southwest of Monsanto-Sunswept Creek, looking downstream at Reach 2.

16. View south of Monsanto-Sunswept Creek, looking downstream at Reach 3.

17. View south of Monsanto-Sunswept Creek, looking downstream at Reach 4.

18. View northeast of Monsanto-Sunswept Creek Reach 5.

19. View north of Monsanto-Sunswept Creek, looking upstream at Reach 5.

20. View south of Monsanto-Sunswept Creek, looking downstream at Reach 5.

21. View south of Monsanto-Sunswept Creek oxbow, looking downstream at Reach 5.

22. View southwest of Monsanto-Sunswept Creek, looking downstream at Reach 6.

23. View northeast of Wetland B.

24. View southeast of Dielmann Creek riparian restoration area.

PRELIMINARY STORMWATER MANAGEMENT REPORT

OLIA VILLAGE

CREVE COEUR, MO

OLIA VILLAGE

THE HEART OF CREVE COEUR

July 7, 2023

Prepared by:

CMT

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS

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Stormwater Management Report

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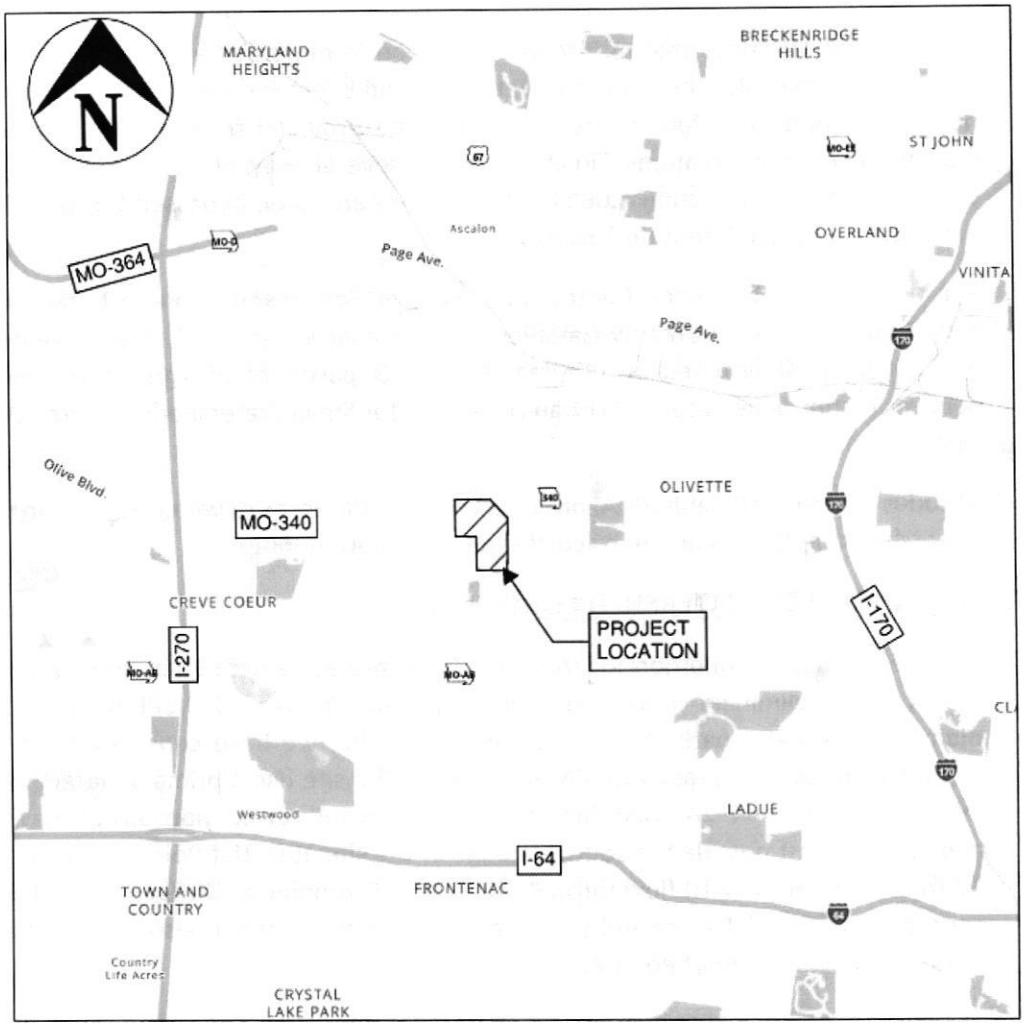
EXECUTIVE SUMMARY

This report was prepared by Crawford, Murphy, & Tilly, Inc. (CMT), on behalf of Jack Matthews Development for the construction of the approximately 95-acre Olia Village Development within the City of Creve Coeur, MO.

The purpose of this preliminary report is to document the pre-developed and anticipated post-developed drainage conditions of the site as well as the design methodology for the hydrologic analysis. Many aspects of the proposed development are still being designed including the storm sewer plans and BMPs for water quality and volume reduction. The purpose of this report is to provide a preliminary analysis of the proposed detention facilities to confirm that they will have sufficient volume for the proposed development. The project location is shown in the Vicinity Map below:

Figure 1. VICINITY MAP



I) INTRODUCTION

A. GOVERNING CRITERIA AND METHODOLOGY

The Authority having jurisdiction over the development will be the Metropolitan St. Louis Sewer District (MSD). As such, the proposed design will follow the MSD Drainage Manual.

Section 4.060.02 states that the detention system for the property shall be designed to control the peak rate of discharge from the property for the 2-year (24-hour) and 100-year (24-hour) storm events. The SCS Method from Technical Release 55 shall be used with Type II distribution and rainfall quantities of 3.1" for 2-year and 7.2" for 100-year storm events. Our preliminary calculations only show results for the 100-year storm as this will be the controlling event for maximum pond volume. Outlet structures will be designed to control the 2-year event as the plans are further developed.

Section 4.060.04 states that maximum fluctuation from permanent pool elevation to maximum ponding elevation shall be 6 feet for wet ponds and 8 feet for dry ponds. Section 4.060.03 states that a minimum of 1 foot of freeboard shall be provided from the top of the basin to the maximum ponding elevations. Finally, there are several acres of offsite flow that come onto the Olia Village site. Per Section 4.060.02, these flows are to be bypassed through the site and not enter the proposed detention facilities.

Per the Natural Resources Conservation Service Soil Resource Report, the soils within the proposed project are primarily classified in Hydrologic soil group C. The curve numbers for the analysis were determined by utilizing the U.S. Department of Agriculture, Soil Conservation Service, Technical Release 55, "Urban Hydrology for Small Watersheds". Source Data is shown in Appendix D.

Autodesk Storm and Sanitary Analysis (SSA) was utilized to develop the existing and proposed watershed runoff rates and to calculate the detention routing.

B. PRE-DEVELOPED WATERSHED CONDITIONS

The pre-developed condition for the Olia Village project is defined as the natural conditions of the site per preliminary conceptual review by MSD (Ref. No. 23CNCPB-00003). While there are many buildings and parking lots present on the site, we have considered the pre-developed conditions to be fully grass with CN value of 74. The site has 3 primary watersheds (E-1A, E-2A, and E-3A). E-1A and E-2A drain through the western and central portions of the site respectively and combine just outside the southern edge of the site at Outlet Point 1. Offsite Watersheds (E-1B to E-1G, E2-B to E2-H) flow through the site and combine at Outlet Point 1. E-3A includes the southeast corner of the site and drains to Outlet Point 2. There is also a small offsite watershed, E-3B, that flows to Outlet Point 2.

The pre-developed watershed map can be seen in Appendix A. A summary of all pre-developed watershed information is shown in Table 1 below. TC, CN, and output Q calculations are shown in Appendix C.

TABLE 1: EXISTING DRAINAGE AREAS (PRE-DEVELOPMENT)				
DRAINAGE AREA	TOTAL AREA (AC)	WEIGHTED "CN" VALUE	TC (MIN)	Q (CFS)
E-1A	48.35	74.00	28.32	186.38
E-1B	7.81	83.60	10.19	55.29
E-1C	3.67	98.00	13.00	28.52
E-1D	2.57	85.94	16.11	16.61
E-1E	6.76	91.70	15.80	47.34
E-1F	18.02	93.72	17.88	122.62
E-1G	0.56	89.52	11.58	4.21
E-1H	0.47	91.03	10.41	3.65
E-2A	41.34	74.00	22.00	182.94
E-2B	1.09	86.49	11.36	7.85
E-2C	10.07	86.87	15.89	66.23
E-2D	1.22	85.25	13.33	8.31
E-2E	1.93	81.09	14.36	11.95
E-2F	22.15	85.78	17.49	138.21
E-2G	1.43	86.01	7.31	11.31
E-2H	51.94	84.84	17.77	317.10
E-2I	0.42	89.15	11.40	3.16
E-2J	1.52	85.72	13.98	10.28
E-3A	6.08	74.00	11.12	34.60
E-3B	0.52	90.98	14.35	3.72

C. POST-DEVELOPED WATERSHED CONDITIONS

In the post-developed watershed conditions, drainage patterns will be maintained to the two existing outlet points. Two dry detention basins and three wet ponds are proposed to detain runoff from the site. Basin 1 is in the northeast corner of the site and detains flow from P5-1. Basin 2 is in the southeast corner of the site and detains flow from P14-1A. Pond 1 is in the center of the site and detains flow from P4-1. Pond 2 is in the central portion of the site located near the western property line and detains flow from P2-1 as well as the outflow from Pond 1. Pond 3 is in the southwestern portion of the site and detains flow from P6-1, P7-1, and P9-1. P-14-1A, P14-1B, and 16-P?-1 flow to Outlet Point 2.

All other watersheds drain to Outlet Point 1 The post-developed watershed map can be seen in Appendix B. A summary of undetained post-developed watershed information can be found in Table 2 below. TC, CN, and output Q calculations are shown in Appendix C.

TABLE 2: PROPOSED DRAINAGE AREAS (POST-DEVELOPMENT)				
DRAINAGE AREA	TOTAL AREA (AC)	WEIGHTED "CN" VALUE	TC	Q (CFS)
P1-1	6.02	74.79	28.32	23.7
P2-1	28.12	92.05	15.00	201.29
P3-1	6.57	91.67	15.00	46.81
P4-1	4.34	78.41	15.00	25.07
01-P?-1	7.81	83.60	10.19	55.29
02-P?-1	3.67	98.00	13.00	28.52
03-P?-1	2.57	85.94	16.11	16.61
04-P?-1	6.76	91.70	15.80	47.34
05-P?-1	18.02	93.72	17.88	122.62
06-P?-1	0.47	91.03	10.41	3.65
07-P?-1	0.56	89.52	11.58	4.21
P5-1	7.76	90.95	22.00	54.92
P6-1	2.64	92.65	15.00	19.03
P7-1	1.71	90.03	15.00	11.95
P8-1	4.74	83.52	15.00	30.21
P9-1	11.05	82.32	15.00	68.94
P10-1	2.13	75.53	15.00	11.54
P11-1	11.23	83.95	15.00	72.01
P12-1	1.19	80.60	15.00	7.18
P13-1	1.91	74.73	15.00	10.14
08-P?-1	1.09	86.49	11.36	7.85
09-P?-1	10.07	86.87	15.89	66.23
10-P?-1	22.15	85.78	17.49	138.21
11-P?-1	1.43	86.01	7.31	11.31
12-P?-1	1.22	85.25	13.33	8.31
13-P?-1	1.93	81.09	14.36	11.95
14-P?-1	1.52	85.72	13.98	10.28
15-P?-1	0.42	89.15	11.40	3.16
16-P?-1	0.52	90.98	14.35	3.72
17-P?-1	51.93	84.84	17.77	317.1
P14-1A	3.89	76.11	11.12	23.82
P14-1B	2.68	77.17	0.00	15.47

D. DETENTION FACILITY INFORMATION

A summary of information for each Detention Facility is shown in Table 3 below. Calculations are shown for the 100-year, 24-hour storm event. The calculations show that 1 foot freeboard is maintained from the maximum water surface to the top of berm in each detention facility. Detailed calculations output from SSA are shown in Appendix C.

TABLE 3. DETENTION FACILITY SUMMARY					
DETENTION FACILITY	INFLOW (CFS)	OUTFLOW (CFS)	NORMAL POOL ELEVATION	MAXIMUM WATER SURFACE ELEVATION	TOP OF BERM ELEVATION
BASIN 1	32.89	13.76	625.00	630.80	632.00
BASIN 2	53.56	19.32	615.00	620.67	622.00
POND 1	24.03	0.70	624.00	626.82	631.00
POND 2	196.81	97.99	610.00	616.02	617.00
POND 3	96.86	19.14	597.00	598.99	604.00

II) COMPARISON OF PRE-DEVELOPED AND POST-DEVELOPED CONDITIONS

The pre- and post-development flow rates to each of the two outlet points are shown in Table 4 below. These include flows from all the proposed detention facilities described above and include all offsite flows that will bypass the proposed detention facilities to the proposed outlet points. Detailed calculations output from SSA are shown in Appendix C.

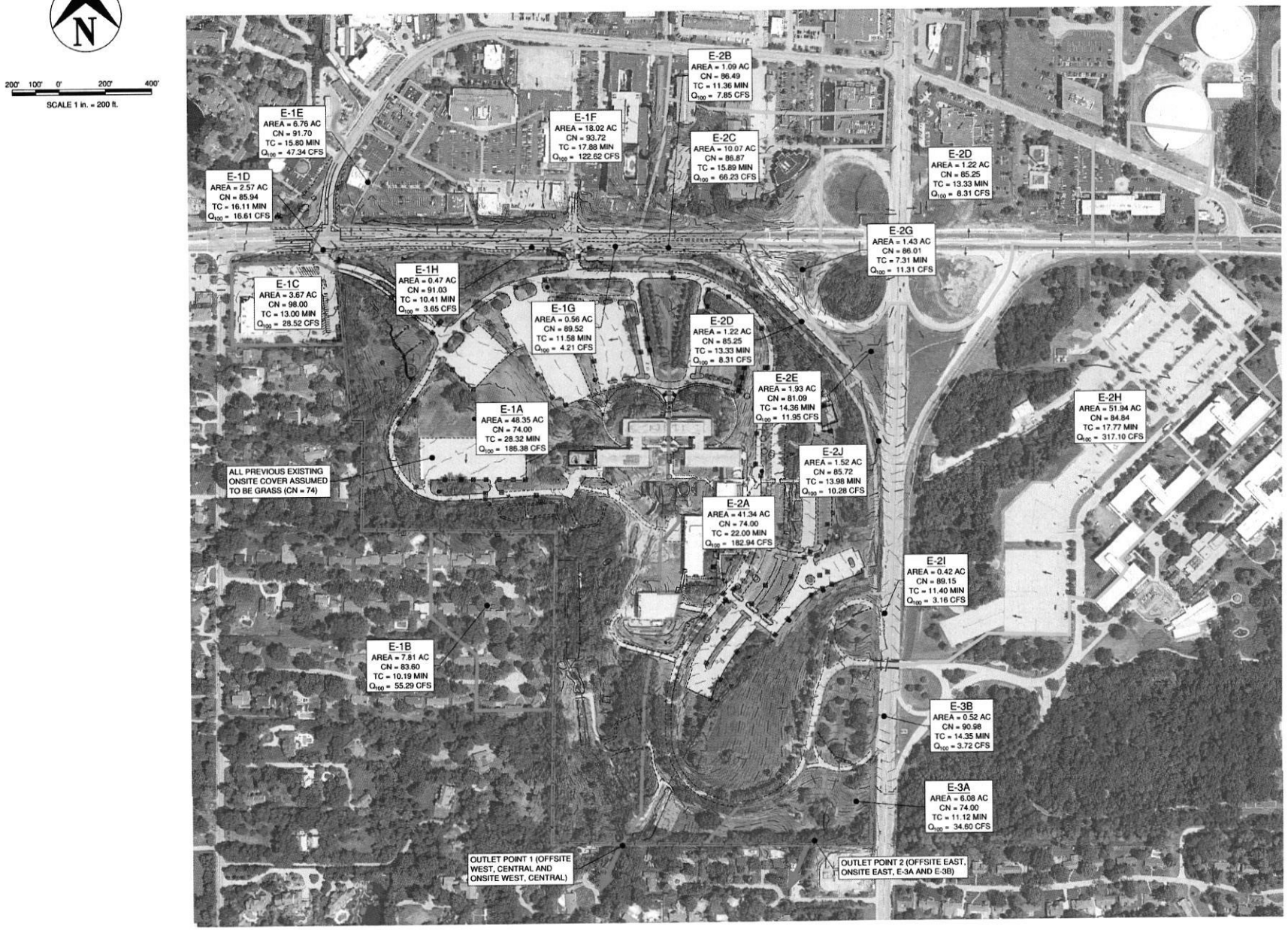
TABLE 4. 100-YEAR, 24-HOUR PEAK FLOW RATE COMPARISON				
ANALYSIS POINT	STORM EVENT	PRE-DEVELOPED FLOW RATE (cfs)	POST-DEVELOPED FLOW RATE (cfs)	FLOW RATE DIFFERENTIAL (cfs)
OUTLET POINT 1	100-YEAR	1158.81	1109.43	-49.38
OUTLE POINT 2	100-YEAR	38.25	32.89	-5.36

III) CONCLUSION

As mentioned in the Executive Summary, this preliminary report documents the pre-developed and anticipated post-developed drainage conditions of the site as well as the design methodology for the hydrologic analysis. This report demonstrates that the proposed detention facilities have sufficient volume to meet drainage requirements by showing no increase in flow at the outlet points and 1 foot of freeboard at each detention facility.

Many aspects of the development are still being designed including the storm sewer conveyance plans and BMPs for water quality and volume reduction. As the plans are developed, complete drainage reports will be completed with all required information and will be submitted to both the City of Creve Coeur and MSD for final approval prior to construction.

APPENDIX A: PRE-DEVELOPED DRAINAGE AREA MAP



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Date: Friday, July 7, 2023 10:57:15 AM

CMT
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License No. 184-000631

PRELIMINARY PLANS
DESIGN DEVELOPMENT
JULY 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BOULEVARD
CREVE COEUR, MO

MARK	DATE	DESCRIPTION

PROJECT NO:	23005201-00
CAD DWG FILE:	PRE-DEVLOPED DRAINAGE AREA MAP CN VALUES.DWG
DESIGNED BY:	DGS
DRAWN BY:	DGS
CHECKED BY:	TME
APPROVED BY:	--

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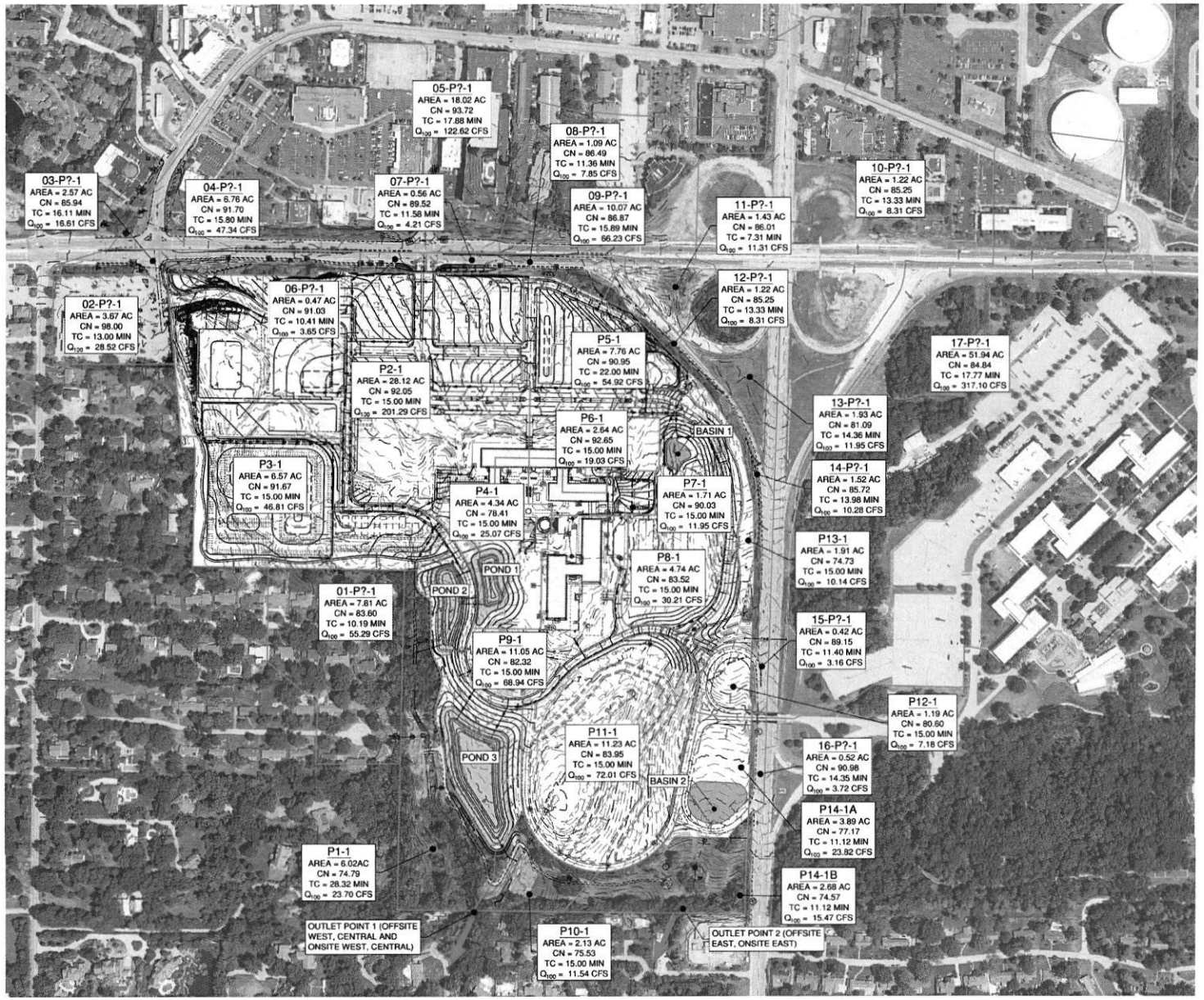
SHEET TITLE

PRE-DEVELOPED DRAINAGE AREA MAP

SHEET 1 OF

APPENDIX B: POST-DEVELOPED DRAINAGE AREA MAP



CMT
Crawford, Murphy & Tilly

License No. 184.000631

PRELIMINARY PLANS
DESIGN DEVELOPMENT
JULY 2023

OLIA VILLAGE

LINDBERGH & OLIVE BLVD

OLIA VILLAGE
THE HEART OF CREVE COEUR

10300 OLIVE BOULEVARD
CREVE COEUR, MO

MARK	DATE	DESCRIPTION

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CAD DWG FILE:	POST-DEVELOPED DRAINAGE AREA MAP ON VALUES.DWG
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DRAWN BY:	DGS
CHECKED BY:	TME
APPROVED BY:	--

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SHEET TITLE

POST-DEVELOPED DRAINAGE AREA MAP

SHEET 2 OF

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APPENDIX C: CALCULATIONS

LIST OF CALCULATIONS

1. PRE-DEVELOPED: TIME OF CONCENTRATION CALCULATIONS
2. POST-DEVELOPED: TIME OF CONCENTRATION CALCULATIONS
3. PRE-DEVELOPED: CN CALCULATIONS
4. POST-DEVELOPED: CN CALCULATIONS
5. PRE-DEVELOPED: 100-YEAR, 24-HOUR STORM EVENT SSA SUMMARY
6. POST-DEVELOPED: 100-YEAR, 24-HOUR STORM EVENT SSA SUMMARY

APPENDIX C: PRE-DEVELOPED: TIME OF CONCENTRATIONS

CMT	PROJECT :	Bayer Site Design			REVISIONS:
	JOB CODE :	23005201-00			
CRAWFORD, MURPHY & TILLY, INC.	DESIGNED :	DGS	CHECKED :	TME	
CONSULTING ENGINEERS	DATE :	7/7/2023	DATE :	7/7/2023	

EXISTING DRAINAGE AREAS
(PRE-DEVELOPMENT)

DRAINAGE AREA	K	n (roughness coefficient)	Length	Upstream El.	Downstream El.	Slope	Overland Travel Time (min)		K	Length	Upstream El.	Downstream El.	Slope	Open Channel Flow Travel Time (min)	Total Travel Time (min)
WESTERN TRIBUTARY STREAM (OUTLET POINT 1)															
ON-SITE DRAINAGE AREAS															
E-1A	0.83	0.3	100	680.00	678.00	0.0200	10.29		0.0078	3580	678.00	594.00	0.0235	18.03	28.32
OFF-SITE DRAINAGE AREAS															
E-1B	0.83	0.3	100	646.00	634.00	0.1200	6.76		0.0078	510	634.00	616.00	0.0353	3.44	10.19
E-1C	0.83	0.3	100	679.00	674.80	0.0420	8.65		0.0078	506	674.80	665.27	0.0188	4.35	13.00
E-1D	0.83	0.3	100	679.00	677.73	0.0127	11.45		0.0078	366	677.73	674.71	0.0083	4.66	16.11
E-1E	0.83	0.3	100	682.00	680.00	0.0200	10.29		0.0078	560	680.00	673.00	0.0125	5.51	15.80
E-1F	0.83	0.3	100	682.00	680.00	0.0200	10.29		0.0078	713	680.00	673.71	0.0088	7.58	17.88
E-1G	0.83	0.3	100	676.33	674.00	0.0233	9.93		0.0078	130	674.00	672.00	0.0154	1.65	11.58
E-1H	0.83	0.3	100	672.00	669.00	0.0300	9.36		0.0078	104	669.00	665.66	0.0321	1.05	10.41
CENTRAL TRIBUTARY STREAM (OUTLET POINT 1)															
ON-SITE DRAINAGE AREAS															
E-2A	0.83	0.3	100	681.81	677.00	0.0481	8.38		0.0078	2874	677.00	587.00	0.0313	13.62	22.00
OFF-SITE DRAINAGE AREAS															
E-2B	0.83	0.3	100	690.00	688.00	0.0200	10.29		0.0078	114	688.00	683.80	0.0368	1.07	11.36
E-2C	0.83	0.3	100	710.00	708.00	0.0200	10.29		0.0078	923	708.00	678.00	0.0325	5.60	15.89
E-2D	0.83	0.3	100	690.00	689.00	0.0100	12.12		0.0078	219	689.00	668.00	0.0959	1.22	13.33
E-2E	0.83	0.3	100	676.00	674.36	0.0164	10.79		0.0078	248	674.36	672.49	0.0075	3.57	14.36
E-2F	0.83	0.3	100	712.00	710.00	0.0200	10.29		0.0078	1447	710.00	649.68	0.0417	7.19	17.49
E-2G	0.83	0.3	100	691.00	678.00	0.1300	6.63		0.0078	115	678.00	664.00	0.1217	0.68	7.31
E-2H	0.83	0.3	100	700.00	675.00	0.2500	5.69		0.0078	1835	675.00	643.00	0.0174	12.08	17.77
E-2I	0.83	0.3	100	656.00	654.00	0.0200	10.29		0.0078	89	654.00	652.20	0.0202	1.11	11.40
E-2J	0.83	0.3	100	667.70	665.60	0.0210	10.18		0.0078	730	665.60	624.94	0.0557	3.80	13.98
EASTERN TRIBUTARY STREAM (OUTLET POINT 2)															
ON-SITE DRAINAGE AREAS															
E-3A	0.83	0.3	100	673.83	662.26	0.1157	6.81		0.0078	874	662.26	611.68	0.0579	4.30	11.12
OFF-SITE DRAINAGE AREAS															
E-3B	0.83	0.3	100	656.50	655.50	0.0100	12.12		0.0078	225	655.50	650.76	0.0211	2.23	14.35

NOTES:

APPENDIX C: POST-DEVELOPED: TIME OF CONCENTRATIONS

CMT	PROJECT :	Bayer Site Design			REVISIONS:
	JOB CODE :	23005201-00			
CRAWFORD, MURPHY & TILLY, INC.	DESIGNED :	DGS	CHECKED :	TME	
CONSULTING ENGINEERS	DATE :	7/7/2023	DATE :	7/7/2023	

PROPOSED DRAINAGE AREAS
(POST-DEVELOPMENT)

DRAINAGE AREA	K	n (roughness coefficient)	Length	Upstream El.	Downstream El.	Slope	Overland Travel Time (min)		K	Length	Upstream El.	Downstream El.	Slope	Open Channel Flow Travel Time (min)	Total Travel Time (min)
WESTERN TRIBUTARY STREAM (OUTLET POINT 1)															
ON-SITE DRAINAGE AREAS															
P1-1	0.83	0.3	100	680.00	678.00	0.0200	10.29		0.0078	3580	678.00	594.00	0.0235	18.03	28.32
P2-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P3-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P4-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
OFF-SITE DRAINAGE AREAS															
01-P?-1	0.83	0.3	100	646.00	634.00	0.1200	6.76		0.0078	510	634.00	616.00	0.0353	3.44	10.19
02-P?-1	0.83	0.3	100	679.00	674.80	0.0420	8.65		0.0078	506	674.80	665.27	0.0188	4.35	13.00
03-P?-1	0.83	0.3	100	679.00	677.73	0.0127	11.45		0.0078	366	677.73	674.71	0.0083	4.66	16.11
04-P?-1	0.83	0.3	100	682.00	680.00	0.0200	10.29		0.0078	560	680.00	673.00	0.0125	5.51	15.80
05-P?-1	0.83	0.3	100	682.00	680.00	0.0200	10.29		0.0078	713	680.00	673.71	0.0088	7.58	17.88
06-P?-1	0.83	0.3	100	672.00	669.00	0.0300	9.36		0.0078	104	669.00	665.66	0.0321	1.05	10.41
07-P?-1	0.83	0.3	100	676.33	674.00	0.0233	9.93		0.0078	130	674.00	672.00	0.0154	1.65	11.58
CENTRAL TRIBUTARY STREAM (OUTLET POINT 1)															
ON-SITE DRAINAGE AREAS															
P5-1	0.83	0.3	100	681.81	677.00	0.0481	8.38		0.0078	2874	677.00	587.00	0.0313	13.62	22.00
P6-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P7-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P8-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P9-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P10-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P11-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P12-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
P13-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00
OFF-SITE DRAINAGE AREAS															
08-P?-1	0.83	0.3	100	690.00	688.00	0.0200	10.29		0.0078	114	688.00	683.80	0.0368	1.07	11.36
09-P?-1	0.83	0.3	100	710.00	708.00	0.0200	10.29		0.0078	923	708.00	678.00	0.0325	5.60	15.89
10-P?-1	0.83	0.3	100	712.00	710.00	0.0200	10.29		0.0078	1447	710.00	649.68	0.0417	7.19	17.49
11-P?-1	0.83	0.3	100	691.00	678.00	0.1300	6.63		0.0078	115	678.00	664.00	0.1217	0.68	7.31
12-P?-1	0.83	0.3	100	690.00	689.00	0.0100	12.12		0.0078	219	689.00	668.00	0.0959	1.22	13.33
13-P?-1	0.83	0.3	100	676.00	674.36	0.0164	10.79		0.0078	248	674.36	672.49	0.0075	3.57	14.36
14-P?-1	0.83	0.3	100	667.70	665.60	0.0210	10.18		0.0078	730	665.60	624.94	0.0557	3.80	13.98
15-P?-1	0.83	0.3	100	656.00	654.00	0.0200	10.29		0.0078	89	654.00	652.20	0.0202	1.11	11.40
17-P?-1	0.83	0.3	100	700.00	675.00	0.2500	5.69		0.0078	1835	675.00	643.00	0.0174	12.08	17.77
EASTERN TRIBUTARY STREAM (OUTLET POINT 2)															
ON-SITE DRAINAGE AREAS															
P14-1A	0.83	0.3	100	673.83	662.26	0.1157	6.81		0.0078	874	662.26	611.68	0.0579	4.30	11.12
P14-1B	0.83	0.3	100	673.83	662.26	0.1157	6.81		0.0078	874	662.26	611.68	0.0579	4.30	11.12
OFF-SITE DRAINAGE AREAS															
16-P?-1	0.83	0.3	100	656.50	655.50	0.0100	12.12		0.0078	225	655.50	650.76	0.0211	2.23	14.35

NOTES:

1. TC FOR ONSITE DRAINAGE AREAS WILL BE UPDATED WHEN GRADING AND STORM SEWER PLANS ARE COMPLETED.

APPENDIX C: PRE-DEVELOPED: CN CALCULATIONS

CMT	PROJECT :	Bayer Site Design			REVISIONS:
	JOB CODE :	23005201-00			
CRAWFORD, MURPHY & TILLY, INC.	DESIGNED :	DGS	CHECKED :	TME	
CONSULTING ENGINEERS	DATE :	7/7/2023	DATE :	7/7/2023	

EXISTING DRAINAGE AREAS
(PRE-DEVELOPMENT)

DRAINAGE AREA	SITE INFORMATION				WEIGHTED "CN" VALUE				COMMENTS
	TOTAL AREA (sf)	100% IMPERVIOUS (ROOF) (sf)	100% IMPERVIOUS (PVMT) (sf)	5% IMPERVIOUS (GRASS) (sf)	TOTAL AREA (ac)	CN = 98 IMPERVIOUS PAVEMENT (ac)	CN = 74 GRASS (GOOD) (ac)	WEIGHTED "CN" VALUE	
WESTERN TRIBUTARY STREAM (OUTLET POINT 1)									
ON-SITE DRAINAGE AREAS									
E-1A	2,106,065	0	0	2,106,065	48.35	0.00	48.35	74.00	
SUB-TOTAL:	**48.35 ac**	**0.00 ac**	**0.00 ac**	**48.35 ac**					
OFF-SITE DRAINAGE AREAS									
E-1B	340,180	0	136,072	204,108	7.81	3.12	4.69	83.60	
E-1C	159,787	0	159,787	0	3.67	3.67	0.00	98.00	
E-1D	111,815	0	55,631	56,184	2.57	1.28	1.29	85.94	
E-1E	294,668	0	217,278	77,390	6.76	4.99	1.78	91.70	
E-1F	784,992	0	645,093	139,899	18.02	14.81	3.21	93.72	
E-1G	24,187	0	15,645	8,542	0.56	0.36	0.20	89.52	
E-1H	20,327	0	14,422	5,905	0.47	0.33	0.14	91.03	
SUB-TOTAL:	**39.85 ac**	**0.00 ac**	**28.56 ac**	**11.30 ac**					
CENTRAL TRIBUTARY STREAM (OUTLET POINT 1)									
ON-SITE DRAINAGE AREAS									
E-2A	1,800,847	0	0	1,800,847	41.34	0.00	41.34	74.00	
SUB-TOTAL:	**41.34 ac**	**0.00 ac**	**0.00 ac**	**41.34 ac**					
OFF-SITE DRAINAGE AREAS									
E-2B	47,309	0	24,629	22,680	1.09	0.57	0.52	86.49	
E-2C	438,457	0	235,120	203,338	10.07	5.40	4.67	86.87	
E-2D	53,220	0	24,938	28,282	1.22	0.57	0.65	85.25	
E-2E	84,124	0	24,847	59,277	1.93	0.57	1.36	81.09	
E-2F	964,757	0	473,450	491,307	22.15	10.87	11.28	85.78	
E-2G	62,149	0	31,093	31,056	1.43	0.71	0.71	86.01	
E-2H	2,262,339	0	1,022,006	1,240,333	51.94	23.46	28.47	84.84	
E-2I	18,172	0	11,475	6,697	0.42	0.26	0.15	89.15	
E-2J	66,372	0	32,414	33,959	1.52	0.74	0.78	85.72	
SUB-TOTAL:	**91.76 ac**	**0.00 ac**	**43.16 ac**	**48.60 ac**					
EASTERN TRIBUTARY STREAM (OUTLET POINT 2)									
ON-SITE DRAINAGE AREAS									
E-3A	264,661	0	0	264,661	6.08	0.00	6.08	74.00	
SUB-TOTAL:	**6.08 ac**	**0.00 ac**	**0.00 ac**	**6.08 ac**					
OFF-SITE DRAINAGE AREAS									
E-3B	22,833	0	16,158	6,675	0.52	0.37	0.15	90.98	
SUB-TOTAL:	**0.52 ac**	**0.00 ac**	**0.37 ac**	**0.15 ac**					
TOTAL:	**227.90 ac**	**0.00 ac**	**72.09 ac**	**155.81 ac**					

NOTES:

APPENDIX C: POST-DEVELOPED: CN CALCULATIONS

CMT	PROJECT :	Bayer Site Design			REVISIONS:
	JOB CODE :	23005201-00			
CRAWFORD, MURPHY & TILLY, INC.	DESIGNED :	DGS	CHECKED :	TME	
CONSULTING ENGINEERS	DATE :	7/7/2023	DATE :	7/7/2023	

PROPOSED DRAINAGE AREAS
(POST-DEVELOPMENT)

TRIBUTARY DRAINAGE STRUCTURE NUMBER	DRAINAGE AREA	SITE INFORMATION				WEIGHTED "CN" VALUE				COMMENTS
		TOTAL AREA (sf)	100% IMPERVIOUS (ROOF)	100% IMPERVIOUS (PVMT) (sf)	5% IMPERVIOUS (GRASS) (sf)	TOTAL AREA (ac)	CN = 98 IMPERVIOUS PAVEMENT (ac)	CN = 74 GRASS (GOOD) (ac)	WEIGHTED "CN" VALUE	
WESTERN TRIBUTARY STREAM (OUTLET POINT 1)										
ON-SITE DRAINAGE AREAS										
--	P1-1	262,206	8,616	0	253,590	6.02	0.20	5.82	74.79	UNDISTURBED STREAM
	P2-1	1,224,864	437,080	483,937	303,847	28.12	21.14	6.98	92.05	
	P3-1	286,115	56,428	154,178	75,508	6.57	4.83	1.73	91.67	
	P4-1	189,260	16,552	18,244	154,464	4.34	0.80	3.55	78.41	
	SUB-TOTAL:	**45.05 ac**	**11.91 ac**	**15.07 ac**	**18.08 ac**					
OFF-SITE DRAINAGE AREAS										
--	01-P?-1	340,180	0	136,072	204,108	7.81	3.12	4.69	83.60	SEE NOTE 2
	02-P?-1	159,787	0	159,787	0	3.67	3.67	0.00	98.00	
	03-P?-1	111,815	0	55,631	56,184	2.57	1.28	1.29	85.94	
	04-P?-1	294,668	0	217,278	77,390	6.76	4.99	1.78	91.70	
	05-P?-1	784,992	0	645,093	139,899	18.02	14.81	3.21	93.72	
	06-P?-1	20,327	0	14,422	5,905	0.47	0.33	0.14	91.03	
	07-P?-1	24,187	0	15,645	8,542	0.56	0.36	0.20	89.52	
	SUB-TOTAL:	**39.85 ac**	**0.00 ac**	**28.56 ac**	**11.30 ac**					
CENTRAL TRIBUTARY STREAM (OUTLET POINT 1)										
ON-SITE DRAINAGE AREAS										
	P5-1	337,985	109,944	128,798	99,243	7.76	5.48	2.28	90.95	
	P6-1	114,808	12,831	76,397	25,580	2.64	2.05	0.59	92.65	
	P7-1	74,298	33,339	16,294	24,665	1.71	1.14	0.57	90.03	
	P8-1	206,635	49,414	32,523	124,698	4.74	1.88	2.86	83.52	
	P9-1	481,225	24,594	142,168	314,463	11.05	3.83	7.22	82.32	
	P10-1	92,842	0	5,902	86,940	2.13	0.14	2.00	75.53	
	P11-1	488,994	99,615	103,189	286,190	11.23	4.66	6.57	83.95	
	P12-1	51,792	0	14,250	37,542	1.19	0.33	0.86	80.60	
	P13-1	83,162	0	2,536	80,626	1.91	0.06	1.85	74.73	
	SUB-TOTAL:	**44.35 ac**	**7.57 ac**	**11.98 ac**	**24.79 ac**					
OFF-SITE DRAINAGE AREAS										
	08-P?-1	47,309	0	24,629	22,680	1.09	0.57	0.52	86.49	
	09-P?-1	438,457	0	235,120	203,338	10.07	5.40	4.67	86.87	
	10-P?-1	964,757	0	473,450	491,307	22.15	10.87	11.28	85.78	
	11-P?-1	62,149	0	31,093	31,056	1.43	0.71	0.71	86.01	
	12-P?-1	53,220	0	24,938	28,282	1.22	0.57	0.65	85.25	
	13-P?-1	84,124	0	24,847	59,277	1.93	0.57	1.36	81.09	
	14-P?-1	66,372	0	32,414	33,959	1.52	0.74	0.78	85.72	
	15-P?-1	18,172	0	11,475	6,697	0.42	0.26	0.15	89.15	
	17-P?-1	2,262,270	0	1,022,006	1,240,264	51.93	23.46	28.47	84.84	
	SUB-TOTAL:	**91.75 ac**	**0.00 ac**	**43.16 ac**	**48.60 ac**					
EASTERN TRIBUTARY STREAM (OUTLET POINT 2)										
ON-SITE DRAINAGE AREAS										
	P14-1A	169,402	0	22,362	147,040	3.89	0.51	3.38	77.17	
	P14-1B	116,674	0	2,770	113,904	2.68	0.06	2.61	74.57	
	SUB-TOTAL:	**6.57 ac**	**0.00 ac**	**0.58 ac**	**5.99 ac**					
OFF-SITE DRAINAGE AREAS										
	16-P?-1	22,833	0	16,158	6,675	0.52	0.37	0.15	90.98	
	SUB-TOTAL:	**0.52 ac**	**0.00 ac**	**0.37 ac**	**0.15 ac**					
	TOTAL:	**228.10 ac**	**19.48 ac**	**99.72 ac**	**108.90 ac**					

NOTES:

Autodesk® Storm and Sanitary Analysis 2016 - Version 13.4.304 (Build 0)

****
Project Description
****
File Name ..... EXISTING DRAINAGE COMBINED OUTLETS.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... User-Defined
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date JUL-03-2023 00:00:00
Ending Date JUL-04-2023 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 20
Number of nodes 3
Number of links 1

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	TS-02	INTENSITY	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
E-1A	48.35	484.00
E-1B	7.81	484.00
E-1C	3.67	484.00
E-1D	2.57	484.00
E-1E	6.76	484.00
E-1F	18.02	484.00
E-1G	0.56	484.00
E-1H	0.47	484.00
E-2A	41.34	484.00
E-2B	1.09	484.00
E-2C	10.07	484.00
E-2D	1.22	484.00
E-2E	1.93	484.00
E-2F	22.15	484.00
E-2G	1.43	484.00
E-2H	51.94	484.00
E-2I	0.42	484.00
E-2J	1.52	484.00

E-3A	6.08	484.00
E-3B	0.52	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
JUNC.OFF.W	JUNCTION	0.00	6.00	0.00	
OUTLET1	OUTFALL	0.00	0.00	0.00	
OUTLET2	OUTFALL	0.00	0.00	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	JUNC.OFF.W	OUTLET1	DIRECT	400.0	0.0003	0.0150

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	DUMMY	0.00	0.00	1	0.00	0.00	0.00

Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	138.443	7.289
Surface Runoff	9.583	0.505
Continuity Error (%)	-0.001	

Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	95.773	31.209
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Composite Curve Number Computations Report
****

Subbasin E-1A

Soil/Surface Description	Area (acres)	Soil Group	CN
-	46.91	-	74.00
Composite Area & Weighted CN	46.91		74.00

Subbasin E-1B

Soil/Surface Description	Area (acres)	Soil Group	CN
-	7.81	-	83.60
Composite Area & Weighted CN	7.81		83.60

Subbasin E-1C

Soil/Surface Description	Area (acres)	Soil Group	CN
-	3.67	-	98.00
Composite Area & Weighted CN	3.67		98.00

Subbasin E-1D

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.57	-	85.94
Composite Area & Weighted CN	2.57		85.94

Subbasin E-1E

Soil/Surface Description	Area (acres)	Soil Group	CN
-	6.80	-	91.70
Composite Area & Weighted CN	6.80		91.70

Subbasin E-1F

Soil/Surface Description	Area (acres)	Soil Group	CN
-	18.02	-	93.72
Composite Area & Weighted CN	18.02		93.72

Subbasin E-1G

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.57	-	89.52
Composite Area & Weighted CN	0.57		89.52

Subbasin E-1H

Soil/Surface Description	Area (acres)	Soil Group	CN

-	0.47	-	91.03
Composite Area & Weighted CN	0.47		91.03

Subbasin E-2A

Soil/Surface Description	Area (acres)	Soil Group	CN
-	41.04	-	74.00
Composite Area & Weighted CN	41.04		74.00

Subbasin E-2B

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.09	-	86.49
Composite Area & Weighted CN	1.09		86.49

Subbasin E-2C

Soil/Surface Description	Area (acres)	Soil Group	CN
-	10.05	-	86.87
Composite Area & Weighted CN	10.05		86.87

Subbasin E-2D

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.22	-	85.25
Composite Area & Weighted CN	1.22		85.25

Subbasin E-2E

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.93	-	81.09
Composite Area & Weighted CN	1.93		81.09

Subbasin E-2F

Soil/Surface Description	Area (acres)	Soil Group	CN
-	22.15	-	85.78
Composite Area & Weighted CN	22.15		85.78

Subbasin E-2G

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.43	-	86.01
Composite Area & Weighted CN	1.43		86.01

Subbasin E-2H

Soil/Surface Description	Area (acres)	Soil Group	CN
-	51.94	-	84.84
Composite Area & Weighted CN	51.94		84.84

Subbasin E-2I

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.42	-	89.15
Composite Area & Weighted CN	0.42		89.15

Subbasin E-2J

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.52	-	85.72
Composite Area & Weighted CN	1.52		85.72

Subbasin E-3A

Soil/Surface Description	Area (acres)	Soil Group	CN
-	6.08	-	74.00
Composite Area & Weighted CN	6.08		74.00

Subbasin E-3B

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.52	-	90.98
Composite Area & Weighted CN	0.52		90.98

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
E-1A	7.20	4.22	186.38	74.000	0	00:28:19
E-1B	7.20	5.29	55.29	83.600	0	00:10:11
E-1C	7.20	6.96	28.52	98.000	0	00:13:00
E-1D	7.20	5.55	16.61	85.940	0	00:16:06
E-1E	7.20	6.22	47.34	91.700	0	00:15:48
E-1F	7.20	6.45	122.62	93.720	0	00:17:52
E-1G	7.20	5.96	4.21	89.520	0	00:11:34
E-1H	7.20	6.14	3.65	91.030	0	00:10:24
E-2A	7.20	4.22	182.94	74.000	0	00:22:00
E-2B	7.20	5.61	7.85	86.490	0	00:11:21
E-2C	7.20	5.66	66.23	86.870	0	00:15:53
E-2D	7.20	5.47	8.31	85.250	0	00:13:19
E-2E	7.20	5.00	11.95	81.090	0	00:14:21
E-2F	7.20	5.53	138.21	85.780	0	00:17:29

E-2G	7.20	5.56	11.31	86.010	0	00:07:18
E-2H	7.20	5.43	317.10	84.840	0	00:17:46
E-2I	7.20	5.92	3.16	89.150	0	00:11:24
E-2J	7.20	5.53	10.28	85.720	0	00:13:58
E-3A	7.20	4.22	34.60	74.000	0	00:11:07
E-3B	7.20	6.13	3.72	90.980	0	00:14:21

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
JUNC.OFF.W	0.00	0.00	0.00	0	00:00	0	0	0:00:00
OUTLET1	0.00	0.00	0.00	0	00:00	0	0	0:00:00
OUTLET2	0.00	0.00	0.00	0	00:00	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
JUNC.OFF.W	JUNCTION	266.88	266.88	0	12:05	0.00		
OUTLET1	OUTFALL	905.42	1158.81	0	12:10	0.00		
OUTLET2	OUTFALL	38.25	38.25	0	12:05	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
OUTLET1	97.05	48.50	1158.81
OUTLET2	88.02	1.37	38.25
System	92.54	49.87	1190.47

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence	Maximum Velocity Attained	Length Factor	Peak Flow during Analysis	Design Flow Capacity	Ratio of Maximum Flow	Total Time	Reported Condition	Ratio of Maximum /Design Flow	Surcharged

		days hh:mm	ft/sec	cfs	cfs	Flow Depth	minutes
Link-01	DIRECT	0 12:05		266.88			

```
  ********************************
  Highest Flow Instability Indexes
  ********************************
  All links are stable.

  WARNING 004 : Minimum elevation drop used for Conduit Link-01.

  Analysis began on:  Thu Jul  6 11:17:29 2023
  Analysis ended on:  Thu Jul  6 11:17:32 2023
  Total elapsed time: 00:00:03
```

Autodesk® Storm and Sanitary Analysis 2016 - Version 13.4.304 (Build 0)

****
Project Description
****
File Name ..... PROPOSED DRAINAGE COMBINED OUTLETS.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... User-Defined
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date JUL-03-2023 00:00:00
Ending Date JUL-04-2023 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 32
Number of nodes 8
Number of links 6

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	TS-02	INTENSITY	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
01-P?-1	7.81	484.00
02-P?-1	3.67	484.00
03-P?-1	2.57	484.00
04-P?-1	6.76	484.00
05-P?-1	18.02	484.00
06-P?-1	0.47	484.00
07-P?-1	0.56	484.00
08-P?-1	1.09	484.00
09-P?-1	10.07	484.00
10-P?-1	22.15	484.00
11-P?-1	1.43	484.00
12-P?-1	1.22	484.00
13-P?-1	1.93	484.00
14-P?-1	1.52	484.00
15-P?-1	0.42	484.00
16-P?-1	0.52	484.00
17-P?-1	51.94	484.00
P10-1	2.13	484.00

P1-1	6.02	484.00
P11-1	11.23	484.00
P12-1	1.19	484.00
P13-1	1.91	484.00
P14-1A	3.89	484.00
P14-1B	2.68	484.00
P2-1	28.12	484.00
P3-1	6.57	484.00
P4-1	4.34	484.00
P5-1	7.76	484.00
P6-1	2.64	484.00
P7-1	1.71	484.00
P8-1	4.74	484.00
P9-1	11.05	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
JUNC.ON.C	JUNCTION	590.50	700.00	0.00	
OUTLET1	OUTFALL	0.00	5.00	0.00	
OUTLET2	OUTFALL	613.00	614.50	0.00	
BASIN1	STORAGE	625.00	632.00	0.00	
BASIN2	STORAGE	615.00	622.00	0.00	
POND1	STORAGE	624.00	631.00	0.00	
POND2	STORAGE	610.00	617.00	0.00	
POND3	STORAGE	597.00	604.00	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	BASIN1	JUNC.ON.C	ORIFICE			
Link-02	POND1	POND2	ORIFICE			
Link-03	POND2	JUNC.ON.C	ORIFICE			
Link-04	POND3	JUNC.ON.C	ORIFICE			
Link-05	JUNC.ON.C	OUTLET1	ORIFICE			
Link-07	BASIN2	OUTLET2	ORIFICE			

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	138.571	7.289
Surface Runoff	10.658	0.561
Continuity Error (%)	-0.002	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	104.556	34.071
Initial Stored Volume	0.000	0.000
Final Stored Volume	1.952	0.636
Continuity Error (%)	0.000	

****
Composite Curve Number Computations Report

****

Subbasin 01-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	7.81	-	83.60
Composite Area & Weighted CN	7.81		83.60

Subbasin 02-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	3.67	-	98.00
Composite Area & Weighted CN	3.67		98.00

Subbasin 03-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.57	-	85.94
Composite Area & Weighted CN	2.57		85.94

Subbasin 04-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	6.80	-	91.70
Composite Area & Weighted CN	6.80		91.70

Subbasin 05-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	18.02	-	93.72
Composite Area & Weighted CN	18.02		93.72

Subbasin 06-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.47	-	91.03
Composite Area & Weighted CN	0.47		91.03

Subbasin 07-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.57	-	89.52
Composite Area & Weighted CN	0.57		89.52

Subbasin 08-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.09	-	86.49
Composite Area & Weighted CN	1.09		86.49

Subbasin 09-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	10.05	-	86.87
Composite Area & Weighted CN	10.05		86.87

Subbasin 10-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	22.15	-	85.78
Composite Area & Weighted CN	22.15		85.78

Subbasin 11-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.43	-	86.01
Composite Area & Weighted CN	1.43		86.01

Subbasin 12-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.22	-	85.25
Composite Area & Weighted CN	1.22		85.25

Subbasin 13-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.93	-	81.09
Composite Area & Weighted CN	1.93		81.09

Subbasin 14-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.52	-	85.72
Composite Area & Weighted CN	1.52		85.72

Subbasin 15-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN

-	0.42	-	89.15
Composite Area & Weighted CN	0.42		89.15

Subbasin 16-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.52	-	90.98
Composite Area & Weighted CN	0.52		90.98

Subbasin 17-P?-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	51.94	-	84.84
Composite Area & Weighted CN	51.94		84.84

Subbasin P10-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.13	-	75.53
Composite Area & Weighted CN	2.13		75.53

Subbasin P1-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	6.02	-	74.79
Composite Area & Weighted CN	6.02		74.79

Subbasin P11-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	11.23	-	83.95
Composite Area & Weighted CN	11.23		83.95

Subbasin P12-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.19	-	80.60
Composite Area & Weighted CN	1.19		80.60

Subbasin P13-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.91	-	74.73
Composite Area & Weighted CN	1.91		74.73

Subbasin P14-1A

Soil/Surface Description	Area (acres)	Soil Group	CN
-	3.89	-	77.17
Composite Area & Weighted CN	3.89		77.17

Subbasin P14-1B

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.68	-	74.57
Composite Area & Weighted CN	2.68		74.57

Subbasin P2-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	28.12	-	92.05
Composite Area & Weighted CN	28.12		92.05

Subbasin P3-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	6.57	-	91.67
Composite Area & Weighted CN	6.57		91.67

Subbasin P4-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	4.34	-	78.41
Composite Area & Weighted CN	4.34		78.41

Subbasin P5-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	7.76	-	90.95
Composite Area & Weighted CN	7.76		90.95

Subbasin P6-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.64	-	92.65
Composite Area & Weighted CN	2.64		92.65

Subbasin P7-1

Soil/Surface Description	Area (acres)	Soil Group	CN

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.71	-	90.03
Composite Area & Weighted CN	1.71		90.03

Subbasin P8-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	4.74	-	83.52
Composite Area & Weighted CN	4.74		83.52

Subbasin P9-1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	11.05	-	82.32
Composite Area & Weighted CN	11.05		82.32

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
01-P?-1	7.20	5.29	55.29	83.600	0	00:10:11
02-P?-1	7.20	6.96	28.52	98.000	0	00:13:00
03-P?-1	7.20	5.55	16.61	85.940	0	00:16:06
04-P?-1	7.20	6.22	47.34	91.700	0	00:15:48
05-P?-1	7.20	6.45	122.62	93.720	0	00:17:52
06-P?-1	7.20	6.14	3.65	91.030	0	00:10:24
07-P?-1	7.20	5.96	4.21	89.520	0	00:11:34
08-P?-1	7.20	5.61	7.85	86.490	0	00:11:21
09-P?-1	7.20	5.66	66.23	86.870	0	00:15:53
10-P?-1	7.20	5.53	138.21	85.780	0	00:17:29
11-P?-1	7.20	5.56	11.31	86.010	0	00:07:18
12-P?-1	7.20	5.47	8.31	85.250	0	00:13:19
13-P?-1	7.20	5.00	11.95	81.090	0	00:14:21
14-P?-1	7.20	5.53	10.28	85.720	0	00:13:58
15-P?-1	7.20	5.92	3.16	89.150	0	00:11:24
16-P?-1	7.20	6.13	3.72	90.980	0	00:14:21
17-P?-1	7.20	5.43	317.10	84.840	0	00:17:46
P10-1	7.20	4.38	11.54	75.530	0	00:15:00
P1-1	7.20	4.30	23.70	74.790	0	00:28:19
P11-1	7.20	5.32	72.01	83.950	0	00:15:00
P12-1	7.20	4.95	7.18	80.600	0	00:15:00
P13-1	7.20	4.30	10.14	74.730	0	00:15:00
P14-1A	7.20	4.57	23.82	77.170	0	00:11:07
P14-1B	7.20	4.28	15.47	74.570	0	00:11:07
P2-1	7.20	6.26	201.29	92.050	0	00:15:00
P3-1	7.20	6.21	46.81	91.670	0	00:15:00
P4-1	7.20	4.70	25.07	78.410	0	00:15:00
P5-1	7.20	6.13	54.92	90.950	0	00:15:00
P6-1	7.20	6.33	19.03	92.650	0	00:15:00
P7-1	7.20	6.02	11.95	90.030	0	00:15:00
P8-1	7.20	5.28	30.21	83.520	0	00:15:00
P9-1	7.20	5.14	68.94	82.320	0	00:15:00

****

Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
JUNC.ON.C	0.77	4.47	594.97	0	12:19	0	0	0:00:00
OUTLET1	0.00	0.00	0.00	0	00:00	0	0	0:00:00
OUTLET2	0.00	0.00	613.00	0	00:00	0	0	0:00:00
BASIN1	0.74	5.80	630.80	0	12:25	0	0	0:00:00
BASIN2	0.30	5.67	620.67	0	12:11	0	0	0:00:00
POND1	1.36	2.82	626.82	0	16:01	0	0	0:00:00
POND2	0.70	6.02	616.02	0	12:18	0	0	0:00:00
POND3	0.48	1.99	598.99	0	12:30	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
JUNC.ON.C	JUNCTION	0.00	129.49	0	12:19	0.00		
OUTLET1	OUTFALL	997.21	1109.43	0	12:10	0.00		
OUTLET2	OUTFALL	15.46	32.89	0	12:05	0.00		
BASIN1	STORAGE	53.56	53.56	0	12:05	0.00		
BASIN2	STORAGE	27.46	27.46	0	12:05	0.00		
POND1	STORAGE	24.03	24.03	0	12:05	0.00		
POND2	STORAGE	196.36	196.81	0	12:05	0.00		
POND3	STORAGE	96.86	96.86	0	12:05	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
BASIN1	60.312	76	0	12:25	6.247	8	13.76	0.00	0:00:00	0.000
BASIN2	7.913	65	0	12:11	0.198	2	19.32	0.00	0:00:00	0.000
POND1	50.272	32	0	16:01	24.031	15	0.70	0.00	0:00:00	0.000
POND2	170.699	84	0	12:18	18.105	9	97.99	0.00	0:00:00	0.000
POND3	149.304	25	0	12:30	35.018	6	19.14	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
OUTLET1	97.05	52.91	1109.43
OUTLET2	87.09	1.56	32.89
System	92.07	54.46	1141.22

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Total Reported Maximum Depth	Time Surcharged minutes
Link-01	ORIFICE	0 12:25			13.76		1.00		
Link-02	ORIFICE	0 16:01			0.70		1.00		
Link-03	ORIFICE	0 12:18			97.99		1.00		
Link-04	ORIFICE	0 12:30			19.14		0.79		
Link-05	ORIFICE	0 12:20			129.51		0.89		
Link-07	ORIFICE	0 12:12			19.32		1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 107 : Initial water surface elevation defined for Junction JUNC.ON.C is below junction invert elevation.
Assumed initial water surface elevation equal to invert elevation.
WARNING 108 : Surcharge elevation defined for Junction JUNC.ON.C is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.
WARNING 110 : Initial water surface elevation defined for Storage Node BASIN2 is below storage node invert elevation.

Assumed initial water surface elevation equal to invert elevation.
WARNING 118 : Orifice crest elevation defined for Orifice Link-05 is below upstream node invert elevation.
Assumed orifice crest elevation equal to upstream node invert elevation.

Analysis began on: Thu Jul 6 11:29:08 2023
Analysis ended on: Thu Jul 6 11:29:11 2023
Total elapsed time: 00:00:03

APPENDIX D: SOURCE DATA

LIST OF SOURCE DATA

1. NATURAL RESOURCES CONSERVATION SERVICE SOIL RESOURCE REPORT
2. UNITED STATES ARMY CORPS OF ENGINEERS SCS TR-55 RUNOFF CURVE NUMBERS

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for St. Louis County and St. Louis City, Missouri

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

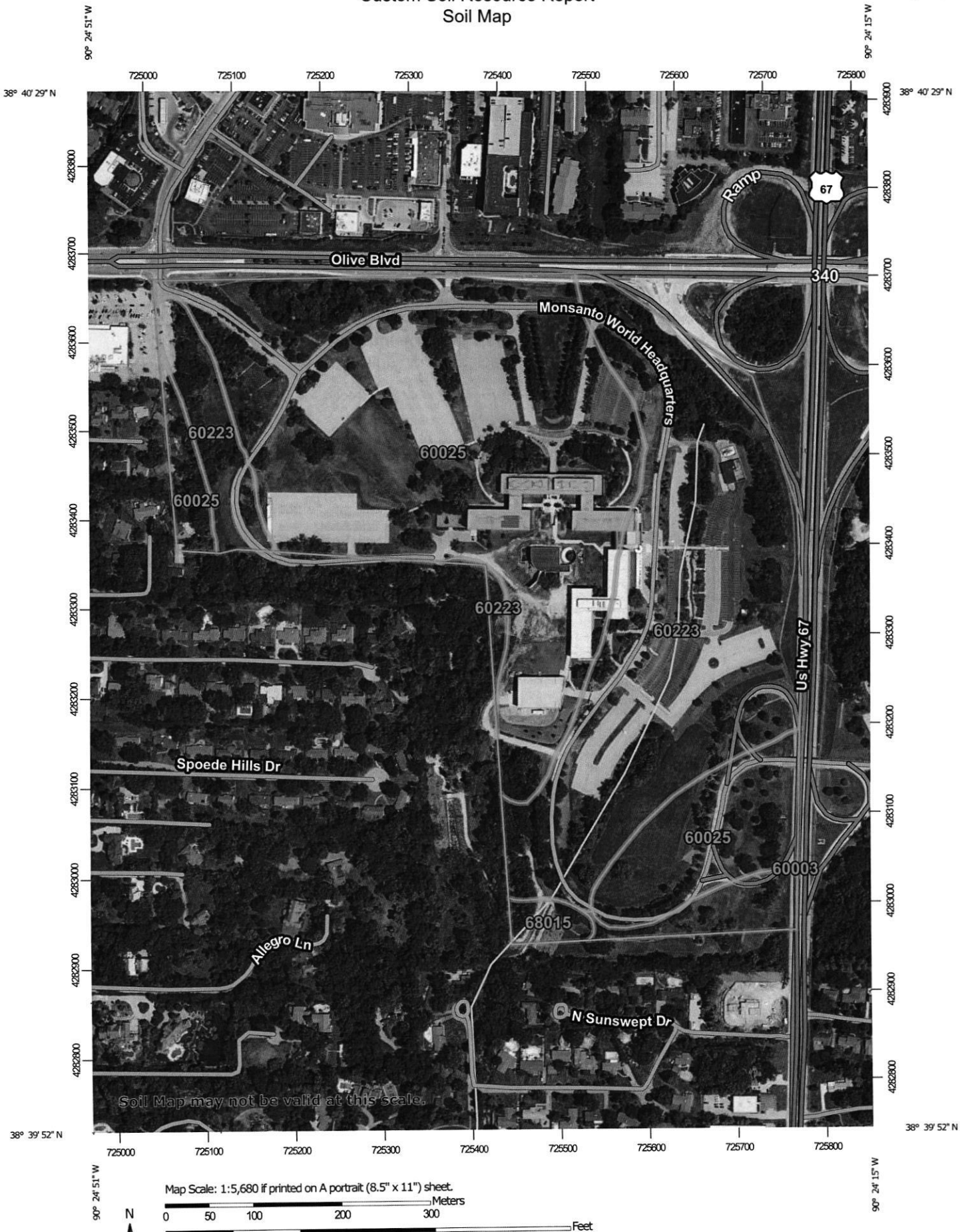
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:5,680 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Louis County and St. Louis City, Missouri
Survey Area Data: Version 23, Sep 7, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 22, 2022—Aug 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60003	Menfro silt loam, 9 to 14 percent slopes, eroded	0.0	0.0%
60025	Urban land-Harvester complex, 2 to 9 percent slopes	49.5	57.0%
60223	Urban land-Harvester complex, 9 to 20 percent slopes	36.3	41.8%
68015	Fishpot-Urban land-Freeburg complex, 0 to 3 percent slopes	1.0	1.2%
Totals for Area of Interest		**86.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

St. Louis County and St. Louis City, Missouri

60003—Menfro silt loam, 9 to 14 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2qp0b
Elevation: 400 to 900 feet
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Menfro and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Menfro

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess

Typical profile

Ap - 0 to 4 inches: silt loam
BE - 4 to 9 inches: silt loam
Bt1 - 9 to 35 inches: silty clay loam
Bt2 - 35 to 60 inches: silt loam

Properties and qualities

Slope: 9 to 14 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F115XB003MO - Deep Loess Protected Backslope Forest, F115XB043MO - Deep Loess Exposed Backslope Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Winfield

Percent of map unit: 10 percent
Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F115XB003MO - Deep Loess Protected Backslope Forest, F115XB043MO - Deep Loess Exposed Backslope Woodland
Hydric soil rating: No

60025—Urban land-Harvester complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2qp0t
Elevation: 310 to 1,020 feet
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Harvester and similar soils: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Harvester

Setting

Landform: Hillslopes, interfluves
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loess

Typical profile

C1 - 0 to 7 inches: silt loam
C2 - 7 to 31 inches: silty clay loam
C3 - 31 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F115XB061MO - Anthropic Deep Loess Upland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Winfield

Percent of map unit: 5 percent
Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F115XB003MO - Deep Loess Protected Backslope Forest, F115XB043MO - Deep Loess Exposed Backslope Woodland
Hydric soil rating: No

60223—Urban land-Harvester complex, 9 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2qp6z
Elevation: 390 to 820 feet
Mean annual precipitation: 36 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Harvester and similar soils: 30 percent
Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Harvester

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

C1 - 0 to 7 inches: silt loam
C2 - 7 to 31 inches: silty clay loam
C3 - 31 to 80 inches: clay loam

Properties and qualities

Slope: 9 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F115XB061MO - Anthropic Deep Loess Upland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Winfield

Percent of map unit: 10 percent
Landform: Hillslopes, ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F115XB001MO - Deep Loess Upland Woodland
Hydric soil rating: No

68015—Fishpot-Urban land-Freeburg complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2zhxx
Elevation: 360 to 660 feet
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Fishpot and similar soils: 45 percent
Urban land: 25 percent
Freeburg and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fishpot

Setting

Landform: Stream terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Human-transported material over alluvium

Typical profile

^Au - 0 to 12 inches: silt loam
^Cu - 12 to 26 inches: silty clay loam
2Aub - 26 to 40 inches: silt loam
2Cg - 40 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 20 to 53 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F115XB060MO - Anthropic Wet Terrace

Hydric soil rating: No

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Freeburg

Setting

Landform: Drainageways
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

Ap - 0 to 8 inches: silt loam
E - 8 to 18 inches: silt loam
Bt - 18 to 37 inches: silty clay loam
Btg - 37 to 79 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F115XB025MO - Wet Terrace Forest
Hydric soil rating: No

Minor Components

Winfield

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F115XB001MO - Deep Loess Upland Woodland

Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Table 2-2a Runoff curve numbers for urban areas [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area [2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1] Average runoff condition, and $I_a = 0.2S$.

[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

MoDOT

St. Louis District
Thomas Blair, P.E., District Engineer

Missouri Department of Transportation

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Chesterfield, Missouri 63017-5712
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September 26, 2023

Crawford, Murphy & Tilly
Gateway Tower
One Memorial Dr, Suite 500
St Louis, MO 63102
<< Transmitted via email>>

RE: Traffic Impact Study (TIS) Response Letter

Greetings,

Thank you for submitting your finalized TIS with supporting documents regarding the Olia Village development in Creve Coeur, Missouri for MoDOT's traffic team evaluation. We've reviewed the study and offer the following comments:

- MoDOT traffic concurs with the findings and recommendations of the study.
- MoDOT traffic advises the developer to continue their collaborations and to follow state standards with consideration to any state highway system modifications and improvements.

Should you have any questions or comments, you may contact me via email at robert.meyer@modot.mo.gov.

Respectfully,

Robert Meyer
Traffic Studies Specialist
Missouri Department of Transportation

CC’d: Ryan Pearcy, Area Engineer
Eddie Watkins, Area Traffic Operations Engineer
John Braden, Area Permits Specialist
Joseph Mulnik, Area Traffic Studies Specialist

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-2833

September 29, 2023

Regulatory Branch
File Number: MVS-2023-48

Mr. Matthew Pfund
Jack Matthews Development
3925 Blackburn Road
Edwardsville, IL 62025
matt@jackmatthewsdevelopment.com

Dear Mr. Pfund:

This letter is in regard to your application, regarding the project known as the Olia Development Project. The project is located in Section 1, Township 45 North, Range 5 East, in St. Louis County, Missouri. Approximate geographic coordinates for the site are 38.6699°, -90.4088°.

The project consists of the development of the 95-acre site, for mixed-use. The onsite development is to consist of commercial, retail, offices and residential structures. The project impacts include: The piping of Dielmann Creek for 590 linear feet, the piping of Monsanto-Sunswept Creek for 325 linear feet, the filling of 0.1-acres of Wetland A, and the construction of a new outfall structure into Diehlman Creek with associated riprap.

The Corps of Engineers has determined that this activity is authorized under Section 404 of the Clean Water Act by an existing Department of the Army nationwide permit for *Commercial and Institutional Developments*, as described in the January 13, 2021 and December 27, 2021 Federal Register(s), Reissuance and Modification of Nationwide Permits; Notice (86 FR Page#2861), Appendix A (B)(NWP39). This verification is valid until March 14, 2026, unless the District Engineer modifies, suspends, or revokes the nationwide permit authorizations in accordance with 33 CFR 330.5(d). If you commence, or are under contract to commence, this activity before the nationwide permits expire, you will have 12 months after the date the nationwide permit expire or are modified, suspended, or revoked, to complete the activity under the present terms and conditions of these nationwide permit. Enclosed is a copy of the nationwide permit and conditions and management practices with which you must comply. **The District Engineer has further conditioned this verification to include the following special condition:**

1. The permittee shall purchase 3,563.98 credits of compensatory mitigation for project impacts to jurisdictional waters from an approved In-lieu Fee program. Purchase of these credits must be documented and submitted to our office prior to the construction of this project.

2. The project site may contain suitable summer roosting habitat for the endangered Indiana Bat (*Myotis sodalis*) and threatened Northern Long-eared Bat (*Myotis*

septentrionalis) as well as the proposed Tricolored bat (*Perimyotis subflavus*). Tree clearing must not occur between April 1 and October 31 in order to prevent any incidental take of these species during the summer roosting period.

3. The permittee must notify the Corps should any change in size, location or methods to accomplish the work occur. Changes could potentially require additional authorizations from the Corps as well as other federal, state or local agencies.

In accordance with General Condition number 30 of the Nationwide Permit, a compliance certification (Attachment A of this package) must be completed within 30 days of project completion or the permit issuance may be revoked and considered null and void.

The project does not meet State of Missouri's General Condition No. 2, for precertification. Therefore, an individual water quality certification was required to be obtained from The Missouri Department of Natural Resources- Water Protection Program (MDNR/WPP). An individual water quality certification was applied for and obtained on 7/13/23. All conditions of the certification are now part of the Corps permit. If you have any questions regarding the water quality certification conditions, you may call MDNR/WPP at 573-522-1131 or by email at wpsc401cert@dnr.mo.gov.

This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other federal, state or local approvals before beginning work. This permit verification does not convey property rights, nor authorize any injury to property or invasion of other rights.

If you have any questions, please contact me at (314) 331-8579 or Jennifer.l.skiles@usace.army.mil. In any correspondence or inquiries, please refer to the File Number **MVS-2023-48** The St. Louis District Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to go to our Customer Service Survey found on our web site at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Jennifer L. Skiles
Project Manager
Regulatory Branch

Enclosures
Nationwide Permit 39
Individual 401 Water Quality Certification

ATTACHMENT A

COMPLETED WORK CERTIFICATION

Date of Issuance: September 29, 2023

File Number: MVS-2023-48

Name of Permittee(s): Jack Matthews Development

Name of Project: Olia Development Project

Project Location: 38.6699°, -90.4088°

River Basin/County/State: Mississippi River/St. Louis/Missouri

Project Manager: Skiles

Upon completion of this activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address or electronically to MVS-Regulatory@usace.army.mil:

U.S. Army Corps of Engineers
Attn: Regulatory Branch (OD-F)
1222 Spruce Street
St. Louis, Missouri 63103-2833

(Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification or revocation.)

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

No. 39. Commercial and Institutional Developments.

(NWP Final Notice, 86 FR, 2861)

Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures. Attendant features may include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, wastewater treatment facilities, and recreation facilities such as playgrounds and playing fields. Examples of commercial developments include retail stores, industrial facilities, restaurants, business parks, and shopping centers. Examples of institutional developments include schools, fire stations, government office buildings, judicial buildings, public works buildings, libraries, hospitals, and places of worship. The construction of new golf courses and new ski areas is not authorized by this NWP.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

Note: For any activity that involves the construction of a wind energy generating structure, solar tower, or overhead transmission line, a copy of the PCN and NWP verification will be provided by the Corps to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

C. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies

shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the

presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: No historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to

provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce

the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate

Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written

notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical

habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will

occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to

ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

E. Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

F. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the

aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters”

include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single

water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

July 13, 2023

Matthew Pfund
Jack Matthew's Development
3925 Blackburn Road
Edwardsville, IL 62025

RE: MVS-2023-00048/CES003097 in St. Louis County

Dear Matthew Pfund:

The Missouri Department of Natural Resources' Water Protection Program has reviewed your request for Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) to accompany the U.S. Army Corps of Engineers' (USACE) Permit for Nationwide Permit (NWP) 39 for "Commercial and Institutional Developments."

The proposed project does not meet the state of Missouri's 2020 General Condition 1 for precertification; therefore, an individual WQC is being issued. General condition 1 states that a stream's pattern, profile, and dimension, including but not limited to sinuosity, slope, and channel width, shall be maintained as much as practicable.

The proposed work concerns a 95 acre development that will include commercial, retail, office, and residential buildings. Impacts filling 590 linear ft (LF) of Dielmann Creek, 325 LF of Monsanto Sunswept Creek, and a 0.1 acre scrub-shrub wetland.

The proposed project is located in Section 1, Township 45 North, Range 5 East in St. Louis County, Missouri. Approximate coordinates for the proposed project are:

Aquatic Resource	Latitude (°N)	Longitude (°W)
Dielmann Creek	38.672545	90.412700
Monsanto Sunswept Creek	38.671758	90.406124
Wetland A	38.672400	90.412509

According to the Department's geospatial data, Dielmann Creek is not classified in Missouri Water Quality Standards' Missouri Use Designation Dataset [10 CSR 20-7.031(2)(E)], and the stream has no assigned designated uses [10 CSR 20-7.031(1)]. However, it is still considered waters of the state and according to general water quality criteria, specifically 10 CSR 20-7.031(4)(H), all waters shall be free from physical, chemical, or hydrologic changes that would impair the natural biological community.

Monsanto Sunswept Creek, referred to in the Missouri Water Quality Standards [10 CSR 20-7.031] as a Presumed Use Stream, Water Body Identification Number 5026 and is classified with the designated beneficial uses of protection and propagation of fish, shellfish, and wildlife – warm water habitat; recreation in and on the water - whole body contact category B and secondary contact recreation; human health protection – fish consumption; irrigation; and livestock and wildlife protection; [10 CSR 20-7.031(1)].

The Department's geospatial data is available upon request, and all published data is available on the Missouri Spatial Data Information Services website at https://msdis.missouri.edu/. Additional information to identify the project location, including stream reaches with listed impairments or special water designations, may be obtained from the Department's Water Protection Program by phone at 573-522-4502.

This WQC is being issued under Section 401 of Public Law 95-217, the CWA of 1977 and subsequent revisions. Pursuant to Section 121.7(d), this office certifies the proposed project will comply with Missouri water quality requirements, provided the following conditions are met:

1. For 915 LF of stream impacts, Jack Matthew's Development shall purchase 3,563.98 Missouri Stream Mitigation Method Credits from a mitigation bank or in-lieu fee provider approved by the Department. A copy of the purchase document shall be provided to the Department at the address below prior to the start of work within jurisdictional waters at the site. This will ensure compliance with the Missouri antidegradation requirement that waters of the state shall be maintained and protected [10 CSR 20-7.031(3)] under Missouri Clean Water Law, which provides the Department authority to adopt remedial measures to prevent, control, or abate pollution [Section 644.026.1(9), RSMo] and approval authority for compensatory mitigation used in connection with any WQC [Section 644.026.1(26), RSMo].

2. The stream channels downstream from the proposed fill activities shall not be relocated, straightened, cut-off, shortened, widened, or otherwise modified. Streambed gradient shall not be adversely impacted during project construction. No project shall accelerate bed or bank erosion. This will ensure compliance with the Missouri Water Quality Standards general criterion requiring waters to be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(H)]. Changes intended within the scope of the proposed project as designed and/or modeled are allowable.

3. The proposed fill activities shall not impact aquatic habitat or create an impediment to the passage of aquatic organisms and/or sediment in the stream channels downstream of the proposed project. This will ensure compliance with the Missouri Water Quality Standards general criterion requiring waters to be free from physical or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(H)].

4. Only clean, nonpolluting fill shall be used. The following materials are not suitable where contact with water is expected and shall not be used due to their potential to cause violations of the general criteria of Missouri's Water Quality Standards [10 CSR 20-7.031(4)]:
   a. Earthen fill, gravel, and broken concrete where the material does not meet the Suitable Material specifications stated in the "Missouri Nationwide Permit Regional Conditions" (https://usace.contentdm.oclc.org/digital/collection/p16021coll11/id/2662/) in locations where erosive flows are expected to occur on a regular basis, such as streambanks and/or lake shorelines.
   b. Asphalt.
   c. Concrete with exposed rebar.
   d. Tires, vehicles or vehicle bodies, and construction or demolition debris are solid waste and are excluded from placement in the waters of the state. Properly sized, broken concrete without exposed rebar is allowed.
   e. Liquid concrete, including grouted riprap, if not placed in forms as part of an engineered structure.
   f. Any material that would result in violation of Missouri Water Quality Standards general criteria [10 CSR 20-7.031(4)] or specific criteria [10 CSR 20-7.031(5)].

5. Waste concrete or concrete rinsate shall be disposed of in a manner that does not result in any discharge to the jurisdictional water ways. This will ensure compliance with the Missouri Water Quality Standards general criteria requiring waters be free from unsightly bottom deposits [10 CSR 20-7.031(4)(A)]; substances resulting in toxicity to human, animal, or aquatic life [10 CSR 20-7.031(4)(D)]; and physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(H)].

6. Missouri Water Quality Standards antidegradation requirements dictate all appropriate and reasonable Best Management Practices (BMPs) related to erosion and sediment control, project stabilization, and prevention of water quality degradation are applied and maintained [10 CSR 20-7.031(3)(D)]; for example, preserving vegetation, streambank stability, and basic drainage. Due to the amount of land disturbance that will occur from grading, appropriate BMPs shall be selected to provide effective erosion and sediment controls to minimize the discharge of pollutants. BMPs shall be properly installed prior to conducting authorized activities and maintained, repaired, and/or replaced as needed during all phases of the project to limit the amount of discharge of water contaminants to waters of the state. The project shall not involve more than normal stormwater or incidental loading of sediment caused by project activities so as to comply with Missouri's general water quality criteria [10 CSR 20-7.031(4)].

7. Clearing of vegetation and trees shall be the minimum necessary to accomplish the activity except for the removal of invasive or noxious species and placement of ecologically beneficial practices. This will ensure compliance with the Missouri antidegradation requirement for BMPs [10 CSR 20-7.031(3)(D)].

8. All efforts shall be made to minimize exposure of unprotected soils. When possible, clearing and grading shall be done in phases, starting further from the stream and maintaining a vegetated buffer, to ensure minimal sediment is made available for transport. To the best of your or your contractor's ability, project activity shall be conducted at times of little or no rainfall to limit the amount of overland flow as well as sediment disturbance and transport caused by heavy equipment. This will ensure compliance with the Missouri antidegradation requirement for BMPs [10 CSR 20-7.031(3)(D)] and general criteria [10 CSR 20-7.031(4)].

9. Disturbed riparian area, banks, etc., shall be restored to a stable condition to protect water quality as soon as possible. Seeding, mulching, and needed fertilization should be initiated immediately and completed within three days of final contouring. To ensure erosion of soil and deposition of sediment in waters of the state are not occurring from this project, on-site inspections of these areas should be conducted as necessary until successful revegetation and stabilization have been achieved. This will ensure compliance with the Missouri antidegradation requirement for BMPs [10 CSR 20-7.031(3)(D)].

10. Care shall be taken to keep machinery out of the water way as much as possible. If work in the water way is unavoidable, it shall be performed during low-flow conditions and in a way that minimizes the duration and amount of any disturbance to banks, substrate, and vegetation to prevent increases in turbidity. This will ensure compliance with the Missouri Water Quality Standards antidegradation requirement for BMPs [10 CSR 20-7.031(3)(D)] and general criteria [10 CSR 20-7.031(4)].

11. Sand, gravel, or other materials shall not be stockpiled within the channel, placed against the banks, or otherwise disposed of in a manner that will redirect erosive forces within the channel or threaten the stability of the channel or the bank lines. This will ensure compliance with the Missouri Water Quality Standards antidegradation requirement that waters of the state shall be maintained and protected [10 CSR 20-7.031(3)] and general criterion requiring waters to be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(H)].

12. Any stockpiled excess material shall be managed with appropriate BMPs or removed from the site and placed beyond the high bank on a non-wetland site. This will ensure compliance with the Missouri Water Quality Standards antidegradation requirement that waters of the state shall be maintained and protected [10 CSR 20-7.031(3)] and general criterion requiring waters to be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(H)].

13. Fuel, oil and other petroleum products, equipment, construction materials, and any solid waste shall not be stored below the ordinary high water mark at any time or in the adjacent flood-prone areas beyond normal working hours. All precautions shall be taken to avoid the release of wastes or fuel to streams and other adjacent waters as a result of this operation.

This will ensure compliance with the Missouri Water Quality Standards antidegradation requirement for BMPs [10 CSR 20-7.031(3)(D)] and Missouri Water Quality Standards general criteria requiring waters be free from substances preventing beneficial uses [10 CSR 20-7.031(3)(A)]; substances causing unsightly color or turbidity [10 CSR 20-7.031(4)(C)]; and physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(H)].

14. Petroleum products spilled into any water or on the banks where the material may enter waters of the state shall be cleaned up immediately and disposed of properly. Any such spills of petroleum shall be reported as soon as possible, but no later than 24 hours after discovery to the Department's Environmental Emergency Response phone line at 573-634-2436 or website at http://dnr.mo.gov/env/esp/esp-eer.htm. This will ensure compliance with Missouri Environmental Improvement Authority [Section 260.015, RSMo] to provide for the conservation of state water resources by the prevention of pollution and proper methods of disposal and Missouri Water Quality Standards general criteria requiring waters be free from substances that prevent maintenance of beneficial uses; cause unsightly color, turbidity, or toxicity; and/or impair the natural biological community [10 CSR 20-7.031(4)(A), -(B) -(H)].

Land disturbance activities disturbing one or more acres of total area for the entire project or less than one acre for sites that are part of a common promotional plan of development or sale may require a stormwater permit. This will ensure compliance with CWA Section 402 National Pollutant Discharge Elimination System Permit requirements under Missouri Clean Water Law [Section 644.026.1, RSMo]. Instructions on how to apply for and receive the online land disturbance permit are located at https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting; for technical assistance contact the ePermitting hotline at 573-526-2082 or toll free at 855-789-3889. Questions regarding permit requirements may be directed to the Department's Land Disturbance Permit Coordinator at 573-526-1139.

The Metropolitan St. Louis Sewer District is covered under Municipal Separate Storm Sewer System Permit MO-R040005 with measures to control and possibly treat stormwater. The stormwater requirements of the Stormwater Management Plan and any related ordinances are not replaced or superseded by acquisition of a WQC. This ensures compliance with CWA Section 402 National Pollutant Discharge Elimination System Permit requirements under Missouri Clean Water Law [Section 644.026.1, RSMo].

Pursuant to Chapter 644, RSMo, commonly referred to as the Missouri Clean Water Law, and fee regulations under 10 CSR 20-6.011(2)(H)1., this WQC shall be valid only upon payment of a fee of $150. The enclosed invoice contains the necessary information on how to submit your fee. Payment must be received within 10 business days of receipt of this WQC.

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250, RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the

date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Contact information for the AHC is: Administrative Hearing Commission, United States Post Office Building, Third Floor, 131 West High Street, P.O. Box 1557, Jefferson City, MO 65102; phone: 573-751-2422; fax: 573-751-5018; and website: https://ahc.mo.gov.

This WQC is part of the USACE's permit. Water Quality Standards must be met during any operations authorized. If you have any questions, please contact Billy Hackett by mail at Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176; phone at 573-522-1131; and email at billy.hackett@dnr.mo.gov. Thank you for working with the Department to protect our aquatic resources.

Sincerely,

WATER PROTECTION PROGRAM

John Hoke
Director

JH:bhp

Enclosure

c: Fiscal Management Section, Budget and Fees Unit
Meghan Oh, Crawford, Murphy & Tilly, Inc.
Jennifer Skiles, U.S. Army Corps of Engineers, St. Louis District
St. Louis Regional Office

DOSTER NATIONS ULLOM & BOYLE, LLC
ATTORNEYS AT LAW

16150 Main Circle Drive
Suite 250
Chesterfield, MO 63017
(636) 532-0042
(636) 532.1082 Fax

John M. Nations
jnations@dubllc.com

Monday, October 2, 2023

Via Email: mperkins@crevecoeurmo.gov
& khenke@crevecoeurmo.gov

Hon. Robert Hoffman, Mayor
Members of the City Council
Members of the Planning & Zoning Commission
City Administrator Mark Perkins
City of Creve Coeur
300 New Ballas Road
Creve Coeur, MO 63141

Re: Application 23-027 and 23-028 / 10300 Olive Boulevard

Mayor Hoffman, Members of the City Council, Mr. Perkins:

We represent the Spoede Woods Subdivision located next to the 96-acre Bayer site subject to the referenced Application. The residents of Spoede Woods have concerns about the manner in which this proposal has progressed as well as the proposal itself.

A development of this size with the capacity to change the character of a huge portion of the city requires extensive public input. This site is roughly the same size as the downtown business district in Clayton. It is transformative for a community and the surrounding neighborhoods.

The residents of Spoede Woods did not see the development plan until the end of August, which was just a week before the opening of the public hearing. The surrounding residents could have been brought into this process in time to review the proposal, have the opportunity to meet and discuss issues with staff and the developer, discuss concerns with City Council, and have their concerns addressed in a timelier manner.

Please understand that the residents of the Spoede Woods Subdivision, some of whom have lived in Creve Coeur for decades, are not opposed to the redevelopment of the Bayer site

into a viable mixed-use development. Far from it. But the residents are asking that their concerns be addressed with the same interest and commitment that the concerns of the current developer are being addressed.

Missouri cities are empowered to regulate land use through zoning laws, "*For the purpose of promoting health, safety, morals or the general welfare of the community.*" The residents are asking for nothing more. The required focus is not just on what the developer wants from the city, but also requires focus on the community as a whole and which necessarily takes into account the concerns of residents outside of the rezoning area.

Now that the residents have had the opportunity to review the plan and do their own preliminary research, we request a meeting with City staff to discuss their concerns. At the last meeting of the Commission, some members requested a personal visit to the site and we said we would be glad to accommodate such visits. We renew our invitation for Commission members to visit our neighborhood in person.

While there have been two meetings of the Planning & Zoning Commission before now, residents can be overwhelmed when confronted with professional development teams in a public environment, hundreds of pages of professionally drafted plans and documents, as well as a process which often affords residents a relatively limited time frame to understand issues and express concerns to protect their neighborhoods. Long after developers have sold the property and moved on, the residents of Spoede Woods and throughout the city will live with this transformative development for generations. In short, it is the residents and not the developer that must live with the long term consequences of the proposal.

It is not clear that the proposed Ordinance and attachment fully implement what has been presented as changes already agreed to. At the end of this process, it is the actual ordinance which will govern this development and not what may be included on the site plans submitted at this time. There appears to be nothing in the current Creve Coeur code to reserve more than statutory powers to the Planning & Zoning Commission and City Council when considering future potential amendments to the site development plans.

It is common for site plans to be amended, and, so long as they are consistent with the underlying ordinance, whoever the developer is at that time would argue the developer is entitled to have such amended site plans approved. Nothing prohibits the developer from submitting amended site plans. It is also common for site plans submitted in connection with rezoning requests to reflect a "best case scenario" for public input, only for the actual developer to later amend the site plan within the permissible boundaries of the ordinance and can result in developments very different than plans presented in the current rezoning hearings. You will notice on the current plan that the buildings shown on Lot 10 are presented as being much further from the residential property line than the actual ordinance will allow and those buildings could actually be built much closer to the residents than shown.

On this specific proposal, the developer seems intent on imposing the greatest change and impact in the area closest to the residents. Given the enormity of the site, it is not clear how this amounts to the best plan or why alternatives much less intrusive to the neighborhoods are not being considered.

The principal request of the residents of Spoede Woods is that the current wooded area on the Bayer site adjoining their subdivision remain undisturbed at the least and preferably enhanced and preserved. That area appears to extend approximately 120 feet from the property line. The proposed Ordinance at Section 4(5) provides guidelines for only a 40-foot buffer and only along Lots 1, 10, & 11. It makes no mention of Lot 17, which at least creates an ambiguity with the provisions of Attachment B at Section D(2)(a)(ii). The memorandum from the City accompanying the packet states only that "...it is their [developer's] intent to keep this buffer largely undisturbed." This "intent" is not contained in the Ordinance and is not enforceable.

Given the enormity of this site, you have to ask: Is it reasonable for the developer to consistently refuse to accede to this simple request affecting perhaps not more than only 3% of the site? In fact, the developer insisting on putting forth a plan to have the development unnecessarily as close to existing residents as possible and then refusing such reasonable requests for accommodation from the residents should raise concerns.

If you combine the proposed 40-foot buffer area with the 35-foot setback requirement provided for "Category C" properties at Section D(2)(a)(iv) of the proposed "Attachment B", it means a commercial building could be constructed within 75 feet of the residents' properties. ***That is nearly 50 feet closer to the residential properties than the edge of the buffer on the Bayer site today.***

Combined with the ability to build up to 50 feet in height on Lots 10 & 17 under "Category C" as well as to build parking garages and buildings 100 feet tall on Lot 4 under "Category A" with the further permission that "Additional lower levels accessed from the side or rear are permitted" it all means there is not a chance the buffer proposed by the developer could even begin to ameliorate or alleviate the effect of such a development on the neighboring residents. These are **clear and unnecessary detriments to the residents** impacting their quality of life.

In considering this proposal, the Planning & Zoning Commission is also guided by the provisions of the recently approved Ordinance 5844 and now codified at Section 405.390 of the City Code. The Ordinance mandates consideration of the following:

1. Promotion of a creative approach to the use of land and related physical facilities resulting in better design and development including aesthetic amenities;

2. **Preservation and enhancement of desirable site characteristics such as natural topography, vegetation;**

3. Public benefits are to be provided;

4. PMD shall mean a development "**when acceptable to the area**".

5. PMD must be "**compatible with surrounding neighborhoods.**"

6. PMD encourages the efficient use of land and resources and offers a mix of amenities for the populace;

7. Despite the minimum buffer called for in this proposed Ordinance, "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." ***This empowers the Planning & Zoning Commission and City Council to extend the buffer to the 120 feet requested by the residents and to require the developer to preserve and enhance the buffer over time.***

The residents are simply asking: ***How does this proposal meet these governing principles?***

The City has a tremendous opportunity to create a special transformative development in this area with the support of the neighboring residents and the community as a whole and the St. Louis region is watching this development with interest.

The Planning & Zoning Commission and City Council have within their authority the ability to create the restrictions necessary to protect the Spoede Woods Subdivision and other neighborhoods around the proposed development and the residents respectfully request that you do so.

Accordingly, the residents of Spoede Woods Subdivision request this proposal be held over until such time as the residents can present their concerns and have them addressed. Alternatively, we request that the Planning & Zoning Commission recommend to the City Council that this proposal be denied so that the affected residents and neighbors can work with the City on an appropriate plan for the site. Such a viable plan is achievable and will help the City achieve its goal of considering the welfare of the community as a whole and enhancing the City for generations to come.

We appreciate your consideration.

Yours very truly,

John M. Nations

Alternative Site Concept

Bayer West Campus Redevelopment, Creve Coeur, MO

A. Schnucks
B. Big Box/Retail/Mixed Use, 6-8 stories
C-D. Retail/Mixed Use, 3-6 stories
E. Town Square
F. Live-Work Spaces, 3 stories
G-H. Offices, 3-4 stories
I. Data Center
J. Parking Garage, 3 stories
K. Cafe
L. Apartments, 3 stories
M. Apartments, 3 stories
N. Single-Family Townhouses, 3 stories
P. Power Plant
Q. Nature Park

This Alternative Site Concept addresses:

Using established streets for easy and intuitive connectivity to nearby 39North District

Providing multi-modal transit options including walking and biking paths, sidewalks, and bus rapid transit stations

Building new construction primarily on current surface parking lots, preserving most natural green space and trees

Identifying and repurposing areas that currently contain beauty, history, and a “sense of place”

Restoring wetlands, creek beds, and forested areas to manage watershed

Planting new trees to fill in thinly-wooded areas, widening the natural buffer between development and established residential neighborhoods

Preserving natural wetlands and formal gardens/park space as necessary amenities for residents

Achieving incremental and gentle density through descending building heights, concentrating the tallest buildings along Olive Blvd.

original buildings
new construction
parking garages

water
grass, natural ground
flexible empty ground

old growth trees
new trees
playgrounds

shared use path
protected bike paths
sidewalks, foot paths, plazas

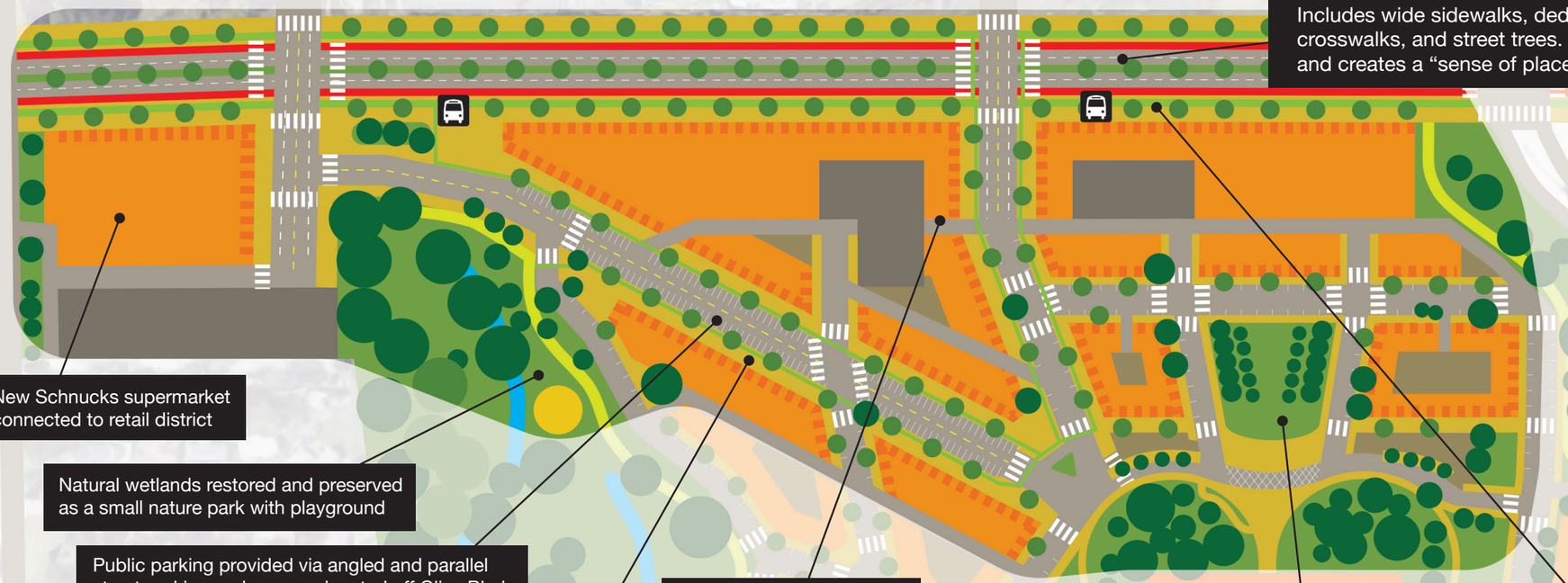
streets
bus lanes
street level retail

Kara Clark
September 2023

Mixed Use District

- Retail shopping, dining, and services district
- Compact, high-density development
- High activity uses are concentrated along and north of Water St. and on Olive Blvd.
- Ground level retail, upper levels for hotel, residential, and office use
- Features two parks and access to a nature trail, bike path network, and rapid public transit that connects to nearby neighborhoods, 39North district, and greater St. Louis region.

Olive Boulevard transformed into a Complete Street
Includes wide sidewalks, dedicated BRT bus lanes, protected bike lanes, wide crosswalks, and street trees. This both connects neighborhoods across Olive Blvd and creates a "sense of place", maximizing the value and high visibility of Olive Blvd.



New Schnucks supermarket connected to retail district

Natural wetlands restored and preserved as a small nature park with playground

Public parking provided via angled and parallel street parking and garages located off Olive Blvd.

Surface parking lots are almost completely eliminated making preservation of natural wetlands possible.

Retail loading areas and parking garages concealed behind buildings

The Champs Elysees in Paris, France, a large multi-lane boulevard, carries 3,000 cars per hour in addition to 100,000 pedestrians per day due to its strong sense of place.

Main Street, Greenville, SC

Town Square
Historic greenspace with old-growth trees transformed and repurposed into a town square in between new mixed use buildings and the lush landscaped and glowing facade of the mid-century modern business campus. Reutilizing this area adds unique beauty and interest, preserves cultural memory, and provides needed park space while adding value to adjacent shopping and restaurant space. Pictured: University of Nevada, Reno.

Olive Blvd. Retail
Big Box retail positioned at street to maximize visibility and and activity along sidewalk. Pictured: Wicker Park Target, Chicago, IL.

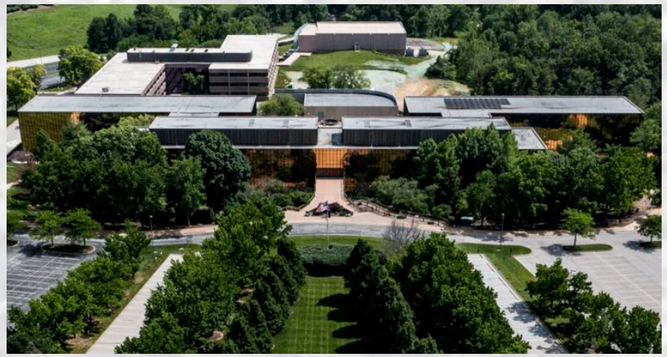
Credit: Alisa Hauser/Block Club Chicago

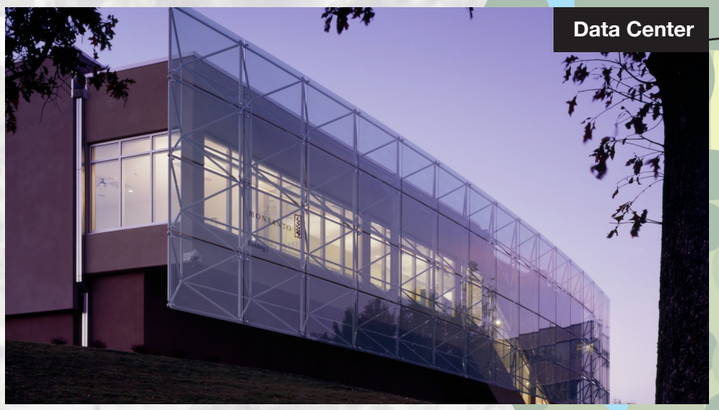
original buildings	water	old growth trees	shared use path	streets
new construction	grass, natural ground	new trees	protected bike paths	bus lanes
parking garages	flexible empty ground	playgrounds	sidewalks, foot paths, plazas	street level retail

Kara Clark
Alternative Site Concept, Bayer West Campus Redevelopment
September 2023

Business/Tech Campus

- Mid-Century Modern Office Complex
- Part of 39North District
- Includes: state-of-the-art Data Center, Cafe, and new Parking Garage
- Lush landcape, Mature trees, Campus setting
- Adjacent to retail district and town square
- Connected to nearby neighborhoods and amenities via biking, walking paths, and public transit





Data Center

New Live-Work studio/office buildings
Pictured: Nuhaus Live-Work in Seattle, WA.

original buildings	water	old growth trees	shared use path	streets
new construction	grass, natural ground	new trees	protected bike paths	bus lanes
parking garages	flexible empty ground	playgrounds	sidewalks, foot paths, plazas	street level retail

Kara Clark

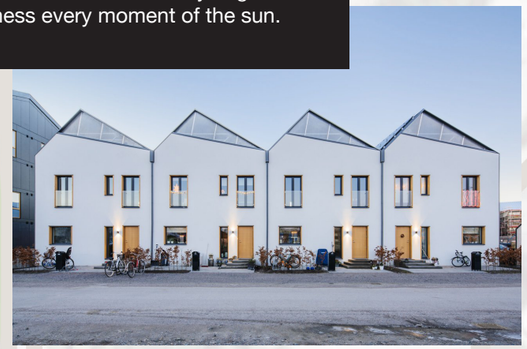
Alternative Site Concept, Bayer West Campus Redevelopment
September 2023

Residential Districts

- Two residential areas
- Medium gentle density with lower-rise three-story apartment and condo buildings and single-family townhouses
- Natural wooded setting with creeks and old-growth trees
- Walking/biking lifestyle
- Well connected to city amenities, bike path network, public transit, super market and shopping within a short walk
- Residential amenities include a nature park and two playgrounds
- Net-Zero homes with solar panels, on-site power plant, energy efficient appliances and systems

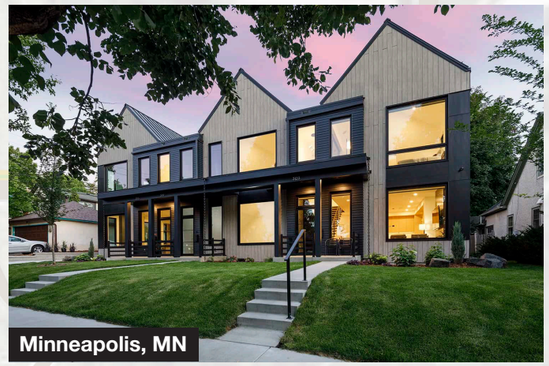
Solar Homes
Compact row houses feature carefully angled solar panels that harness every moment of the sun.
Sweden

Austin, TX



Passive House & Net Zero Energy
Linnaean Apartments, Cambridge, MA

PlusEnergy in Freiburg,Germany



Minneapolis, MN

PlusEnergy in Freiburg,Germany

original buildings
new construction
parking garages

water
grass, natural ground
flexible empty ground

old growth trees
new trees
playgrounds

shared use path
protected bike paths
sidewalks, foot paths, plazas

streets
bus lanes
street level retail

Kara Clark
Alternative Site Concept, Bayer West Campus Redevelopment
September 2023

Jason Jaggi <jjaggi@crevecoeurmo.gov>

Re: Olia Village - Revised Plans?

1 message

Jason Jaggi <jjaggi@crevecoeurmo.gov> Thu, Sep 28, 2023 at 2:09 PM
To: Monica Moore-Zigo <Monica_Moore-Zigo@gensler.com>
Cc: "blmoore@crevecoeurmo.gov" <blmoore@crevecoeurmo.gov>, "hsilverman@crevecoeurmo.gov" <hsilverman@crevecoeurmo.gov>, "Dsinger@stlwarehouse.com" <Dsinger@stlwarehouse.com>, "rachelprotzel@gmail.com" <rachelprotzel@gmail.com>, "faye.mccary@sbcglobal.net" <faye.mccary@sbcglobal.net>, "yilingmi@hotmail.com" <yilingmi@hotmail.com>, Mark Manlin <mmanlin@crevecoeurmo.gov>, Marty Smith <smarty26@att.net>

Good Afternoon,
I thought it would be appropriate to provide a response to your bullet list of questions below (in bold text) with additional information on these topics and to help you find the updates on the revised plans which are posted on the City's website. I will also include your comments in the packet for Monday's P&Z meeting.

A few other items that I want to pass along:

- Residents can sign up to receive e-mailed notices for P&Z and City Council agendas after they are posted. The link for this service can be found here: E-News and Notices If you choose not to subscribe, meeting agendas and minutes can always be found here: **Agendas and Minutes**
- The Project Planning Page is the best source to find updated information regarding this proposal: **Current Planning Projects**

I hope this information is helpful.

Thank you,
--Jason

On Wed, Sep 27, 2023 at 6:57 PM Monica Moore-Zigo <Monica_Moore-Zigo@gensler.com> wrote:

> Hi, Jason-
>
> Thank you for your previous follow up responses on Monday, and for your continued efforts to advocate for a destination-quality, amenity-rich, pedestrian friendly development on the Bayer West site. The City has put a lot of work into developing its Comprehensive Plan and we know that this site has been identified by many as a key support piece for the future development of 39 North, Creve Coeur, and the greater region.
>
> Our neighborhood group is 100% in favor of a well-planned mixed use development on this site. We believe that a Planned Mixed-Use District (PMD) to support this objective can be an appropriate way to reach this objective; however, the rules embedded in such a special zoning district must be carefully considered to not only meet the needs of the property owner today, but also align with the City's long-term vision and serve as a benefit to the surrounding neighborhoods.
>
> Our neighborhood group was able to meet with the development team on site yesterday. We walked through the concerns the neighbors have previously raised with the current plans, and the development team used the opportunity to clarify their proposal:
>
> - **RETAINING WALLS:** The development team told us they have adjusted the grades to lower the retaining wall height where it backs up to Mission Hills, Ramblewood, and Spoede Woods

(with the highest walls now ~14', in lieu of the ~20' walls originally proposed). However, there were substantial discrepancies in the site sections we were presented, and we have concerns that the development team is not working from accurate information about existing conditions. We understand that the proposed changes to the wall design have been made on the latest grading plan and this information will be included with the updated package posted today. We will review the updates and advise the City of any discrepancies. No updates were presented to the proposed 20' tall retaining wall to the east of Spoede Hills. We would like to note that even the "improved" retaining wall proposal still far exceeds the City' maximum height of 6', and that the proposed walls are still each designed as one single wall that far exceeds the City's design standard of a 4' height limit before a stepped wall design is required. **The City's Subdivision Regulations, under long term erosion control (Section 410.270.C.1), state that retaining walls shall not normally exceed a height of 6-feet. Below is the full text:**

All excavations, grading or filling shall have a finished grade not to exceed thirty-three percent (33%) except that embankments less than three (3) feet in height shall be exempt therefrom if properly sodded. Steeper grades are allowed if the excavation is through rock or the excavation or fill is protected by a properly designed revetment or retaining wall approved by the Zoning Administrator. Such walls shall not normally exceed a height of six (6) feet.

Based on the way it is written, Staff does not intepret this provision to represent an absolute maximum height limitation. As you mention, the city's Design Guidlines also provide recommendations for the design of retaining walls to minimize the height and length of retaining walls and to screen with appropriate landscaping. It goes on to talk about terracing of walls that are above 4-feet, with specific recommendations for walls facing a street. These design guidelines serve the purpose of *guiding* site planning and building design but they do not serve the same function as a code required standard that must be met. The introduction section of the Design Guidelines speaks to this distinction by acknowledging that site features or other conditions may require variation. As presented in the revised plans (Sheet C-101) the developer has lowered the wall with a maximum height now at approximately 14-feet with some segments of the wall facing internal to the site and some facing outward. A planting plan has been provided which shows a continuous buffer of mostly evergreens along the entire border of Lots 1, 10, and 17 when adjacent to existing single family to screen the wall and provide an additional layer of buffering (Site Development Plan Submittal Sheets L-141 and L-144). The cut sheet for the retaininzoning district process and the explanation above, retaining walls taller than 6-feet can be approved but I expect this component, and really the buffering proposal in general, to be a significant part of the discussion Monday night.

- **STORMWATER:** CMT Engineering showed us a stormwater study they have submitted to the Army Corps of Engineers, showing the present-day course of Dielmann Creek. We were not provided a copy. Is this study available to the public? We could not find it posted on the city's web site as part of the application package. Our concern here too is that the design team may not be working from accurate information. The study appeared to show that the entire upper course of present-day Dielmann Creek (north of Spoede Woods) occurs within an existing stormwater pipe; however, this does not correlate with the drainage patterns the residents have observed on our properties over the past 15+ years. There is a 3'-5 deep surface drainage channel in the woods north of Spoede Woods (about 40' north of the property line) which appears to have been the real course of Dielmann Creek ever since Monsanto constructed a parking lot over the original stream course 40+ years ago. This on the ground reality does not appear to be reflected in the current engineering documents, and the City's required stream buffers on either side of this drainage channel are not being provided in the proposed design. We understand that the engineering team is working on a stormwater impact plan showing upstream catchment areas. We recommend that the City take the opportunity to review this document with its own engineering consultant before approving the current development plan, but if this is not possible then the neighborhoods would like the opportunity to consult our own professional on this matter for a peer review of drainage issues. **We will place the Corps of Engineers study and the MSD conceptual review comments that the developer provided to us with the latest submittal on the Project Planning website. This should be posted later this afternoon. Please refer to the developer's response letter on the website with additional details on the status of the federal review. I would also point**

out that state and federal permitting requirements control this aspect of the development as they have the primary jurisdictional authority. In the City's Stream Buffer Regulations, there is an exemption to the requirements of that ordinance for projects that fall under Corps of Engineers and State DNR permitting requirements. The full code section is below (Section 430.040.C.7) for reference.

C. Exemptions

7. Any activities approved under a 404 permit issued by the Corps of Engineers and 401 water quality certification issued by the Missouri Department of Natural Resources.

The stormwater plan requires MSD approval based on the final design prior to the City issuing a site improvement permit. MSD's comments, based on their review at the conceptual review stage, have been provided by the developer which gives you a sense of all of the requirements that will need to be provided to MSD with the final design of the stormwater plans.

- **TREE PRESERVATION:** We did not hear of any updates yesterday to the proposed tree preservation plan. The neighbors would like to note that the tree preservation plan presented at the second zoning hearing does not meet the City's land development standard of 50% preservation of tree masses AND 50% preservation of individually surveyed trees. **Staff would also like to have a better understanding of the methodology of how they performed their calculations based on the requirements of the ordinance. Staff will suggest that a condition of approval be included to provide more details for the tree conservation plan to show their calculations prior to final consideration and vote by the City Council.**

We also discussed possible ways that the office building, parking lots and/or parking garage siting could potentially be adjusted to both maintain the desired leasable office area and parking counts, maintain the existing 100' green buffer with Spoede Woods, Ramblewood, and Mission Hills, and to provide a better opportunity to address stormwater concerns. However, we understand that there is no opportunity to make substantial changes to the current plans before the final vote before Planning and Zoning this coming Monday, October 2.

Residents were also disappointed to learn that there will be no opportunity for City decisionmakers to view the impact of the development proposal from our side of the property line, despite repeated offers to the City to open up our properties to a public meeting, if needed, for this purpose. The City has now arranged three on-site tours for the development team to make their case, while Creve Coeur taxpayers have not been afforded the same opportunity when they requested it.

Thank you for letting us know about the materials posted on the city website today. We will review the updates that have been submitted and provide and further input we may have at Monday's Planning and Zoning hearing.

Best Regards,

Monica

Monica Moore-Žigo
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+1 713.844.0000 Main

+1 314.753.3007 Mobile

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909 Fannin Street
Suite 200
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USA

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From: Jason Jaggi <jjaggi@crevecoeurmo.gov>
Sent: Wednesday, September 27, 2023 3:10 PM
To: Monica Moore-Zigo <Monica_Moore-Zigo@gensler.com>; Dsinger@stlwarehouse.com; rachelprotzel@gmail.com; faye.mccary@sbcglobal.net; yilingmi@hotmail.com
Cc: blmoore@crevecoeurmo.gov; hsilverman@crevecoeurmo.gov
Subject: Re: Olia Village - Revised Plans?

Good afternoon,

I'm reaching out to let you know that the applicant's revised plans and supplemental documents have been received and we have placed them on the City's website here: **Current Planning Projects.**

These revisions and the staff report will be presented to the Planning and Zoning Commission on Monday, October 2nd at 6:00pm. The public hearing was continued from the last meeting should you wish to address the Commission with any additional comments. The October 2nd agenda packet, when complete, will be available on the Agendas and Minutes page of the City's website here: **Agendas and Minutes.**

Thank you,

--Jason

On Fri, Sep 22, 2023 at 3:53 PM Monica Moore-Zigo <Monica_Moore-Zigo@gensler.com> wrote:

> Dear Jason-
>
> Thank you for your continued efforts in coordinating the zoning review process for the proposed Olia Village development.

On behalf of the surrounding neighborhoods, I have a few follow up questions from last Monday's zoning hearing:

1. Can you give us a better idea of the timeline and process for MSD review of the development proposal?
2. As part of Creve Coeur's 2023 Watershed Management Planning process, is there an opportunity for the City to ask its civil engineering consultant to conduct a peer review of the proposed development to ensure it aligns with stormwater planning best practices and with the City's Watershed Management Plan?
3. Has there been any movement on arranging a Planning Commission tour of or access to adjoining residential properties? As stated at the hearing, there are several Spoede Woods residents who are more than happy to accommodate Commissioner Potashnick's request for the Commission to view the potential impact of the development in person. We have not heard anything back from the City on this as of yet.

The neighborhood group has been working with the development team to find a time next week for them to present any further plan updates they may have with us.

Thank you,

Monica

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Jason W. Jaggi, AICP

Director of Community Development

City of Creve Coeur, Missouri

300 North New Ballas Rd

Creve Coeur, MO 63141

314-872-2504

www.crevecoeurmo.gov

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Jason W. Jaggi, AICP
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Creve Coeur, MO 63141
314-872-2504

www.crevecoeurmo.gov

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Jason Jaggi <jjaggi@crevecoeurmo.gov>

Fwd: Pictures of Trees behind Spoede Woods

1 message

Rachel Protzel <rachelprotzel@gmail.com> Tue, Sep 19, 2023 at 3:07 PM
To: Jason Jaggi <jjaggi@crevecoeurmo.gov>, bmoore@crevecoeurmo.gov

Dear Ms. Moore and Mr. Jaggi,

Last night, several of the commission members mentioned wanting to see the trees that are in question directly behind the Spoede Woods homes. I am hoping that they will still come for a site visit as discussed, but I am also attaching some pictures of the trees as some of these vantage points cannot be seen from our yards and can only be viewed from the current nature trail. I'm also including pictures of the trees taken from our yard in the winter time when the tress are all bare as this view also cannot be observed at this time. I think it is important that these pictures be shared with the commision members so they can get a better understanding of our perspective prior to making any decisions. Below is an explanation of what is shown in each picture. Please forward to the Planning and Zoning Commission members for their review.

2386- a current view along the nature trail directly behind homes 11 and 12 Spoede Woods

2388 - the very tall, mature trees closest to new development all of which I believe would be removed under the current plans

2389- view from the break in the current trees looking from the trail towards the existing office building. Please note how close the building is already. The large 8 story parking garage would be directly to the left of this building, making it closer to my home, and then there would also be two small office buildings in front of these structures, even closer still to my home (presumably where the trees are now).

2392- the nature trail looking in the opposite direction. Can see the existing office building off to the left, through the trees.

2397- view from the existing service road on the former Bayer property looking back through the trees to my house. Please notice there is already a direct view and it will be even further exacerbated once they remove the trees there. It will take many decades for newly planted evergreens to reach the heights of these existing trees, and with an 8 story garage on top of a 15-20 foot retaining wall, that view will likely never be blocked.

2439- View from our second floor window. For scale, the evergreen trees planted in the corner of my yard are about 25 feet tall, and the trees on the former Bayer property behind them are about three times taller than that. If many of those trees behind are removed, we will be left with almost no screening for many years to come. Also please note towards the right side of the picture, you can see the truck that is parked on the service road on the former Bayer property. I believe in the presentation, they said that road was about 120 feet away from our property line and they are planning to build the retaining wall and office buildings substantially closer than that.

6034 and 8524- views from our backyard patio taken last winter and the winter prior (with and without snow). Please note just how much of the former Bayer property is visible once the leaves have fallen.

Thank you for taking these pictures under consideration and please let me know if you have any questions.

Thanks,
Rachel Protzel
12 Spoede Woods
314-503-4141

8 attachments

IMG_2389.JPEG
1844K

IMG_2392.JPEG
2239K

IMG_2397.JPEG
2059K

IMG_2386.JPEG
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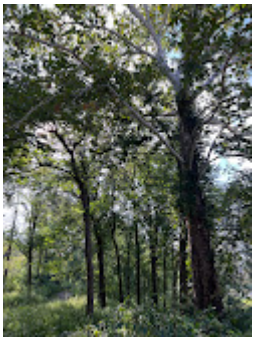

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IMG_8524.jpg
799K

IMG_2439.jpg
865K

Jason Jaggi <jjaggi@crevecoeurmo.gov>

Comments on #23-027, #23-028 aka Olia Village

1 message

Daniel Teasley <daniel.teasley@gmail.com> Mon, Sep 18, 2023 at 5:24 PM
To: jjaggi@crevecoeurmo.gov
Cc: Carolyn Teasley <carolynteasley@gmail.com>

Hi Jason,

I wanted to offer some comments in writing to the Planning and Zoning Commission since I will be unable to attend tonight's meeting. These reflect the views of my wife and me, residents of a property on Mission Hills Ct that would be impacted by the development.

We welcome new economic development and are encouraged at the growth the proposal could generate. However, we have two major concerns that we do not see as addressed fully from the proposal documents and the first Commission meeting a few weeks ago. Hopefully the Commission can take them into account when considering the applications.

First, we would like to see impacts to the Ladue School District assessed. It does not appear the developers have done any work on this topic. I would expect a demographic study that tabulates the projected number of school-age children who would reside in the development as an essential start. And from that, I would like to see an action plan from the developers working with the Ladue School District to understand how the District will accommodate new students. The Ladue School District provides tremendous value to our community, and a surge in enrollment that is not sufficiently planned could have a detrimental impact to our childrens' education. The District asked for and was granted a substantial bond issuance to modernize our schools and this capital expansion work is just now being completed. It is unclear to me, however, that our schools can handle the enrollment that could be generated by this development and the development at I-170 and Olive in Olivette already under construction even with our new school facilities.

Second, we would like to see the issue of tree removal and sound/sight/noise barriers on the western edge of the development (against which we reside) better addressed. The developer is proposing removing a tremendous number of old growth trees in the area. They should consider adjusting the plan to remove fewer trees in the first place, and be sure they are planting sufficient trees in the areas where they must be cleared (more than are currently planned, in my opinion). I know the last meeting had some discussion on this topic, but I wanted to reiterate that a situation where currently undisturbed forest is razed isn't to be taken lightly. The development seems to have some additional geography in the east and south of its plans with fewer trees already that may allow for a shift of the overall construction further away from those residences on the west edge to retain some of the natural barrier and existing forest. New trees alone will not provide a sufficient screen during construction or for decades afterwards to retain the privacy or environmental benefits these neighborhoods currently enjoy.

I look forward to reviewing the hearing and hope our comments will enter the record to be considered by the Commission.

Sincerely,
Daniel and Carolyn Teasley
855 Mission Hills Ct
Creve Coeur, MO 63141

CREVE COEUR NEIGHBORS FOR RESPONSIBLE DEVELOPMENT

CreveCoeurNeighbors@gmail.com

PLEASE ATTEND: Planning and Zoning Commission meeting at Creve Coeur City Hall

Monday, October 2, 2023 6:00 p.m

Meeting Information

Petition

Name(required)

Email(required)

Message

Do you live in Creve Coeur?(required)

Yes, I live in the affected area.

Send

Join us in letting Creve Coeur's Government know that we care about our neighboods by signing this petition.

1. We believe the current development proposed for the former Bayer West campus is putting Creve Coeur neighborhoods at risk.
2. Development should not have a negative impact on neighboring communities.

3. Any development affecting neighboring communities should have a strong component of community engagement before being considered by the City of Creve Coeur.

We appreciate you supporting your neighbors and making sure that Creve Coeur stays a great place to live.

CREVE COEUR NEIGHBORS FOR SUSTAINABLE DEVELOPMENT

Blog at WordPress.com.

Response Date	1_Name	2_Email	3_Message	4_Do you live in Creve Coeur?
9/29/2023 13:22	3	taram@h.com		Yes, I live in the affected area.
9/29/2023 12:32	Adam Newman	adamnewman4@icloud.com	I live in the neighborhood that is affected by this development and would strongly like to see the 120ft buffer maintained for all existing homes adjacent to the development.	
9/30/2023 14:59	Aecha ybarra	marion.ybarra@gmail.com	An 8 story parking establishment is not in the best interest of this community. Preserve the environment, protect the inhabitants.	Yes, I live in the affected area.
10/2/2023 7:29	aisha Bangert	missish22@yahoo.com	We need green spaces!!	Yes, I live in the affected area.
10/1/2023 11:40	Alan Burke	alan.burke@stretchlab.com		Yes, I live in the affected area.
10/1/2023 20:15	Alex	alexzixingliu@gmail.com	I still prefer some green space Kept.	Yes, I live in the affected area.
9/29/2023 14:37	Alex Chen	cyuran@wustl.edu		Yes, I live in the affected area.
9/30/2023 11:41	alexandra tsygankov	alexandratsygankov@gmail.com		No
9/30/2023 15:35	Ali Mulry Babitz	alisonbabitz@gmail.com	The potential development could negatively impact our new property.	Yes, I live in the affected area.
10/1/2023 13:21	Allison Chen	umccgs@gmail.com		Yes, I live in the affected area.
10/2/2023 10:46	Allison Friedman	afriedman631@gmail.com	I am not opposed to development. I want to ensure our green spaces and wooded areas are protected and we remain in a residential area.	Yes, I live in the affected area.
10/1/2023 12:03	amana nasir	amana.nasir@mercy.net	Kindly do not take the green areas away. Build; but responsibly! Please!	Yes, I live in the affected area.
10/1/2023 13:50	Amy Jeffers	amyjeffers08@gmail.com		Yes, I live in the affected area.
9/30/2023 12:39	Anastasia	anastasiachostner@gmail.com		Yes, I live in the affected area.

10/1/2023 20:09	Anastasia Kaltenegger	anastasia.kaltenegger@afsoe.at		Yes, I live in the affected area.
10/1/2023 9:05	Andrea Alexander	andreamalexander@gmail.com	I am a senior who has lived in this neighborhood a very long time and I am very worried about this new development. The proposed buildings are much too high and too close to the neighbors' houses. This development does not fit in with our community at all. I hope the city will listen to its residents and make the developer adjust their plans significantly so that we can get a good development that works for everyone.	Yes, I live in the affected area.
9/30/2023 15:00	Andrew Babitz, J.D. CFP(r)	andybabits@gmail.com		Yes, I live in the affected area.
10/1/2023 7:41	Angela Chostner	achostner@gmail.com		Yes, I live in the affected area.
9/30/2023 15:32	Angela Lamb	angelabellelamb@gmail.com	Ladue schools are already too crowded. More apartments is just dumb. Please add culture, independent restaurants, walking trails, not more crowding.	Yes, I live in the affected area.
10/1/2023 14:19	Anna Molina	anna.brasher@gmail.com	I do not live in Creve Coeur, but I live close to the affected area (Olivette) and will be affected as we use Olive often. Also, my grandparents and mom lived in Creve Coeur for dÃ©cades (on Chilton Lane off Spoede)	No
9/30/2023 19:23	AnnaMaria Bocchetti	aboccetti@gmail.com	I stand by my neighbors and do not support this new construction!	Yes, I live in the affected area.

9/29/2023 19:33	Anne Teymouri	stlouis333@hotmail.com	I think planning should be done very carefully to make sure we do not sacrifice the good things we already have in Creve Coeur communities in the process of developing new amenities.	Yes, I live in the affected area.
9/29/2023 13:28	Ayla Protzel	aylaprotzel@gmail.com		Yes, I live in the affected area.
10/2/2023 7:19	Becky Shimony	bkshimony@aol.com	Please create a better buffer with the new development	Yes, I live in the affected area.
9/30/2023 23:09	Benjamin Teymouri	benteymouri@gmail.com	I agree with the organizationâ€™s opposition to this development and think the developers should maintain a large buffer between their development and the existing homes.	No
9/29/2023 14:18	Bernard Plassmeyer	bplassmeyer@gmail.com		Yes, I live in the affected area.

10/1/2023 11:22	Bhavisa Patel	bhavisa@msn.com	Please donâ€™t do this at this location. We have plenty of open space down olive that have abandoned businesses that need work. Build retail space there! We do NOT need anymore townhouses or apartments! Our schools canâ€™t handle anymore students, you need to consider this before building in our district! I canâ€™t believe the city of Creve Coeur would even consider this plan. We need the greenery for our wildlife, leave it alone please! Build on the eyesores of Olive that are abandoned and donâ€™t take away any more trees!	Yes, I live in the affected area.
9/30/2023 23:07	Brandon Fick	brandonsfick@outlook.com	I support this petition. I hope that the city of Creve Coeur acts in good faith with its residents and creates a positive environment for all those that live here above those that visit it.	Yes, I live in the affected area.
10/2/2023 8:13	brandon jeffers	brandonjeffers@sbcglobal.net	Proposed buffer is not adequate as an 8 story building is planned to sit just 75 feet off my property line. Further, some computer images produced by the applicant are misrepresenting green space	Yes, I live in the affected area.
10/1/2023 15:58	BRETT E BERGER	bergerbrett7@gmail.com		No

10/1/2023 15:49	Caridad Ribadeneira	crldea@icloud.com	I used to live in Spoede Woods, now I live in Spoede Rd. It would be so sad that neighborhood transformed, trees turned down. What is going to happen to the traffic? Even though we are not part of the city we will all be affected.	No
9/30/2023 22:34	Carly Scaduto	carlyscaduro@gmail.com		Yes, I live in the affected area.
9/30/2023 21:36	Carrie Ruben	carrie.s.ruben@gmail.com		No
10/2/2023 6:21	Cary stolar	carystolar@sbcglobal.net		Yes, I live in the affected area.
10/1/2023 17:44	Catherine Shawki	cshawk27@gmail.com		No
10/1/2023 0:25	Catherine Stahr	cncstahr@yahoo.com	Please rethink the proposed development. The area already has an issue with traffic overflow. Lindbergh and Olive will be a mess.	No
9/29/2023 13:18	cearan Mcgrath	inkarmor@sbcglobal.net		

9/30/2023 14:39	Cecelia	ceceliamyates@gmail.com	I agree that the residents and affected community members should have input. We have kids in the Ladue School District and are intensely concerned about the schools being at capacity already (despite what the official impression from district officials might be, as parents, the experience is one of overcrowding.) We live just over into a non-Creve Coeur municipality but those are arbitrary distinctions because this development is a stoneâ€™s throw to several others. Functionally speaking, we are much more affected than a Creve Coeur resident on the other side of 270. Our path of travel will also be affected by this traffic. Turning Olive into another Manchester sounds just terrible.	Yes, I live in the affected area.

10/1/2023 13:10	Charles Wittenberg	charles.wittenberg12@gmail.com	I live right behind the Schnucks off Spoede and will be heavily impacted by this development. I support to an extent, I agree with the conditions set forth by this committee and feel they address all my concerns. If the city doesnâ€™t force the contractors, developers who will make tons of money either way to develop this responsibly and considerately toward the nearby residents they will do as they please. These guardrails are extremely reasonable make a lot of sense.	Yes, I live in the affected area.
9/29/2023 15:12	Chirawan Demos	chirawanchic@gmail.com	We want to preserve the interests, safety and welfare of our community. We are concerned about the traffic, the noise, the light ðŸ’¡. The flooding , we donâ€™t want that.	Yes, I live in the affected area.
10/1/2023 22:17	Chubao Huang	cbhuang6@hotmail.com		Yes, I live in the affected area.
10/1/2023 16:33	Cindy Bushue	bushue@charter.net	Iâ€™m an Olivette resident and agree with all of the concerns and suggestions that the creve coeur residents have raised over this development.	No
9/29/2023 16:38	Connie Chai	chaiqingqing0315@gmail.com		Yes, I live in the affected area.

9/29/2023 15:11	Cyrus Teymouri	cteymouri@yahoo.com	This project as it stands is a transfer of wealth from the current long standing Creve Coeur residents to an out-of-state developer. Firmly oppose it!	Yes, I live in the affected area.
9/29/2023 12:35	Danielle Singer	daniellegsinger@gmail.com		
9/29/2023 13:57	Darko Simic	simicokrad@gmail.com		No
9/30/2023 11:31	David Singer	dsinger@stlwarehouse.com	Please maintain the current 120 foot buffer. This is far too dense and has commercial/residential flipped. We need RESPONSIBLE development for Creve Coeur.	Yes, I live in the affected area.
10/2/2023 8:19	Dawn Buscher	dhbuscher@gmail.com	No on rezoning application!	Yes, I live in the affected area.
10/1/2023 10:26	Denise Glass	denise.l.glass@gmail.com	Creve Coeur should maintain the current buffer and align with current ordinances.	Yes, I live in the affected area.
9/30/2023 18:27	Destiny Hanlin	destiny.hanlin@gmail.com	There's already been too much development from the Danforth side.	Yes, I live in the affected area.
9/30/2023 8:04	Devin Mueller	dhallahan6@hotmail.com		Yes, I live in the affected area.
9/30/2023 8:33	Divya Rai	rai.divya@gmail.com	We support this petition and responsible development of our neighborhood	Yes, I live in the affected area.
10/1/2023 10:15	Dr. Gena Napier	genanapier@hotmail.com	I support less population density and more green space. Please protect the wooded buffers for our birds and native wildlife .	Yes, I live in the affected area.
10/1/2023 10:47	Dr. Kelby Napier	kelby.napier@gmail.com	Before building more high density residential housing, we need to estimate and prepare for the impact on our local public schools.	Yes, I live in the affected area.
9/30/2023 14:53	Dusty Edrington	dalyssa827@gmail.com		Yes, I live in the affected area.

9/29/2023 13:28	eli protzel	eliprotzel@gmail.com		Yes, I live in the affected area.
10/1/2023 14:30	Elizabeth David	ed3997@prodigy.net	I support the idea of redeveloping this property but NOT this specific project. The developer has shown an extreme disregard for the zoning ordinances carefully crafted by the city with careful and thoughtful planning for how Creve Coeur wants to be developed. Itâ€™s time to send them back to the drawing board to design a project that more closely aligns to the goals of the city.	Yes, I live in the affected area.
9/29/2023 17:56	Elliot Smith	emse36@yahoo.com		No

10/2/2023 14:26	Eric Vanderhoef	Evanderhoef@yahoo.com	this development plan is a bad idea for Creve Coeur residents. The mixed use proposal will stress the limited infrastructure of Creve Coeur with traffic issues on both Olive and Lindbergh. Neither of these roads can handle the increased volume of traffic. On a secondary note, the urban requirements of this type of development (lighting, noise, traffic) will shift this residential area into a more urban environment. None of us signed up for an explosion of new office and retail traffic. This area is a residential part of Creve Coeur, not a playground for developers and city planners to drool over.	Yes, I live in the affected area.
9/29/2023 13:16	Erica Kliethermes	queenesp1@aol.com		
10/1/2023 8:05	Erin	jerzeeflex@gmail.com	This structure would affect a family member who lives in creve coeur. Please do not put this up and ruin their ability to enjoy the quiet of their backyard and overall health from extra exhaust fumes.	No
9/30/2023 8:21	Erin Fick	erfick@atsu.edu	I support this petition	Yes, I live in the affected area.

9/29/2023 19:42	Esmail Teymouri	ateymouri@yahoo.com	Any new development in our great city of Creve Coeur should take the concerns of its citizens most seriously. There is a lot to say pros and con of any development .	Yes, I live in the affected area.
9/30/2023 14:10	Fran and Faye Cohen	faye.mccary@sbcglobal.net	Concerned about the privacy of our backyard	Yes, I live in the affected area.
9/30/2023 22:35	Frank Scaduto	frankscaduto@gmail.com	I line in Creve coeur	Yes, I live in the affected area.
10/2/2023 10:47	Fred Schneider	freddy81@aol.com		Yes, I live in the affected area.
9/30/2023 10:39	Fudong Wang	fudongwangy@gmail.com	We should protect our natural environment. Please keep the current green space zone,	No
9/30/2023 7:23	Grace	xiaohuajin2001@gmail.com	Protect our living environment.	No
9/30/2023 11:55	grace agnew	imgraceryan@gmail.com		Yes, I live in the affected area.
10/2/2023 10:22	Guodong Li	guodongleeapple@icloud.com	for protecting our natural environment, please keep the current green space zone	No
9/30/2023 17:51	Heather Lotter	hwainsco@yahoo.com	No to the development	No
10/1/2023 11:48	Hina Sarwar	hszaaa3@gmail.com	We do care about our neighborhood! Support our neighborhood.	Yes, I live in the affected area.
10/1/2023 18:43	Hung Fung	fungh@umsl.edu	Against Rezoning for the Bauer campus	Yes, I live in the affected area.
9/29/2023 12:41	Iain Newman	newmia19@alumni.wfu.edu	I live in the neighborhood that is affected by this development and would strongly like to see the 120ft buffer maintained for all existing homes adjacent to the development.	
9/29/2023 13:56	Inge Bosnjak	ingebosnjak@yahoo.com		No
9/29/2023 20:35	Jack	tr.yue.fang@gmail.com		No
9/30/2023 10:34	James M. Smith	jimsmith26@att.net		Yes, I live in the affected area.

10/1/2023 12:34	Jean Zhang	jeanzhang02@hotnail.com	We have been this area for a while and really love our residential space. I support maintaining the green space and against the idea of residential buildings with dense residents.	Yes, I live in the affected area.
9/29/2023 13:17	Jeff Drew	jeffdrew53@yahoo.com		
9/30/2023 20:18	Jennifer Scheffel	djescheffel@gmail.com	We need to have more discussion as a community about such large scale development. Including traffic and usage studies.	Yes, I live in the affected area.
10/1/2023 8:24	Jessica Teymouri	teymourij@gmail.com	I grew up in Creve Coeur and my family still lives there. Please give this petition careful consideration	No
10/2/2023 8:23	Jessica Witte	jess@jessicawitte.com	Community Engagement to ensure neighbors concerns are heard would help the project. Love the trail component, could that be strengthened.	Yes, I live in the affected area.
10/2/2023 12:46	Jiansheng Huang	jshuang2011@gmail.com	To protect our natural environment, please keep the current green space zone. Thanks	No
9/30/2023 17:31	Jianxin Tan	jtan62269@yahoo.com		No

10/2/2023 16:17	Jill Henderson	counselor2008@sbcglobal.net	Hello-I live right outside of Creve Coeur in STL Unincorporated County. We need to keep the tree buffer for the residents. The traffic noise is getting louder and louder out here. The green space is disappearing as cities allow more apartments to be build and office buildings. It is crowding the schools and creating more traffic for us all.	No
9/29/2023 14:21	Jim Goodman	goodmaj@sbcglobal.net		No
10/1/2023 10:44	Joan Avery	averyjoancinco@gmail.com	I support more green space	Yes, I live in the affected area.
9/30/2023 19:03	Joanie Protzel	mrsjoanie@aol.com	I completely support this petition !	Yes, I live in the affected area.
9/30/2023 8:10	Joanne Singer	singersmom@aol.com		No
9/30/2023 14:18	Joe	joschob@siue.edu		Yes, I live in the affected area.
9/30/2023 13:56	John Singer	JohnRS421@gmail.com	I live right next to Creve Coeur in Unincorporated St Louis County. I do not want exceptions made to rules for large corporations.	No
9/30/2023 15:44	Joseph Babitz	jbab45@yahoo.com	I support this petition	Yes, I live in the affected area.
9/30/2023 9:02	Juan Li	juanligw@gmail.com		Yes, I live in the affected area.
9/30/2023 15:08	Judy Babitz	judybabitz@aol.com		Yes, I live in the affected area.

9/29/2023 19:49	Julie Fleck	jrfleck@sbcglobal.net	I live in the neighborhood that will be directly effected by the proposed changes. For over 25 years I have lived symbiotically with the former Monsanto & Bayer. But this new development will have significant aesthetic concerns from our neighborhood view- an 8 story garage looming over our neighborhoods private , quiet cul de sac as currently proposed. It will also impact the environment, creeks, storm water run-off, and alter the noise levels.	Yes, I live in the affected area.
10/2/2023 9:16	Jun xia	xiajun70@hotmail.com		Yes, I live in the affected area.
10/1/2023 12:56	Justin Wilson	jrw972@gmail.com	I do not support the proposed plan.	Yes, I live in the affected area.
10/1/2023 12:54	Kamlesh Patel	kbpatel78@gmail.com	Please use the empty office buildings instead.	Yes, I live in the affected area.
9/30/2023 14:50	Kandi Jockisch	kjockisch@att.net		No
9/30/2023 8:40	Karen Bogard	kkbogard@gmail.com		Yes, I live in the affected area.
9/30/2023 8:00	Katie Patel	kebraznell@gmail.com	I am opposed to the destruction of green space in residential areas. The park-like setting of Creve Coeur is what makes it a desirable place to live. We do not want a recreation of St. Charles.	Yes, I live in the affected area.
9/30/2023 15:33	Kenix Fong	kenixcheung@hotmail.com		No
9/30/2023 14:41	Kristin Garbarino	kristingarbarino@yahoo.com		No
9/30/2023 18:05	Kristin Stone	stonekj7@gmail.com	Thank you	Yes, I live in the affected area.

9/29/2023 13:33	larry goldberg	larryG@Goldberg-llc.com	this proposed project is unacceptable. Olive and the surrounding roads cannot handle the traffic. The project is far too dense.	Yes, I live in the affected area.
10/1/2023 14:28	Larry Kier	foreman48@hotmail.com		Yes, I live in the affected area.
9/30/2023 20:25	Laurie Raffelson	raffelson@sbcglobal.net	I want to sign the petition	Yes, I live in the affected area.
9/29/2023 18:59	Leda	ledaliang@gmail.com		Yes, I live in the affected area.
9/30/2023 20:48	Lei yan	yan_lei@hotmail.com	I am against irresponsible development	No
9/29/2023 15:12	Leslie Melnick	lesliemelnick@gmail.com		Yes, I live in the affected area.
10/1/2023 19:51	Lifan Liao	l1004374749@gmail.com		Yes, I live in the affected area.
9/30/2023 8:10	Linda W Sher	L.sher@icloud.com	Letâ€™s preserve green space and not have any more buildings built.	Yes, I live in the affected area.
9/30/2023 8:03	Lisa	lrmdh8@gmail.com		No
9/29/2023 12:39	Lisa Newman	lisa.newman4@icloud.com	I live in the neighborhood that is affected by this development and would strongly like to see the 120ft buffer maintained for all existing homes adjacent to the development.	
9/30/2023 17:29	Lori Goldman	goldmanwillick11@yahoo.com		No
9/30/2023 17:19	Lori Lea Shelleu	lorilea.shelley@lathropgpm.com		Yes, I live in the affected area.
9/29/2023 13:17	Mark Mannion	mannionproperties@gmail.com		
10/2/2023 12:34	Mark Signorelli	mvsignorelli@outlook.com	I am very concerned about this as I live in the adjacent community of Olivette.	No
9/29/2023 13:16	Marlin Klein	mjk1750@aol.com		
9/29/2023 16:15	Martha Smith	smarty26@att.net		Yes, I live in the affected area.

10/1/2023 8:11	Matt	afamay17@gmail.com	Noise and light pollution, added traffic and crowding in schools. Buildings are way too high and not consistent with the surrounding community. We want less density and more green space!	Yes, I live in the affected area.
10/1/2023 14:32	Matt Kier	kier2j1979@yahoo.com		Yes, I live in the affected area.
9/30/2023 10:32	Maya Zigo	maya.zigo@outlook.com		Yes, I live in the affected area.
9/29/2023 15:14	Melissa Melnick	melmelnick@gmail.com	My home will be at major flooding risk	Yes, I live in the affected area.
10/2/2023 10:50	Melissa Schneider	melb58@aol.com		No
10/1/2023 14:14	Melissa Terrell	bess.melissa@gmail.com	I live in Creve Coeur.	Yes, I live in the affected area.
9/29/2023 20:31	Michelle Hapak	mhapak@dom.wustl.edu	I love the woods. Save them please!!!!	Yes, I live in the affected area.
9/30/2023 8:39	Michelle Novof	mjanovof@gmail.com		No
10/1/2023 14:11	Mike Hill	mwhill84@gmail.com	I am against anything that takes away anything from nature/wildlife safe spaces.	Yes, I live in the affected area.
9/29/2023 13:19	MIke Stone	mikestone314@gmail.com		
9/29/2023 20:20	Minjie Xu	minjie.xu@gmail.com	Please keep the buffer zone, for the sake of nature preservation and the wild animals, Also, I understand the developer now owns the land, but the elimination of buffer zone (for the most part) will have impact on the neighboring residents as well.	No
9/30/2023 15:49	Monica Moore-Zigo	monica.moore@arbastudios.com		Yes, I live in the affected area.

10/1/2023 13:25	Nan Tian	greathomestl@gmail.com	We believe the current development proposed for the Monsanto/Bayer Site is putting Creve Coeur neighborhoods at risk. Development should not have a negative impact on neighboring communities. Any development affecting neighboring communities should have a strong component of community engagement before being considered by the City of Creve Coeur.	Yes, I live in the affected area.
10/1/2023 10:43	Nick Glass	nick.b.glass@gmail.com	Creve Coeur should maintain the current buffer and align with current ordinances.	Yes, I live in the affected area.
9/30/2023 19:01	Nicole	nblake37@hotmail.com		No
9/30/2023 12:16	Nina Grote	nkgrote@gmail.com	Please rework this development to preserve green space and old growth trees.	Yes, I live in the affected area.
9/29/2023 12:42	Owen Newman	owennewman4@icloud.com	I live in the neighborhood that is affected by this development and would strongly like to see the 120ft buffer maintained for all existing homes adjacent to the development.	
10/2/2023 15:44	Pam James-Sommer	pjames-sommer@hotmail.com		Yes, I live in the affected area.
10/2/2023 8:20	Pat James-Sommer	patjamessommer@icloud.com		Yes, I live in the affected area.
9/30/2023 8:51	Patrick Myers	patmyers1968@gmail.com		Yes, I live in the affected area.
9/30/2023 10:55	Paula Styer	kenstyer@hotmail.com		No
9/29/2023 13:43	Payton Indelicato	indelicatop466@gmail.com		No
9/29/2023 14:45	Pepe Khem	spaghettipepe300@gmail.com		No
10/1/2023 16:07	Peter Shawki	pfshawki@hotmail.com		No

10/2/2023 16:35	Peter Wazlawek	wazlawekp@me.com	I support responsible reuse of the Bayer West Campus	Yes, I live in the affected area.
10/1/2023 12:47	Petra Erdmann-Gilmore	peemuckel@hotmail.com		Yes, I live in the affected area.
9/29/2023 13:16	Phyllis Klein	mmbagel@aol.com		
9/30/2023 14:06	Pin Yue	pyue68@gmail.com	No Moore greedy development! Keep the area a quite heaven.	No
10/1/2023 11:50	Prasanna Jagatha	prasanna.l.jagatha@gmail.com	I am concerned about the construction.	Yes, I live in the affected area.
10/1/2023 21:07	Prasenjit Shil	prasenjit.shil@gmail.com	My neighbors and I are concerned about the new development planned for the former Bayer West campus. The proposed 8 story parking garage is too close to residential area which will cause excessive light and noise pollution in addition to traffic and overcrowding in schools.	Yes, I live in the affected area.
10/1/2023 13:15	Qian Lin	linqian0@hotmail.com	Sign this petition for a sustainable Creve Coeur Community	Yes, I live in the affected area.
10/1/2023 12:15	Qiujun Yu	yuqiujun@gmail.com		Yes, I live in the affected area.
9/30/2023 14:21	Rachel Loeb	Rachel.c.loeb@gmail.com	Please don't let the Bayer land destroy our property value, safety of our homes, and safety of our children.	Yes, I live in the affected area.

9/29/2023 19:31	Rachel Protzel	rachelprotzel@gmail.com	I am deeply concerned about how this development may negatively impact my neighborhood and my home. The development is far too dense and overcrowded. I would like to see much shorter building structures, underground parking, and more green space. The existing woods around the property must be maintained out of respect for the neighboring residents. The city should be ashamed that they did not inform the residents about these plans and engage with the community for input and feedback. I welcome a vibrant development of shops and restaurants but would like to see it done in a moderate, more balanced manner that takes the community's needs, standards, and character into consideration.	Yes, I live in the affected area.
10/1/2023 12:57	Rachel Wittenberg	rachwittenberg@gmail.com		Yes, I live in the affected area.
9/29/2023 20:30	Raymond Hapak	rhapak@yahoo.com	I support your petition.	No

10/1/2023 11:55	Reema Syed	reema_syed@yahoo.com	I live in this area We are losing too much nature already Global warming is real For health reasons and for environmental reasons we must responsibly decide what will happen to the land which was once bayer campus	Yes, I live in the affected area.
9/29/2023 13:14	ROBERT PROTZEL	maxprotzel@gmail.com		
10/1/2023 15:40	Robin Beuerlein	rwbeuerlein@yahoo.com		Yes, I live in the affected area.
10/1/2023 14:08	Robin Hill	robinhill84@yahoo.com	Any project that could diminish a nature/wildlife reserve is deplorable and a perfect example of how we are killing our planet.	Yes, I live in the affected area.
10/1/2023 8:28	Sal Miano	pipedaddy314@gmail.com	Sustainable development is what keeps our world alive	No
9/30/2023 10:14	Sara	sarahoechstenbach@gmail.com	Donâ€™t rezone!	Yes, I live in the affected area.
9/30/2023 14:58	Saraann Parker	saraann.parker007@gmail.com		Yes, I live in the affected area.
10/1/2023 8:38	Sarah Falkoff	sarahfalkoff@gmail.com	Noise and light pollution, added traffic and crowding in schools. Buildings are way too high and not consistent with the surrounding community. We want less density and more green space!	No
10/2/2023 9:25	Shirley Porterfield	sporterfield42@gmail.com	I agree with all the points made by the originators of the petition.	Yes, I live in the affected area.
10/1/2023 8:20	Sidney Furst	Sidneymfurst@gmail.com	I do not want all the trees cut down!	Yes, I live in the affected area.
9/30/2023 10:31	Stella	stellaschob2006@gmail.com		Yes, I live in the affected area.
9/29/2023 13:38	Steve Melnick	melnicks@gmail.com		Yes, I live in the affected area.

10/1/2023 12:54	Susan Bassford Wilson	bassfordwilson@gmail.com	I do not support the plan as proposed.	Yes, I live in the affected area.
9/30/2023 17:31	Susan Cormeny	sjcormeny@gmail.com		No
10/2/2023 8:35	Suzanne Vanderhoef	Skitcat68-one@yahoo.com	In addition to not wanting to overcrowd our schools, Olive Blvd. is not equipped to handle all the additional traffic the propsed development will create. We do not want our main neighborhood roadway turned into a rush-hour parking lot, a la Manchester.	Yes, I live in the affected area.
10/1/2023 11:40	Tamara Marx	marxtamara@gmail.com		Yes, I live in the affected area.
9/30/2023 15:11	Tanya Ramm	tanya.ramm@gmail.com		No
10/2/2023 13:13	TAO WANG	jtaowang@gmail.com	I support NO on rezoning application as is.	Yes, I live in the affected area.
9/30/2023 11:34	Terry Yan	oldiexian@gmail.com	Support to keep more green space	Yes, I live in the affected area.
9/30/2023 8:16	Tom Sher	thomasmel3@yahoo.com		Yes, I live in the affected area.
9/29/2023 12:41	Tomislav Zigo	tomislav.zigo@arbastudios.com	Creve Coeur residents deserve a forward looking and sustainable development that will have a positive impact on this city.	
9/30/2023 23:13	Tushar Deore	tushardeore@gmail.com		Yes, I live in the affected area.
10/1/2023 13:14	Wei	zhwei08@gmail.com	Please help protect our living environment.	Yes, I live in the affected area.
10/1/2023 12:58	william carr jr	william.c.carr.jr@gmail.com		Yes, I live in the affected area.
9/29/2023 23:14	Xiaodong Zhu	xiaodong119@gmail.com	I am signing this petition to keep the community quite and safe.	Yes, I live in the affected area.
10/1/2023 14:11	Xinhua Liang	davelin2005@yahoo.com	No rezoning of this area! Thank you!	Yes, I live in the affected area.

9/29/2023 20:11	Xudong Liang	xliang@hotmail.com	To protect our nature environment, please keep the current green space buffer zone !	Yes, I live in the affected area.
10/1/2023 18:52	Xue Shi	xueshi0601@gmail.com	We believe the current development proposed for the former Bayer West campus is putting Creve Coeur neighborhoods at risk. Development should not have a negative impact on neighboring communities. Any development affecting neighboring communities should have a strong component of community engagement before being considered by the City of Creve Coeur.	Yes, I live in the affected area.
9/30/2023 20:39	Yajie Yuan	yuanyajie.yyj@gmail.com		Yes, I live in the affected area.
10/1/2023 13:01	Yan Sun	ysun2000@yahoo.com		Yes, I live in the affected area.
9/29/2023 14:12	Yiling Mi	yilingmi@hotmail.com		Yes, I live in the affected area.
9/30/2023 21:13	Yizheng Tu	yztu@yahoo.com	Please keep the current green space zone.	No
9/29/2023 20:34	Yule Pan	yulepan@gmail.com	Please help nature as it is to protect our daily living environment.	No
9/29/2023 16:24	Zachary Fleck	zach@flextexllc.com	Please leave green space in place.	Yes, I live in the affected area.
9/30/2023 9:24	Zhiqiang Wang	wangz102551@gmail.com	Please keep current natural environment and no breaking down Trees nearby subdivision.	No
9/30/2023 8:53	Zhuoqun Zhang	peterzhang77@gmail.com	We donâ€™t need more higher buildings here.	Yes, I live in the affected area.

10/2/2023 13:03	Zongying He	zongying_h@yahoo.com	Development should not have a negative impact on neighboring communities.	Yes, I live in the affected area.

(Distributed at the Oct. 2, 2023 P&Z Meeting.)

PETITION TO OPPOSE:

Sunswept Subdivision pedestrian walkway connecting Olia Village Mixed-Use Development

We, the undersigned residents and property owners within the Sunswept Subdivision, come together to express our opposition to any proposal advocating for the establishment of pedestrian walkways through or immediately adjacent to Sunswept Subdivision. Such a proposition would impose an excessive burden and substantial negative impact.

We firmly assert that a walkway for the Olia Village Mixed-Use Development should be established along North Lindbergh Boulevard roadway and believe this location will better serve additional development into the future.

1) **Lacking compatibility to Sunswept Subdivision:** There is a notable absence of reports, elevations, or designs referencing applicable zoning district regulations. Including provisions relating to impervious surfaces, greenspace and landscaping, pedestrian amenities, yard and setback, screening and buffering, erosion and stormwater control, as well as addressing existing obstacles and unique topography.
2) **General Welfare:** This would detract from the overall design and ambiance of the subdivision, hindering the enjoyment of our properties. This may lead to increased noise pollution and littering, along with heightened potential of safety concerns or trespass.
3) **Privacy Intrusion:** Varied elevations provide direct sightlines into homes, infringing upon privacy. The increased foot traffic compromises both privacy and security.
4) **Traffic Safety:** The anticipated influx of pedestrians poses hazards, creating safety concerns and potential conflicts between vehicular, bicycle, and pedestrian traffic.
5) **Liability and Maintenance:** The City has established adjacent property owners responsible for the maintenance of public sidewalks. By ordinance, liability and responsibility is shared by the City and the adjacent property owner.
6) **Property Values:** The walkway scope lacks adequate public disclosure and may cause injury to the value of neighboring property.

We respectfully request that the City of Creve Coeur consider our concerns and prioritize the protection of the residents and property owners of the Sunswept Subdivision by rejecting any proposals for the construction of a pedestrian walkway through or immediately adjacent to Sunswept Subdivision.

Signature	Printed Name	Address
	Amy Meeks	2 Sunswept Dr.
	Lisa Wallis	3 Sunsweept Dr.
	IRIS CSIK	4 Sunsweept Dr.
	CHRIS PIEPER	4 SUNSWEPT DR.
	Autumn Tatro AuBuchon	5 Sunswept Dr
	Justin AuBuchon	5 Sunswept Dr
	Thomas Moore	8 Sunswept Dr

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4) **Traffic Safety:** The anticipated influx of pedestrians poses hazards, creating safety concerns and potential conflicts between vehicular, bicycle, and pedestrian traffic.
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Signature	Printed Name	Address
Leta G Moore	Leta Moore	8 Sunswept Dr.
Shirley Middleton	Shirley Middleton	10 Sunswept Dr
Robin Eastwood	Robin Eastwood	14 Sunswept Dr.
	Blake Eastwood	14 Sunswept Dr.
	Tim Bisha	7 Sunswept Dr.
	Meg Gallagher	12 Sunswept Dr.
	John McLool	15 Sunswept Dr

PETITION TO OPPOSE:

Sunswept Subdivision pedestrian walkway connecting Olia Village Mixed-Use Development

We, the undersigned residents and property owners within the Sunswept Subdivision, come together to express our opposition to any proposal advocating for the establishment of pedestrian walkways through or immediately adjacent to Sunswept Subdivision. Such a proposition would impose an excessive burden and substantial negative impact.

We firmly assert that a walkway for the Olia Village Mixed-Use Development should be established along North Lindbergh Boulevard roadway and believe this location will better serve additional development into the future.

1) **Lacking compatibility to Sunswept Subdivision:** There is a notable absence of reports, elevations, or designs referencing applicable zoning district regulations. Including provisions relating to impervious surfaces, greenspace and landscaping, pedestrian amenities, yard and setback, screening and buffering, erosion and stormwater control, as well as addressing existing obstacles and unique topography.
2) **General Welfare:** This would detract from the overall design and ambiance of the subdivision, hindering the enjoyment of our properties. This may lead to increased noise pollution and littering, along with heightened potential of safety concerns or trespass.
3) **Privacy Intrusion:** Varied elevations provide direct sightlines into homes, infringing upon privacy. The increased foot traffic compromises both privacy and security.
4) **Traffic Safety:** The anticipated influx of pedestrians poses hazards, creating safety concerns and potential conflicts between vehicular, bicycle, and pedestrian traffic.
5) **Liability and Maintenance:** The City has established adjacent property owners responsible for the maintenance of public sidewalks. By ordinance, liability and responsibility is shared by the City and the adjacent property owner.
6) **Property Values:** The walkway scope lacks adequate public disclosure and may cause injury to the value of neighboring property.

We respectfully request that the City of Creve Coeur consider our concerns and prioritize the protection of the residents and property owners of the Sunswept Subdivision by rejecting any proposals for the construction of a pedestrian walkway through or immediately adjacent to Sunswept Subdivision.

Signature	Printed Name	Address
Susan Murphy	Susan Murphy	10305 N. Sunswept
	Angela Rose	10335 N. Sunswept
	David C. Rose	10335 N. Sunswept
Jyoti Behura	JYOTI BEHURA	10327 N. SUNSWEPT DR.
Gerri L. Marian	Gerri L. Marian	10321 N. SUNSwept dr.
	Gabrielle Julian	10311 N Sunswept
	Jeff Baker	unswept Dr.

PETITION TO OPPOSE:

Sunswept Subdivision pedestrian walkway connecting Olia Village Mixed-Use Development

We, the undersigned residents and property owners within the Sunswept Subdivision, come together to express our opposition to any proposal advocating for the establishment of pedestrian walkways through or immediately adjacent to Sunswept Subdivision. Such a proposition would impose an excessive burden and substantial negative impact.

We firmly assert that a walkway for the Olia Village Mixed-Use Development should be established along North Lindbergh Boulevard roadway and believe this location will better serve additional development into the future.

1) **Lacking compatibility to Sunswept Subdivision:** There is a notable absence of reports, elevations, or designs referencing applicable zoning district regulations. Including provisions relating to impervious surfaces, greenspace and landscaping, pedestrian amenities, yard and setback, screening and buffering, erosion and stormwater control, as well as addressing existing obstacles and unique topography.
2) **General Welfare:** This would detract from the overall design and ambiance of the subdivision, hindering the enjoyment of our properties. This may lead to increased noise pollution and littering, along with heightened potential of safety concerns or trespass.
3) **Privacy Intrusion:** Varied elevations provide direct sightlines into homes, infringing upon privacy. The increased foot traffic compromises both privacy and security.
4) **Traffic Safety:** The anticipated influx of pedestrians poses hazards, creating safety concerns and potential conflicts between vehicular, bicycle, and pedestrian traffic.
5) **Liability and Maintenance:** The City has established adjacent property owners responsible for the maintenance of public sidewalks. By ordinance, liability and responsibility is shared by the City and the adjacent property owner.
6) **Property Values:** The walkway scope lacks adequate public disclosure and may cause injury to the value of neighboring property.

We respectfully request that the City of Creve Coeur consider our concerns and prioritize the protection of the residents and property owners of the Sunswept Subdivision by rejecting any proposals for the construction of a pedestrian walkway through or immediately adjacent to Sunswept Subdivision.

Signature	Printed Name	Address
Daryl L. Payne	Gary L. Payne	11 Sunswept Drive
Thomas LaTurno	Thomas LaTurno	13 Sunswept Dr.
Shiela LaTurno	Shiela LaTurno	13 Sunswept Dr.
Jessie McCool	Jessie McCool	15 Sunswept Drive STL, MO 63141
John P Murphy	John P Murphy	10305 Sunswept Dr 63141

PLANNING AND ZONING COMMISSION MEETING

CITY OF CREVE COEUR, MISSOURI

300 NORTH NEW BALLAS ROAD

MONDAY, SEPTEMBER 5, 2023

6:00 P.M.

PUBLIC HEARING

APPLICATION NO. 23-031

THOSE IN ATTENDANCE:

Ms. Julie LaBonte, Chair
Mr. Larry Potashnick
Mr. AJ Wang
Ms. Rhonda O'Brien
Mr. Thomas Buelter
Ms. Marjorie Richter
Ms. Stephanie Karr, Acting City Attorney
Mr. Jason Jaggi, Director of Community Development
Ms. Bethany L. Moore, City Planner
Ms. Megan Waller Administrative Supervisor/Recording Secretary

McLaughlin Court Reporting Services, Inc.

Deborah K. McLaughlin, RPR, MO-CCR #314, IL-CSR, KS-CCR
4772 Gatesbury Drive
St. Louis, MO 63128
(314) 974-1199

CHAIRMAN LABONTE: Call the meeting to order at six o'clock, and we'll start with roll call.

Ms. Hall is absent.

Mr. Potashnick?

MR. POTASHNICK: Present.

CHAIRMAN LABONTE: Ms. Richter?

MS. RICHTER: Here.

CHAIRMAN LABONTE: Mr. Wang?

MR. WANG: Here.

CHAIRMAN LABONTE: Ms. O'Brien?

MS. O'BRIEN: Here.

CHAIRMAN LABONTE: Mr. Buelter?

MR. BUELTER: Here.

CHAIRMAN LABONTE: Ms. Karr?

STEPHANIE KARR: Here.

CHAIRMAN LABONTE: Mr. Jaggi?

MR. JAGGI: Present.

CHAIRMAN LABONTE: Ms. Moore?

MS. MOORE: Present.

CHAIRMAN LABONTE: And, Ms. Waller?

MS. WALLER: Present.

CHAIRMAN LABONTE: The second item is acceptance of the agenda.

Before we move on that, we'd like to set a time meeting on -- or time limit on the meeting tonight ending

at nine o'clock.

So, I'd like for the group to discuss putting a time limit on it, and then I'd request a motion and a vote.

MS. O'BRIEN: So moved.

MR. POTASHNICK: Second.

CHAIRMAN LABONTE: All in favor?

(All responded aye.)

CHAIRMAN LABONTE: Any opposed?

(No opposed.)

CHAIRMAN LABONTE: Thank you.

MR. JAGGI: And would that be a three-hour time limit or --

CHAIRMAN LABONTE: Three-hour time limit.

MR. JAGGI: Okay. So nine o'clock?

CHAIRMAN LABONTE: Nine o'clock.

MR. JAGGI: Okay. Thank you.

CHAIRMAN LABONTE: Thank you.

We have no Unfinished Business, so we'll start with our first item, New Business, with a public hearing for Application 23-31: A Conditional Use Permit for a Warehouse/Storage Use Located at 1145 North Warson Road.

If anyone coming forward that's going to be speaking tonight to be sworn in.

Do we have anyone from the Applicant speaking

or --

MS. MOORE: I'm not sure about the --

CHAIRMAN LABONTE: Okay.

(The speakers were sworn in by the court reporter.)

MS. MOORE: Hello. Bethany Moore, City Planner, and I will be presenting this item.

This is a conditional use permit for a warehouse/storage use located at 1145 North Warson Road.

And here is the location of our request. It's actually a space in this building up here to the north. It is in our LI, Light Industrial District.

And, actually, this use, NAICS 493110, is for general warehousing and storage. It is a conditional use, but staff was a little confused as to why it is a conditional use because there's not really a lot of -- there's not really a lot of negative impact associated with it, and it is only allowed in our LI District.

But either way, it is a conditional use, so it does require a conditional use permit.

In association with this request there will be no interior or exterior changes to the property. And the applicant will just be using it as storage for their business to store solar panels and installation equipment for those solar panels in the 11,890 square foot space.

So, again, here is the highlighted portion where they will be using it. This site has four different buildings on it. It has plenty of lighting. All of these exits along here, the applicant has noted all of the lighting poles that are existing. The landscaping is in good condition. Additional street trees were actually added in 2001 as part of another conditional use permit. And they do have plenty of parking. This use would actually only require five parking spaces, and they have over 200 on site. And they would only be accessing the space as needed, it would not be used every single day, in and out between the hours of six and three, Monday through Friday, by one to three employees.

And staff has no concerns with this use at the property.

Any questions?

MR. BUELTER: Are they going to make any modifications to the building at all?

MS. MOORE: No, no exterior or interior changes to use it.

MR. BUELTER: Thought maybe they'd put solar panels on it.

MS. MOORE: No, that's not part of it.

CHAIRMAN LABONTE: Any other questions?

I'll open it up to the public.

Any questions?

(The Public Hearing was concluded at 6:04 p.m.)

STATE OF MISSOURI)
) SS
COUNTY OF ST. LOUIS)

I, Deborah K. McLaughlin, Registered Professional Reporter, Missouri Certified Court Reporter, Illinois Certified Shorthand Reporter and Kansas Certified Court Reporter, do hereby certify that I reported the Planning and Zoning Public Hearing stenographically and later reduced to typewriting; and that this is a true and accurate transcript of the public hearing.

Deborah McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR

Deborah K. McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR

CHAIRMAN LABONTE: [18]
MR. BUELTER: [3] 2/13 5/17 5/21
MR. JAGGI: [4] 2/17 3/12 3/15 3/17
MR. POTASHNICK: [2] 2/5 3/6
MR. WANG: [1] 2/9
MS. MOORE: [5] 2/19 4/2 4/6 5/19 5/23
MS. O'BRIEN: [2] 2/11 3/5
MS. RICHTER: [1] 2/7
MS. WALLER: [1] 2/21
STEPHANIE KARR: [1] 2/15

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PLANNING AND ZONING COMMISSION MEETING

CITY OF CREVE COEUR, MISSOURI

300 NORTH NEW BALLAS ROAD

MONDAY, SEPTEMBER 18, 2023

6:00 P.M.

PUBLIC HEARING

APPLICATION NOS. 23-027 and 23-028

THOSE IN ATTENDANCE:

Ms. Julie LaBonte, Chair
Ms. Muriel Hall
Mr. Larry Potashnick
Mr. AJ Wang
Ms. Rhonda O'Brien
Ms. Marjorie Richter
Mr. Carl Lumley, City Attorney
Mr. Jason Jaggi, Director of Community Development
Ms. Bethany L. Moore, City Planner
Ms. Megan Waller Administrative Supervisor/Recording Secretary

McLaughlin Court Reporting Services, Inc.

Deborah K. McLaughlin, RPR, MO-CCR #314, IL-CSR, KS-CCR
4772 Gatesbury Drive
St. Louis, MO 63128
(314) 974-1199

CHAIRMAN LABONTE: Call the meeting to order at six o'clock with roll call.

Ms. Hall?

MS. HALL: Present.

CHAIRMAN LABONTE: Mr. Potashnick?

MR. POTASHNICK: Present.

CHAIRMAN LABONTE: Ms. Richter?

MS. RICHTER: Here.

CHAIRMAN LABONTE: Mr. Wang?

MR. WANG: Here.

CHAIRMAN LABONTE: Ms. O'Brien?

MS. O'BRIEN: Here.

CHAIRMAN LABONTE: Mr. Buelter is absent.

Mr. Lumley?

MR. LUMLEY: Here.

CHAIRMAN LABONTE: Mr. Jaggi?

MR. JAGGI: Present.

CHAIRMAN LABONTE: Ms. Moore?

MS. MOORE: Present.

CHAIRMAN LABONTE: And, Ms. Waller?

MS. WALLER: Present.

CHAIRMAN LABONTE: The first item would be an acceptance of the agenda, however, I have a recommendation that I'd like to vote on to amend the agenda to, both, set a time limit on the meeting, ending at nine o'clock. We

did that a couple weeks ago and that seemed to work well.

And then also we'd like to move the New Business up on the agenda before the Unfinished Business.

MR. WANG: So moved.

MR. POTASHNICK: Second.

CHAIRMAN LABONTE: So, we'll do a vote.

Ms. Hall?

MS. HALL: Aye.

CHAIRMAN LABONTE: Mr. Potashnick?

MR. POTASHNICK: Aye.

CHAIRMAN LABONTE: Ms. Richter?

MS. RICHTER: Aye.

CHAIRMAN LABONTE: Mr. Wang?

MR. WANG: Aye.

CHAIRMAN LABONTE: Ms. O'Brien?

MS. O'BRIEN: Aye.

CHAIRMAN LABONTE: Mr. -- and I vote aye.

Our favorite topic, Unfinished Business.

So, we'll open the Public Hearing -- well, it was actually continued, so it's already been opened for 23-027 and 23-028: For a Rezoning from RO, Research Office District, to the Olia Village PMD, Planned Mixed-Use Development District with a Site Concept Plan, Phase One Site Development Plan and Associated Preliminary Plat for the 96-acre Property at 10300 Olive Boulevard.

Who will be speaking first this evening?

MR. JAGGI: I do think we need to be sworn in as well.

CHAIRMAN LABONTE: Since they were sworn in, do they need to be sworn in again?

MR. LUMLEY: Yeah.

CHAIRMAN LABONTE: Yes. Okay.

So do we want --

MR. JAGGI: My recommendation would be all staff and the applicants --

CHAIRMAN LABONTE: And then development.

MR. JAGGI: -- the development team who's going to speak.

And when we get to the public comment period, maybe you --

CHAIRMAN LABONTE: We'll do that at that point. Okay.

MR. JAGGI: -- can take the public at one time.

CHAIRMAN LABONTE: Okay.

(The speakers were sworn in by the court reporter.)

CHAIRMAN LABONTE: Thank you.

MR. JAGGI: Good evening, Members of the Planning and Zoning Commission. Jason Jaggi, Director of Community Development for the City of Creve Coeur.

So, this is the second public hearing for this rezoning application of the former Bayer West Campus.

The applicant has made changes to the proposal based upon the feedback that they received at the first public hearing, and so the applicant will present that information for your review and consideration tonight.

I will say that their revised plans were included on the city's website, so they were available to the public last week. We put -- posted those on the website.

And, of course, they're also included in tonight's packet of your materials as well.

So, after the applicant is finished with presenting the updates to the plans based on the feedback, staff will come back up, and we will present our report, our findings and information for the Commission.

And then from there, my suggestion would be that maybe there could be some questions and comments that the Commission may have, and then we can certainly turn it over to the public and take public comments after that.

And then at the end of the evening, I think the goal that staff would have for tonight is to really identify any remaining issues that may be still present with this application.

And then we would like to obtain direction from

the Commission on any of these items going forward with the goal of the next meeting to present a final set of plans for your review, as well as, perhaps, the draft ordinance that would put all of this information together, so you could consider that at the next meeting, which would be scheduled for October the 2nd.

So, with that, if there are no other questions from the Commission on the approach tonight, I think I'll turn it over to the applicant, and they will have their presentation.

CHAIRMAN LABONTE: Okay.

MR. MATT PFUND: Okay. Thank you, Jason.

Matt Pfund with Jack Matthews Development on behalf of the development team.

Thank you for hearing us again tonight.

As Jason said, we did listen, you know, along with our open house, we listened in the meeting last week -- or two weeks ago, at this point. We worked with city staff almost continuous, I'm sure Bethany and Jason are tired of us by now.

We've adjusted our plan. We did make some changes.

I'm going to let you hear from our -- our design and engineering team tonight, but the items to listen for are we've maximized the depth of the undisturbed natural

buffer around, especially the north and west corner.

We've added buffer density and more plantings to that buffer.

We've removed the nature trail that was along that upper north half of the development, so that we didn't have to take -- we don't have to take more trees out.

We looked at ways to mitigate both noise and lighting.

We've slowed and improved the stormwater drainage from what is current on the site.

We're removing fewer trees.

We added shared use path, both lineal footage and now there's a loop on site.

And we've also provided connectivity of that shared use path for pedestrians at Olive and the connection at Lindbergh that -- that ties into the Vantage property.

So, with that, Chris is going to come up. Chris is our civil engineer.

MR. CHRISTOPHER STRITZEL: Thanks, Matt.

My name is Chris Stritzel. I work for Crawford Murphy & Tilly. We're the civil engineer on the project. Work with Matt.

Do I do my own here?

Thank you.

So, Matt kind of set the stage for you guys with some of the changes.

I'm going to talk about kind of the more the engineering ones, and you're going to hear from a couple of their experts as well.

This first slide is intended to show the setback plan.

What you'll see here is that we've increased the buffer setback to 40 feet. When we came here last, and in the current P&D ordinance it requires 35 feet, so we increased that to 40.

We straightened the wall out. If you remember last time, the wall was kind of serpentined and kind of going in and out. We straightened that thing out and put it at 40 feet as well.

We did not change the residential or the commercial building setbacks. The total distance, if you had the buffer to the -- to the setbacks, you're still at 50 and 75.

So, the blue line on the screen kind of shows what the 40-foot mark looks like. The red line is intended to show what the 75-foot mark looked like.

So, our plan is to keep, as best we can, an undisturbed buffer at 40 feet and build that wall, the

back of the wall is on the 40 feet, and it pushes toward the development. So, instead of having this buffer that may have some improvements in it, we're going to try to keep that as undisturbed as possible from the 40-foot mark back from the property lines.

I want to talk a little bit more about the phasing. We talked a lot last time about when are the trees coming down; when are the ponds being built, stuff like that. So that's what this slide is supposed to represent.

So, you guys know this thing is going to be multiphase over multiyears.

What we're here to talk about today is Phase 1, which is what the site development plan package you guys have in front of you is meant to represent.

That phase will come to the city in three different permit packages.

The first package is going to be mass grading, clearing of the site, all the tree removals that you'll see later from the landscape architect that we're showing to be removed will all happen during that first phase. And we'll also start to build the detention pond at that point.

The second phase is going to be the infrastructure itself; the utilities, the roads, lighting

and stuff like that.

And the third package that comes to the city is going to be all the off-site work, so that's all the work out on Olive and Lindbergh on MoDOT's right-of-way.

So that's kind of how this first package is going to be phased.

And what, you know, we're required by law to mitigate, you know, downstream corrosion and pollution to the downstream neighbors. So, we have to -- we're required to get a permit from both the city and the State of Missouri to mitigate erosion control downstream.

So, we'll be putting measures in place during construction, which are temporary, like you see on the right-hand side of your screen, silk fence around the perimeter.

You know, we'll be digging the detention ponds very early because we're going to need that dirt for fill across the site, so those will go in early.

We'll be diverting stormwater to those early on, and we'll run them through there, which will be -- with sediment basin to filter out some of that sediment and stuff that's washing downstream during construction before it gets off the property. And we'll have conversion ditches and stuff like that as well.

Our intent is to protect those natural buffers,

so everything you see in green, pretty much remains undisturbed.

The red lines, going like alongside the green, that's where we put those controls in place to stop -- stop the sediment stuff from washing downstream before it hits those buffers, so that would be your silk fence and stuff like that.

We're also required by law to permanently or temporary vegetate or stabilize any disturbed soil if we don't touch it within 14 days.

So, as these -- as these early-on projects get completed, we're going to be required by our permits to go in and seed everything that -- that is going to be left there until such time as the lot is sold and redeveloped.

So you -- you won't have dirt sitting around with not being touched for years and years and years. It will be a continuous process that we have to go through and to get things seeded before -- before we walk to the next part of the job.

This slide's supposed to show a little more about the permanent stormwater control. So, there's a lot going on here. I'll try to walk you through this.

Basically, the stormwater for the site is controlled by MSD. And we have met with MSD. We had them do a conceptual view of the project, and they've come back

to us and said we want to return this back to grass.

What back to grass mean is, you know, you have a site that is already partially paved out there today. A lot of times when you redevelop a site like that, they let you account for the pavement and stuff that's there today.

MoDOT's said -- or MSD said that's not going to happen. You're going to have to treat this site like it's 96 acres of grass, and then when you pave this and develop it, we're going to have put the controls in place, the detention structures and everything else, to mimic that the whole site was just grass.

So, what you'll see on the top screen, you've also got more than just the site that's contributing to the downstream watershed and the downstream neighbors, you got all this off-site drainage coming from the north that comes through our site that we have to account for as well.

So the first graft kind of shows that. The orange line on the top is the existing conditions. That's the peak flow leaving the site during the peak storm event, okay.

So the orange shows you it's about 1200 cubic feet per second leaving the site. The green is the back to grass condition that MoDOT -- or, sorry, MSD is going to require us to go back to. And the blue is how much

off-site contributes to -- to that part of the watershed.

When you go down to the bottom graph, that's our site by itself. So we take down all the off-site stuff that goes through our site. And this is looking at just the site itself.

Again, the orange is existing; the green is MSD's requirement, and the blue is what we are proposing.

So that -- and that's about 17 percent reduction of the total peak discharge from the site after the -- after the stormwater controls are in place and development of site in general.

So, then we want to take a little bit closer dive into the -- this is on the elbow, okay, down Lot 1, 10 and 17 along Spoede Woods. There was concern last time, from some of the comments, that we were going to be impacting drainage behind these houses.

So, what this shows on the left is the current watershed boundary that drains to that 48-inch culvert that's behind, you know, kind of off to the right of the screen there. So, there's about a 4-acre watershed today that drains there, which is about a 9-cubic foot per second release rate.

Under the proposed conditions, that wall kind of acts as a barrier at times, and so we're going to be draining anything from that wall to the north will

actually -- will drain back into the development, either because the wall's a barrier or because we're going to slope the grade that way.

So, it's actually effectively reducing the total amount of drainage to those back -- back homes -- back to those homes to just under 3 acres, which is about a 25 percent reduction in total release rate.

So, just so you know, 48-inch culvert can take 144 cfs. So that thing's grossly oversized. And I don't know the history of it. It was probably there before Monsanto even built this campus.

Here's a slide showing what we're doing up at Olive. So, we are getting very close to having a traffic study approved by MoDOT and the city.

What we've agreed to is a single 500-foot long left turn lane coming -- coming from the east to westbound into the site. So that's, basically, taking that grass strip of median out there today and, basically, turned into a left turn lane, which used to exist, you know, when Monsanto was going full-steam.

We're also going to add crosswalks at all four corners of the intersection to take, not only pedestrians across, but the shared use path across as well, and then we're going to modernize the traffic signals there altogether, so that -- that intersection will look brand

new and have all new equipment and everything when we're done with it.

We talked a little bit about shared use paths, and how we're connecting Olive to Lindbergh, and we'll get to that here on the next slide. But what this shows is we're also going to make some improvements to the south leg of the site here on Lindbergh.

So, we're going to connect the shared use path from the site off on to the shoulder and on Lindbergh Boulevard, we're going to improve that shoulder with an 8-foot wide paved path, and a curb, you know, curb to protect it, and it's going to connect into this -- the current sidewalk that exists right in front of the Vantage Credit Union.

So, this is not taking it through the subdivision, this is taking it out and around on the road and down -- down through Lindbergh.

And then this kind of shows where we're at with the -- with the shared use path. So, there was a lot of discussion on this at last meeting. We went back to the city staff. They were asking us to look at a more internal shared use path, and maybe -- maybe eliminating the nature trail.

So we proposed two -- two plans in red. One was kind of going up the middle on the left side, the other

one was going to kind of go around the outside. And the city said they loved my drawing so much they wanted both.

So we agreed -- we agreed to put both in to create this loop, and -- and so now we have an 8-foot shared, paved concrete, lit, shared use path that loops through the development, but also connects what we talked about up at Olive down to what we talked about at Lindbergh. So that's what you see in red.

There's about -- there's just under 6,000 lineal feet of shared use path, which is, like I said, 8-foot concrete. We did eliminate the trail behind, you know, on the L behind Lots 1, 10 and 17. So no new section of trail exists. The only section of trail that we're going to leave is what you see in green, which is pretty much exist today. We're going to connect it to the blue and the red at both ends. But that pretty much exist today, and we'll just refurbish it and make it new and nice.

So that -- there's about 2600 lineal feet of that left. And then everything you see in blue is just your standard 6-foot wide concrete sidewalk that runs up and along each of the properties in the development, and kind of ties everything together.

So, I think with that, I'm going to turn it over to Toby, and he's going to kind of talk a little bit more about some of the other things.

Thank you, Guys.

CHAIRMAN LABONTE: Thank you.

MR. TOBY HEDDINGHAUS: Thanks, Chris.

So, I'm Toby Heddinghaus with Gray Design Group. We're the architect for the project.

And, as Chris said, I wanted to touch on a few areas specific to the park and the trails, things like that, but then I do want to spend some time on some sections that we've cut through the development in the southwest corner down to the L portion of the site.

So, but first I wanted to kind of continue what Chris was talking about with -- in regards to the path.

The path is really involved a lot in this process with staff. And I think it's really turned out to be a really good thing in terms of connecting the trail to Main Street, which now the -- the shared use path will connect directly to -- to the sidewalks that cut through Main Street on both the east and the west ends.

It's going to really encourage people to, you know, as they make that turn on the path to actually engage with a lot of the shopping and the dining and that sort of thing.

It also connects on the west end to the open space that we're going to -- we call it The Village Green now, the Village, which is the -- the grassy open space on

the west end of the -- of Main Street, which is here.

So, we also want to kind of clarify some -- some branding of this area of the open space that we'll call it Village Green.

It's actually -- really, it provides some relief in a very urban, dense space that we have in the north and east part of the site.

So, it's intentionally to be -- intentionally designed to be very flexible, so it's a lot of open space, not a lot of planned (inaudible) in there.

We do have space for outdoor dining along one side.

We've got public art and shape structures that'll be located on the northeast sides of the site.

And, actually, the outdoor dining is kind of interesting. It becomes kind of extension of the outdoor dining that you'll have at a lot of the other restaurants. If it's too busy there, it will spill over there, and may be people from the apartments who come down and utilize some of the outdoor dining space as well, so.

Restrooms. So we've talked a little bit about restrooms during this process.

Like I said, there's going to be a lot of restaurants nearby that will all have public access to restrooms.

In addition to that, you can kind of see where that orange star is in the upper corner of the site -- of the photo. That's the lobby for the lot for apartment building, and so it'll be very clear that that's public restrooms for anybody who's in the outdoor space here as well. That's also the main entrance to the -- to the main parking garage for the site as well, so I think it should be pretty clear.

We wanted to also go over some best practices for lighting. This slide is -- the lighting on the next one, I want to talk about noise, but there's some things we expect, you know, obviously, all of these parcels that are -- really, all the parcels in the development will need to come back for very site specific approval through this body, so it will get into a really a lot of details in terms of facade lighting and building architecture and things like that.

But we expect that the first point would be that all these buildings would limit facade lighting on the south and east sides of the building, either limit or eliminate facade lighting that could contribute to lights going into any sort of glowing in the buildings.

We weren't -- we expect full cutoff light fixtures in all the parking areas. We'll, obviously, meet the requirements of Creve Coeur for site lighting, but we

also expect all the lighting in this corner to be full cutoff fixtures that don't allow light to spill out on the parking areas.

As a whole, across the development in terms for signage, outdoor lighting, we really wanted to standardized a warm color temperature for all of the -- the fixtures on the site. We're going to monitor that very closely as all these projects are developed.

That would eliminate any kind of bluish light that you might get from a -- from a higher color temperature.

And then, lastly, we'll utilize occupancy sensors wherever we can. So, in the office buildings here in -- in the bottom of the screen, as well as the parking garages, you know, we'll try to implement occupancy sensors, so when folks aren't moving around in those spaces lights would either dim or they would -- they would come down.

All right. Noise mitigation. So, just by the general site plan or overall master planning of the site, that was important to us too, so we moved all of the density where you might get noise to the north and to the east corner of the site up by the -- by Olive and Lindbergh, and away from the residential areas, so that was the first step in trying to mitigate noise.

Our landscape architect, West, is going to be coming up in a minute to talk more about plantings and things. But we expect to enhance the plantings around the buffer or around the corner of the site here, in the corner, as well as maintain existing tree mass down there.

We located an office building.

That's a good step for noise mitigation.

In the lower left corner, that's, typically, going to be a nine to five use, so a quiet use.

The retail that -- for the grocer and then the parking garage and the other retailer that you kind of see at the top left corner there, we've located the fronts of the buildings to the north and to the east, so you've got rear walls that aren't going to produce any noise, really.

But on top of that we've designed in the loading for that grocer to come from the north and east as well.

So, you might be used to seeing -- or thinking about loading or unloading early in the morning for a lot of retailers, you kind of hear that backing sound, you know, this will all be screened by the buildings because it's going to be not on the back of the building, essentially.

Finally, we'll also take a lot of care to make sure the rooftop units are screened, so any noise emitting from the rooftop units, we want to make sure those are

screened visually and -- and acoustically.

So, I want to go really slow in these sections, just so that it's very clear where these are -- where these are.

We've got four site sections where we've created these visuals. We had them at the last meeting, we made sure we were very clear and (inaudible) to understand this time.

So, the first section -- well, let me preface this. We got -- the four sections are through the structures that are closest to the property line.

The first being the parking garage that's next to the grocer, which actually is the closest structure of these four sections we're talking about.

The -- see if I can get this. I don't know if you can see red dot, but. So this showing some dimensions here, but the point of these slides is to show distances between structures; how they interact with the elevation from, you know, say backyards to the proposed development in terms of elevations and height and grade, that sort of thing.

So, the first section is behind the parking garage. Oh, sorry. This is the parking garage right here. This area is the section that's running east to west. The grading here doesn't require a retaining wall,

so there is a little bit of a slope, maybe a three to one slope or so, that goes from the back of the parking structure up to this -- to the buffer area, and then it's relatively flat back to the -- to the closest residence back here.

The total distance from the residence -- or the back of the residence to intersection to the parking structure is about 145 feet, so, say half of a football field in length.

The next section just moves a little bit down to the south, so you can see in the upper left-hand corner, the red line is where it's cutting, so it cuts through the closest point on the office building development on that -- on that lot to the closest property to -- to the west.

So, you can see there's a dramatic drop that runs along that western property line. The elevation drops very quickly down to the lot of the office building, so it's going to require a retaining wall that's at least 20 feet tall, it's like 25 feet tall, I think at its highest point. So, I think that's actually an advantage. The elevation really provides a visual separation between neighboring properties and the proposed development.

The distance between these two structures is 194 feet, so you can see we're starting to get even --

even farther away than the first -- first section.

One thing to point out here, too, is with the wall -- with the straight wall that occurs, obviously, right here, that area of the top of the wall to the property line, really doesn't feel like it's part of the development, the proposed development. It's on a completely different plane. It's behind the wall, and it really kind of is more of an extension of the space on the other side of the property line at this point, just due to the -- to the site design and architecture.

Now, the third section now is a section going north, south. It's, again, at the closest point of the office building, it's planned there, is two adjacent properties to the south. You can we see that the -- the wall diminishes greatly. As you come around the corner, the property elevations beyond the wall start to really step down, and it's only a wall about 5 feet high there.

Again, the dimensions are starting to grow there more. Now we're at 140 feet plus 88 feet, so it's -- now we're getting to like three-quarters of a football field between the two buildings.

Again, and I think the same rule applies here too, that that buffer area, due to the wall, becomes -- it really feels like it's part of the adjacent property versus proposed development.

And then, lastly, this is a section just to the east of the last one where the walls are reversed. So, now the office portion of the property is higher, and the residential area behind it still slopes down, and now the -- that wall that you see in the upper right-hand corner will be visible from the neighboring properties, but, again, separate planes, separate developments.

In this case we're nearly a full football field away from building to building.

That's it.

So, I'll go ahead and turn this over to West, our landscape architect, to elaborate a little more.

CHAIRMAN LABONTE: Thank you.

MR. WEST HAID: I'm West Haid, SWT Design, and, as Toby mentioned, landscape architect for the design team.

I'm going to elaborate a little bit more on a -- on a few points that have been brought up by the -- by the previous speakers.

Speaking to the buffer that Toby alluded to in some of those site sections, so if we -- if we go back, you'll see this -- these trees, these evergreen trees showing on the property side of the wall.

So we've highlighted those locations in orange here, so along the residential property line. That orange

represents a 10-foot wide vegetative buffer, so a row of evergreen trees that is really going to bolster that existing 40-foot wide existing vegetation strip.

It'll help mitigate the -- the light spillover from headlights from the parking lot, as they swing around in the neighborhood, especially in the -- the -- the western side of the property line where the retaining wall is upwards of 20, 25 feet tall, help that even more to keep the light pollution and lights from going into the neighborhoods.

Some of these images on around the screen kind of speak to the planning strategy that we'll use. So a variety of evergreens species, mainly done for twofold. One, it's to create more of a visually and esthetically (inaudible) look. It's not a monotonous row of one single species, and it avoids a monoculture. So, if a certain tree gets hit by some sort of bagworm or other disease, you have a multiple different species to help stay there and -- and won't die out.

And then, finally, the last slide we have is going back to the tree conservation plan, so, as Matt originally said, we listened to what we heard the last time. I believe we're at 53 percent trees that were being removed, and it's been mentioned a couple times, but I'll reiterate it. We have increased the -- the undisturbed

buffer to 40 feet along that property line. Moved the retaining wall back further away from the property line, and eliminated the nature trail that was going through there.

And what that did was help save some of the trees that might have been removed from that retaining wall, trail and the disturbance there.

We've also sharpened the pencils and looked at the grading plan around the whole perimeter of this site, and pulled it back where we could, where we felt it was appropriate.

A lot of that, with moving the shared use path along -- that was shown on the east side, moving that back along adjacent to Main Street, help preserve some more trees in that northeast corner of the site.

And, hopefully, those -- all those tweaks helped result in getting that trees to be removed number to 50 percent of the trees.

With that, that concludes our presentation.

Thank you, All.

CHAIRMAN LABONTE: Okay. Thank you.

MS. MOORE: Hello. Bethany Moore, City Planner.

All right. So, continuing.

So, I'm going to go over some of the site concept plan revisions, and they did cover most of it, but

just a couple things we wanted to point out.

So, the buffer yard. They did increase that buffer yard from 35 feet to 40 feet, and that's when it -- the property is buffering the residential.

This red line here is now at 40. And like they said, they have moved that retaining wall up to that 40-foot point, so it's no longer within that buffer, so that's saving the trees there, as well as removing that nature trail. So that buffer now will have more of the trees that are existing, and it'll have 5 additional feet.

The buildings will still be 75 feet at the closest point because they did -- they increased the buffer to 40 feet, that's the natural undisturbed, and then they moved the additional setbacks for the buildings.

If they're residential buildings, then they'll be set back 10 feet instead of the 50. And if they are commercial building, which is what these are, they'll be changed from that 40 feet to 35 feet. So we're still looking at 75 feet at the closest point and the closest building to the property line.

And then that retaining wall, again, like they said, that's moot, so we're saving a little bit more trees there in the buffer.

And they have removed that pedestrian path that was along here.

So, those are the changes to the buffer yard.

And, so, here is our pedestrian -- is the pedestrian plan.

So, they have added things like here -- up here is the crosswalk on Olive, and that's for both the 6-foot sidewalk and the 8-foot wide multiuse path. And that multiuse path will connect up here along the bridge and go further up into 39 North.

They have added that sidewalk here along Lindbergh that we had asked for for connection that will connect to those sidewalks further south along Lindbergh with the Vantage and Little Sunshine and so on.

And then this along here is their loop. Their shared use -- their shared use loop. They have eliminated that nature trail along here, but they are keeping the existing, and then they have some connections here and here into that sidewalk system slash shared use path system.

This, however, this connection down here, which was to Sunswept, which was in order to get that pedestrian access through the neighborhoods, which is something that is mentioned as a goal in our Comprehensive Plan, that is not being shown, that is something that staff wanted to emphasize that that's certainly something that we would like feedback on because it is a goal of the Comprehensive

Plan. And so that would be a connection here for Sunswept if agreements with Vantage Credit Union remain.

Oh, and this -- this comment here, they have addressed that. They -- they did move the location, so that's no longer a concern.

All right. And then another portion of this application is the preliminary plat.

So here is the preliminary plat. It includes the existing conditions of the property and the proposed improvements. It is proposed to have 17 individual lots, and those lots are not uniform. They are varying dense with sizes. And that is in anticipation of selling off the individual units of the development. And that includes the common ground and the park.

The tree conservation plan is part of the preliminary plat requirement, those come together. And then after the preliminary plat and the tree conservation plan are approved, then they would move forward with the improvement plans for the site and the final plat, so that would come next.

So, here's the tree conservation plan. And as they said, they -- they did go back to that and they were able to get 50 percent. So they are proposing 50 percent to be removed and 50 percent to be saved, which is our maximum.

So, they did go back and take a look at that. And the red are the trees to be removed and the green are the trees to be kept.

And, as you can see, a lot more are being kept in that buffer area, which is something that was addressed and comments from residents and staff.

And then also Phase 1 of the site development plan is also a part of this application.

And just a little bit of information on that. The site development plan includes the grading, the installation of the proposed utilities, the detention basin, the construction of the roads, the sidewalks, the pedestrian path, the retaining wall, the tree removal and the street lighting. That's all part of the site development plan for Phase 1.

And this map here shows, this is the overall, but it does show the location of the private versus public streets, which is something we had gone over last time as well.

And this is the concept planting plan. So this is more an overall planting plan for the site. They are proposing to have additional street trees along Olive, as well as along Olive, those streets that they are putting in. And they are proposing landscaping here, but what they have proposed is more of a conceptual, and so staff

is asking for a more detailed plan for next time for review, including a plant schedule, which would have all the different types of plants and materials that they're going to have proposed.

We would also like more detailed information about the proposed trees for the buffer area.

And then I will turn this over to Jason.

CHAIRMAN LABONTE: Thank you.

MR. JAGGI: Thank you, Bethany.

Jason Jaggi, Director of Community Development.

So, continuing on here with the site development plan submittal. I think the applicant also covered the drainage questions that were present at the first meeting pretty well, but just some highlights on our end.

They have been looking, and their plan proposes, locations for sanitary storm sewer systems throughout the site. You can see on the drawings that we have some of the preliminary runoff calculations.

And it has been submitted to MSD for their conceptual review, so they have been discussing this plan with MSD and, certainly, permits from MSD would be required prior to any construction, as well as permits from the city and, perhaps, other regulatory agencies within the site that have jurisdiction.

But I think the applicant covered that pretty

well, so I'll move on from that.

I did also, though, want to point out that they had prepared a preliminary stormwater management report at the initial submittal. I don't think that got into the materials that we had, so I put it in the agenda packet for tonight, and just to talk about that.

Their -- their engineer prepared this report back in July 7th, earlier this summer. They looked at the pre-developed and anticipated post-developed drainage conditions, and they examined it based on the preliminary analysis of the proposed detention facilities to determine stormwater volume using MSD standards.

And the conclusion in that report is that the proposed detention facilities has sufficient volume, no increased in flow at outlets -- at the outlet points would be created, and they have 1-foot additional height or freeboard in these detention facilities at each of those. But, certainly, this stormwater plans are continuing to be designed as these plans progress, but all city and MSD approvals would be required prior to the construction.

So, I just wanted to make sure that Commission understood there was a preliminary report that they -- they did provide to us.

I think that moves on from the site development plan. That's some of the highlights that we wanted to

cover on that, which, as Bethany pointed out, was the Phase 1. It does involve any vertical construction, new buildings, it's primarily just the site work.

But another component of the application is the development standards, and the applicant has provided a detailed set of proposed development standards for the project.

So, what this is referred to as, it's actually entitled "Attachment B" in the documents that you have.

It will be attached to the approved ordinance, so, when this project moves forward, these standards, as provided in Attachment B, would be referenced in the ordinance approving or up for vote for this project.

And these standards would really act as a substitute for traditional zoning ordinance requirements.

You can see all the different aspects of this development that these standards would cover. So these would be in lieu of what our zoning ordinance typically would govern for all commercial properties. They would have their own. And that's some of the information that's in this document.

It would also be used to control future site development plan phases. So this is kind of our rule book. As -- as phases move forward, we look back to this document and see what's allowed, and we analyze each of

the phases based on this document.

It's also used in conjunction with the site plan, which is the graphic plan view document which lists where buildings will be located, so we really are using both of these documents together to regulate the project as we move forward.

And a component of this attachment, Attachment B, is the Table A, which is the permitted uses, and it's rather extensive, if you've had a chance to look at that. But the framework for it, essentially, breaks it down into four districts or four components of this overall project, and that being the Main Street area, which is referred to as A; the Mixed-Use District, which is B; the office component, C, and then the residential component on the far south end of the site would be D.

And they utilize the city's NAICS land use codes to develop this -- this use table. And we also had our consultants, which are here tonight as well, PGAV, review it as well and they have provided some recommendations, so we have been working on this for several weeks.

But it is important to note that this table does not include any conditional uses. So there would -- at least that's not how we're setting this up. So, any uses you see in that table would be permitted by right, but those uses are -- correspond with the different districts

within the overall development, so they vary depending on -- on the use that we're talking about.

And then for the Main Street area there's been particular attention paid to that portion of the development, in that businesses that would not contribute to an active streetscape would not be allowed on the ground floor as allowable uses, but they could be allowed on the upper floor. So, businesses that don't typically generate foot traffic, those can be allowed, but not on -- not on the ground floor where we want to encourage street life and street activity, so. Typically, back offices uses that, you know, are just more office related, those would be allowed, but, again, on upper floors, not on the main floor, so that's some of the thinking behind the use table.

And you can just see how -- how it reads in the -- in the table here. These are the four different districts that you see, and you can see if they're permitted based on the district type. And then if -- if it's P, permitted, and then these are the special conditions that I just mentioned in terms of the Main Street area that have the asterisks, and that's where it says the use shall not be permitted in the street facing ground floor within the Main Street District.

Okay. That just gives you -- this is just a

little snippet of the whole table.

A few -- a few things that staff observed that I think warrant some additional discussion with this table.

First of all, we did not see any -- any mention of drive-thru restaurants, so I think that's a question, whether, you know, those are proposed by the developer or not. And if they are, you know, there might be some need to further restrict or point those in an appropriate location of development.

They are also proposing marijuana facilities as allowable uses depending on the facility type, so manufacturing, cultivation would be allowed in some areas of this development.

Dispensaries would be allowed, like in the retail areas.

These are things I wanted to point out to your attention, so you can discuss them, whether they're appropriate or not.

New car dealerships are allowed, but with no outside storage or displays. So, they're specifically written that way. And we asked them what do they mean by that, because, you know, in a general sense new car dealerships may not be appropriate in this development. However, their intent is to keep that option open, so they would be allowed a storefront, sort of sales use for a

vehicle. Perhaps, like Tesla, for example, you would have a showroom on the ground floor, but it wouldn't involve any display on open lots and things like that. It could happen in garages, but no open outdoor displays of the vehicles.

But, again, we don't know a whole lot at this point whether there'll be a service component to those or not, so that might just be more information that you still need.

And then finally the D, Residential District, which is our lower density residential component with this project from the far southern end, it has been presented as townhomes, the concept for these units, however, this table does show the allowance of multifamily units, which I don't think is consistent, and I think those should be removed.

So, that's a change that I -- I think we need to make, and I have discussed that with the applicant as well, and I don't think they have any issues with it, but.

I think in staff's view attached townhomes would be appropriate in that area and, perhaps, detached villas might also be acceptable.

So, if you're familiar with The Villas on Mosley, which is a development on Mosley just south of Olive, those are, you know, they're -- they're more dense

housing types. They're detached, but they're very similar, I think, to a townhome, perhaps, they're a little bit more dense.

Something like those might be okay in this area, but, really, nothing probably more dense than that.

That's really all I had to say about the use table. I think, by and large, staff finds it acceptable, and we might want to do one more scan of it, depending on some comments we get tonight, and present at the next meeting, but, by and large, with the comments I've made with those exceptions, we -- we were comfortable with it.

And then, finally, just some miscellaneous items with respect to the application this evening.

Restrooms in the park. I think that question has been answered. They are not looking to have freestanding or individual restrooms in that urban plaza. I forget the name.

VOICE: Village Green.

MR. JAGGI: Village Green. Thank you.

Village Green, I think that term at least helps define what their use is of that park, which is -- which is good, but they're not looking to have physical restrooms there. But it sounds like access to restrooms would be provided within lobbies that would be open. So, during special events or -- or any activity, really, at

the park, there would be access to restrooms, which I think was a good point that was made at the last meeting.

There has been no -- we have talked with them about the inclusionary housing question, and it's come up from our consultants asked about it. I think more discussion on that is -- is -- is warranted in terms of what might be possible, how that might work.

But I will say there is no provision for that in the plans that you have, and that was not something that was submitted originally for the project.

And then, finally, I believe security has been asked about in terms of the development. The applicants have told staff that they're not intending to have any security on the trails or anything like that. There might be some security, perhaps, within the development, but we really just don't have any other information on that point at this time.

And then the last point I would make is one of the charge -- one -- one of several criterias that you have to look at, and I presented that at the last meeting, all of the different factors that you have to look at in terms of this project.

One is this review criteria, No. 14. And it states that, any proposed direct impacts on public services, including public improvements proposed for

dedication to the public do not impose an unacceptable burden on to the city, taking into account, though, new city revenues that might be realized from this development.

So, this is information I just wanted to report to the Commission that we are gathering. Our Public Works Department is using a consultant to help us determine what the maintenance costs of our -- these roadways that would -- would be develop -- dedicated to the public.

And, also, I believe the police department is looking at what -- what extra policing resources might be necessary to -- to facilitate this development as well, so.

Our intention is to present that information to you at the next meeting so you can examine it in relation to this requirement, No. 14.

So, really, just to wrap this up, I mean I think you've heard a lot of information, especially with the follow-up from the items that came up at the first meeting.

I know there's going to be more discussion, and we haven't heard from the public yet either, which might generate some more questions for the project.

But these are areas that we -- we see as kind of the front and center issues discussed. And that would be

the buffer yard configuration. You've heard the changes that have been made to the plan in response to those comments.

The proposed uses and some of the questions that I pointed out with the use table.

And then the reconfiguration of the pedestrian path. A lot of changes have been made, but I think staff feels like it represents a pretty good balance for the overall project.

But we don't have the connection to Sunswept, which is a goal of our Comprehensive Plan. But I know there's been some concerns with that. So that's something we also felt like the Commission needed to weigh in, whether the benefits outweigh any negatives that something like that would bring.

I would also mention, though, that we are getting the connection to Lindbergh, so there is a connection south, but there is no proposal to directly connect Sunswept. And we don't know what Vantage Credit Union has to say about that either, cause it would require use of their property.

That concludes my remarks. I'm happy to take any questions or save -- save questions -- or answer any questions that come up.

MS. O'BRIEN: I have a few questions.

MR. JAGGI: Yes.

MS. O'BRIEN: First of all, I'm very happy with the -- the changes that have a lot of pedestrian access.

Like, I think there's been a compromise, but I think -- I think there's plenty of places for people to walk and also enjoy all of the retail while they're traveling.

But my -- I had a few questions. One is the bathroom. I know that you don't want to put it in the park, and I understand that. And you mentioned -- there was a mention that there would be one in an apartment building that the public would have access to, and I'm a little concerned because sometimes there's security for apartment buildings, and -- and I don't know whether we're at a level of -- of review now to where we can be sure that the design would have an access to a bathroom that would also protect the people living in the building, so that was one point.

MR. JAGGI: Okay.

MS. O'BRIEN: Another is in your report you mention something about some of the building materials, and you didn't bring it up in your -- in your discussion, so I thought maybe -- maybe some of that had been worked on.

I -- I personally think that drive-thrus are

kind of inconsistent with the design unless maybe they would be on the fringe.

And -- and I -- and it sounds like maybe at our next meeting we would be talking more about some of these uses that you mentioned that would be of concern.

MR. JAGGI: Yes. Yeah, I -- your response to some of your questions.

I think the restrooms, I believe the applicant should maybe follow-up with some more specifics to your questions.

But, in my view, in lieu of restrooms that are being provided in a park, I do think takes up valuable space within that area.

A solution would be to have them accessible within the buildings that surround -- surround the park, but they have to be open to the public lobbies, in my view, to make that work.

If they're within individual restaurants or within individual businesses, that's not really a very good idea because you're having people disturb the businesses.

But it sounds like they have a sales office or a lobby that might connect Main Street to the public parking garage, and in my view, that would be a very good place to have a public restroom in a open accessible (inaudible).

So, they can seek to that in terms of what their thoughts are, but that would be my thoughts on it.

With -- with respect to your other question on building materials. The Attachment B does have a section on architecture, and I did not -- I did not go over it because nothing's -- not a whole lot's changed. But they are proposing that -- to state that masonry and glass are preferred. Primary materials: Metals, cementitious siding and EIFS should not be used as a primary material on the building.

I think by and large that probably meets with our Comprehensive Plan guidelines that we had for developments on this site. Perhaps with the exception of EIFS.

EIFS is, we see it throughout the city, it's not an uncommon, in fact, it's very common exterior material. However, with today's new products, my feeling is there are better materials than EIFS that we could use that serve an equal purpose that are a little more durable.

For example, the Van -- Vanguard building that we have, the apartment building that has the bright colors on it, some of that EIFS just really has not held up that well. So if it gets banged into a little bit, it's going to crack, and it's just not as durable as some other products. So, that might be something we consider and

refine that a little bit.

But I do think the developer in large -- by and large, is meeting our intent here with, you know, we're not looking to have EIFS as a primary material. We're looking for higher quality materials and certainly masonry and glass fit the bill for that, so.

CHAIRMAN LABONTE: Any questions?

MR. WANG: Yeah, I have a question.

It's my understanding the Main Street, the sidewalks are 6 feet wide?

MR. JAGGI: Yes. Minimum.

MR. WANG: Minimum?

MR. JAGGI: Yes.

MR. WANG: Okay.

Do we know, because the talk is -- mentioned outdoor dining, and then the shared walkway is 8 feet, and then it comes 6 feet. My expectation of a walkable downtown is the sidewalks got to be a little bit wider than 6 feet.

How wide is the street itself?

MR. JAGGI: So, these are questions we also have.

MR. WANG: Oh, okay.

MR. JAGGI: And we've had discussions with the developer on a lot of these points you're raising.

So, just to split that up a little bit.

The pedestrian -- it's not updated here -- but the shared use path will not run in front of the Main Street storefronts any longer. That was what was shown in your drawings, and we had concerns, and they updated and presented that tonight.

So the main -- the shared use path, see my red -- will actually run over here now. And, so, there are no storefronts over here. The storefronts are concentrated on Main Street. We might -- you'll have some up in here as well. So I don't think that's a conflict anymore.

But in terms of the sidewalk, 6 feet is -- is rather tight. It's probably the minimum what we would accept. And we did ask them, well, what about outside dining and all this other amenities, street furniture, and things like this that you would like to see on a Main Street type environment.

And they are -- with the design of their buildings, they have told us that they're looking to have recesses within the footprint of the building for outdoor dining that would not impede on to that sidewalk.

So, if that's the case, we would have to see that with the actual plans for the buildings, but if that's the case, I think some of that concern goes away.

And then you also have to keep in mind that you're going with the section. We don't have here -- it's in the drawings, but I don't have it right here -- is your going to have a little bit of pavement next to the curb, then you're going to have like street trees or -- within tree grades and raised planters, and then you're going to have the 6-foot clear sidewalk and then the base of the building.

So, it won't be a 6-foot sidewalk and the curb. You'll have some -- some distance between there as well, so.

MR. WANG: Well, I also noticed that some of the parking is diagonal parking. If it was maybe regular street parking, then maybe you could facilitate the sidewalks being wider.

MR. JAGGI: Being a little wider? Yeah. Uh-huh.

Yeah. We can certainly ask the developer to respond to that in terms of why they chose the angled parking.

I've seen, you know, downtown they have both. Angled parking might get you more spaces in front instead of parallel parking. Sometimes people find them easier to pull in like that and back out. And those could be the reasons why, but we can ask -- ask --

MR. WANG: Thank you.

MR. POTASHNICK: So, how many people are -- would attend these Main Street events? What's the capacity?

MR. JAGGI: I don't know that there is a specific capacity. I -- we haven't discussed that with them.

MR. POTASHNICK: Because it looks like it's a pretty significant area.

MR. JAGGI: It is, yes.

MR. POTASHNICK: I'm having a hard time visualizing how one restroom would be sufficient to service an area of that magnitude.

MR. JAGGI: In my view, if you're going to have special events and you're -- require more people than normally would be in that area, you might have to look at portable restrooms.

MR. POTASHNICK: Well.

MR. JAGGI: That would just be for a -- for an event.

So in some downtown areas you see, you know, Thursday night concerts on the street, something like that, and you would have, during an event like that, you would have some portable restrooms. Seems to be pretty common for things like that.

So that would be my expectation.

MR. POTASHNICK: Do you have examples of where that's common?

MR. JAGGI: We can get some. We could look into that further for you.

MR. POTASHNICK: When we chatted about this, I -- I was thinking we should have more -- more public access to restrooms as opposed to -- in order to do it, in my own mind, I'm just -- this is just my statement, the Creve Coeur way, what we would expect --

MR. JAGGI: So there might be --

MR. POTASHNICK: Have to take young children into a porta potty or something.

MR. JAGGI: Yeah, maybe more than one building needs public restrooms in that -- in that -- in that case.

MR. POTASHNICK: Yeah.

MR. JAGGI: If there's a concern with porta potties or porta restrooms during special events --

MR. POTASHNICK: Yeah.

MR. JAGGI: -- these are things we should be discussing.

MR. POTASHNICK: Where are you going to put those at, so I --

MR. JAGGI: Right.

MR. POTASHNICK: -- and, so, I don't know, to

me, I think that's a -- I think that's a point that's still lingering.

MR. JAGGI: Uh-huh.

MR. POTASHNICK: I -- I, for myself, I know these setbacks are going to be a meeting discussion at our next meeting. And before then I'd -- I'd like to have the opportunity to go back on the property and -- and review them. I'm a much more visual person. There's a couple two, three places that I have in mind, so would it be possible to arrange that for us?

MR. JAGGI: I think your question regarding buffers, I think staff, we would appreciate if there could be direction tonight.

I'm not waiting until the next meeting to -- to determine where we should be with the buffers. I mean that should be a discussion -- discussion we're asking for to be dealt with tonight.

MR. POTASHNICK: If you put the very first slide up that the very first presenter --

MR. JAGGI: Uh-huh.

MR. POTASHNICK: -- I think we could talk about some of that.

MR. JAGGI: Yeah. And -- and my suggestion would be to discuss that after the public comments.

MR. POTASHNICK: Okay.

MR. JAGGI: That that could be something the Commission could deliberate on after you've heard from the public.

MR. POTASHNICK: Okay.

And please clarify again, what the -- for drive-thrus.

MR. JAGGI: Uh-huh.

MR. POTASHNICK: There's none presently planned?

MR. JAGGI: We have not heard that there's a drive-thru proposed, but the use standards do not address it at all. So I think that's something we need to hear from the applicant in terms of are there any plans for a drive-thru.

You know, it may be something that could be acceptable in the right location with, you know, if you have a little coffee shop and it's just got a little drive-thru, or, you know, a freestanding drive-thru restaurant, probably not consistent with this plan at all.

But I've seen, you know, if you had a coffee shop that was an end line user, and they wanted one on the back of the building, maybe that would be more acceptable.

But there's nothing that speaks to it that I've seen in -- in the documents here.

MR. POTASHNICK: How -- how is that going to be measured and controlled?

MR. JAGGI: We would have to get the information from you all to determine and hear from them in terms of if it's even planned. If so, then we could build some standards into the ordinance to address that, if there is a willingness to consider it.

MR. POTASHNICK: Well, the standards don't reflect that's (inaudible) that should be -- that should be the false standard?

MR. JAGGI: We could build that into it as well.

MR. POTASHNICK: Well, I think that would be a -- to me, I think that would be a necessity, and, you know, I think we've always tried to be accommodating, but I think -- I think we spent so many hours working on drive-thrus, it would be really disappointing something that wasn't reasonably -- reasonably within the division of -- of what's -- what's been approved thus far.

MR. JAGGI: I think that would be a good starting point for us. But we might want to look at that in relation to this particular development, because this development really stands on its own, and some of those requirements might be acceptable to this development, and some -- some may not. But I think --

MR. POTASHNICK: Well --

MR. JAGGI: -- that would be a good place to start, certainly.

MR. POTASHNICK: Perhaps, they could look at that and come back with some suggestions, cause I think we're -- I think we're openminded, and just rather than just -- rather than have no discussion, I think it would be relevant to have some discussion with --

MR. JAGGI: Sure.

MR. POTASHNICK: -- with some feedback.

MR. JAGGI: I -- yes.

MR. WANG: I still have another question.

MR. JAGGI: Uh-huh.

MR. WANG: So, I was wondering why the properties were divided into lots, and today dropped a hint that they're for sale. So, the lot that the grocer is -- is on, it would fall to reason that they would want to buy that one. And I know we're not mentioning which grocer it is. But the grocer that's currently west of there, they have a lot about that size.

Is there any talk about a land swap and that the other grocer being part of the same development?

MR. POTASHNICK: There's huge topography change between -- between --

MR. WANG: The location's there, it's just --

MR. POTASHNICK: No, they're -- they're adjoining, I think, but when I tried to -- to look at that the other day, that's one reason that I didn't go on -- I

didn't go on the Bayer property. I was just on the Schnucks' property. I want to clarify that.

But I'd like to go back -- I'd like to go back, see that for myself, cause I couldn't see through the -- I just couldn't make heads or tails out of -- out of what -- what makes the most sense for Creve Coeur.

That's -- that's one of the reasons I'd like to go to it.

MS. RICHTER: Jason, the 72-inch water main, does it run underneath the streets that the city's going to take over?

MR. JAGGI: I'll show you, yeah, I'll show you some. There's three of them.

MS. RICHTER: Cause it's --

MR. JAGGI: There's three pipes.

MS. RICHTER: Cause it's not when it breaks or if it breaks, it's probably when it breaks.

MR. JAGGI: Yeah. I'm going to see which one --

This is probably good enough. Well, I don't know.

So, this is the City of St. Louis. These are the water transmission lines, right here. You can faintly see, this is 100-foot wide easement, so there are restrictions that the City of St. Louis Water Division has on the development in terms of disturbance and vibrations

and all this.

They have, in the first packet that we had, they have given us their, you know, conceptual approval to this development, obviously, pending additional details, but I think, largely speaking, they're okay with this project. But they -- they will need more additional details as it goes along.

So, there are three very large water pipes that come through here. That certainly is a restriction on this property and it affects how the site has been laid out.

But they, basically, come through here on the northwest side, follow along here, and then this is the Main Street, basically, the whole -- Main Street is right through here and then it continues east.

MS. RICHTER: But Main Street isn't being turned over to the city?

MR. JAGGI: That's correct. That would be privately maintained.

MS. RICHTER: So --

MR. JAGGI: Yes.

MS. RICHTER: -- the waterline under it doesn't necessarily affect the city?

MR. JAGGI: Correct. This might show it a little bit better.

This is the plan here. So this is the Main Street. This is private. And these are the other -- this is the other street leading to Old Olive right through here.

MR. POTASHNICK: And how many acres are consumed by the easement and the detention basins?

MR. JAGGI: I don't -- I don't have that information. We -- maybe the developer can answer that.

I don't know, do you have that?

MR. PFUND: I don't -- the easement and the detention basis?

MR. JAGGI: Yeah.

MR. PFUND: We -- we can look that up.

MR. POTASHNICK: All right. So, but the question is, you know, about a third of the development is --

MR. PFUND: Oh, common ground.

MR. POTASHNICK: -- is -- is -- is not going to be developed, but of -- of that third, how much of that is really consumed by -- by the detention basins and -- and this other 100-foot easement for the pipes?

MR. PFUND: It's -- you know, roughly it's 35 acres that's undeveloped. I don't -- I -- we'd have to go back and run numbers to show you where, you know, what each area of that common ground would be in size.

MR. POTASHNICK: I didn't mean to make a project out of it, I was just being curious.

MR. PFUND: Curious. Okay.

MR. POTASHNICK: So.

MR. PFUND: It's certainly easy to do. These engineers, they can just click.

MS. O'BRIEN: I had one more question that has to do with the sightlines, and those diagrams were helpful with the trees and residence and all that.

Has the city and their consultants looked at all of that? Are they comfortable that -- that the residential houses, that those buildings can't be seen with the buffers being increased, if they are, and the plantings that are being recommended?

MR. JAGGI: I would say that we -- we were not presented with these diagrams that you saw tonight. We were not given these ahead of time.

I did take a look at on a conference call with them this afternoon, but before that we didn't have that information, so I think we would like to study it a little bit further. But I think it's very helpful in terms of getting an understanding of the impact of these buildings, given the grade issues that are present on this site.

So, I think there's been a lot of attention to -- to, you know, have a nice buffer in there, but

that's certainly something I think that you all need to weigh in on in terms of is it an acceptable buffer in terms of the width.

Again, remember, our ordinance start at 35 feet. That's what was in there, and that's what they designed to.

But it was also understood that the Commission and the city ultimately adjust that, depending on the site conditions and things like that, so.

I mean the effort was made to try to show you how that actually looks when you're at various points of the site and what -- what will happen.

So, I think it's sufficient in that regard. It's really -- it's not an easy question to answer in terms of is, you know, what -- what -- what is the right width, you know.

But I think it goes a lot -- I think a lot of it is what type of buffer are you going to have in there, you know, will it be really well screened, I think that's the intent.

But like Bethany said earlier, we would like to see a -- an actual landscape plan so to be able to look that (inaudible).

MS. O'BRIEN: So, is that the direction that you're looking for, is that we're asking you to get a

landscape plan?

MR. JAGGI: No, I think we're asking is this revised buffer plan sufficient, is it acceptable, based on the first version that was presented that I think had a lot of concerns.

And, again, we have not heard from the public either to be able to -- you might hear some other -- other sides of it. You might hear some other perspectives from the residents different from the developer this evening as well.

So, that's my suggestion is after you hear from the residents, this is a discussion point for the Commission. We can certainly assist with any questions.

MS. HALL: So, can we just put the map back up that shows the -- where the trees get to 68?

So, in the red is that all of the trees that will be removed?

MR. JAGGI: Yes, that's correct.

MS. HALL: Okay.

And so the green is going to be the buffer -- okay. Got it.

MR. JAGGI: Yes.

MS. HALL: Okay. Thank you.

MR. JAGGI: The green would be the trees that would remain that are groups of trees. There is an F

trees, those would remain. The red would be areas of trees, both groups like this, and then individual trees that would be.

MS. HALL: Right.

MR. JAGGI: And they're showing 50 percent among the whole site; 50 percent saved, 50 percent removed.

MS. HALL: So, then you're going to request that we see what their plan is as far as the types of replacements?

MR. JAGGI: What we are asking for is they have presented a conceptual plan, right here, that shows, generally, and you can't read the fine print here, but it shows what types of trees that they're looking to have.

I think they also presented a little bit more detail that showed you the types of evergreens and how it would all fit together. But what we don't have, and what we've asked of them is to -- is to present us a very specific landscape plan, so we could review it and have it reviewed for the next meeting, in terms of how many trees we're actually going to get in there; what the types of trees are; how big are they at the time they are planted. All of this specific information because this tree planting will occur as part of the first phase of the project, so it's important for us to understand what that's going to look like, and that the city is

comfortable with that plan.

That's all going to occur -- that's part of the site work that they're proposing and that they have a request in to you for approval for the site development plan.

MS. HALL: Okay. Thank you.

CHAIRMAN LABONTE: So, couple of questions.

Where the -- so, when you looked at the -- the elevations, I'm assuming we're -- we validate it because it was showing the trees, obviously, quite big, and have we validated that those are to scale of what's actually there today?

MR. JAGGI: We have not.

CHAIRMAN LABONTE: Okay. So that would be --

MR. JAGGI: So the drawings that you saw this evening, we have not seen previous. That wasn't submitted to us. It was -- we talked with them and they said they were going to have all this for the meeting and present it. But we have not -- we didn't have that.

CHAIRMAN LABONTE: Cause I think you -- what was depicted was you would see the new trees, and then the current trees, and I just think we need to validate what's actual scale of -- of what exist there today.

Where do we have buildings that are eight stories today in Creve Coeur?

MR. JAGGI: We have eight -- certainly, CityPlace has buildings of that size and even bigger than that. Hospital campuses, universities, probably have some buildings that are little bit taller, maybe not quite that tall.

But your question might be they aren't very -- they aren't very common here.

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: Buildings of that size. And the eight stories, would be, I think they're more in this area over here. So, they are more central to the site --

CHAIRMAN LABONTE: But what we see on the renderings don't show that, correct, cause that looks like five stories, maybe six or --

MR. JAGGI: I think it varies a little bit here. Yeah. I think these are a little bit taller on this end here that I'm seeing. But maybe when you get to the penthouse, they're a little taller.

You want to address that?

MR. PFUND: Yeah, I think if you -- you can kind of see it over on -- and I don't mean to shoot you, Barry.

Where this side is higher in elevation, the topography of the property drops 85 feet this direction, right, so, where you're at five stories on Main Street on the front of the building, you're higher just because

grade drops by the time you get to the back of the building. So the garage and the buildings are built into the hill.

Does that answer your question?

CHAIRMAN LABONTE: But this says additional lower levels access from the side or rear are permitted.

So, that doesn't really seem consistent then.

Cause I know you explained that last time, but then when I read it the way it was written tonight, it sounds, like, oh, you could have eight stories, and then other levels below, which had seemed like when we talked about it two weeks ago, it was kind of altogether.

So, I think we need to have that clarified maybe.

VOICE: Sure.

CHAIRMAN LABONTE: Cause I understand what you're saying when you look at the front and it's five, and then the back is maybe one or two below, that would make sense, but the way this is written doesn't say that on the Main Street development.

MR. JAGGI: Yeah, I don't have it on hand, but I do believe --

CHAIRMAN LABONTE: Okay.

MR. JAGGI: -- there's a -- there's a method in terms of how we're measuring height, and it's in these

standards.

CHAIRMAN LABONTE: Okay.

The other question I have, and it maybe goes back to where Larry was headed with current standards that we have. Like the drive-thru, obviously, it should be a use -- conditional use.

I did notice that there were drive-thrus called out for non-food. Aren't those conditional use today as well?

MR. PFUND: I can address the drive-thru for you very fast, if that's --

CHAIRMAN LABONTE: Yeah.

MR. PFUND: -- helpful.

So, right now, on Lot 3, we've -- we've prepared for a drive-thru that comes this direction for a coffee-type vendor, but other than that, there are no drive-thrus planned on this site.

CHAIRMAN LABONTE: Okay.

So, because I didn't know -- like cause on -- I think on the use permit it says all drive-in is 42100, which are these codes, these are new codes that we're creating, or, no, these are the current titles that we have?

MR. JAGGI: Yes.

CHAIRMAN LABONTE: So all drive-in and

drive-thru services excluding food services, would coffee still be consistent as a food service. Yes.

So, but today in our drive-thru, say for the bank or for Walgreens, isn't that still a conditional use that we have to approve that today?

MR. JAGGI: They are, yes, they are.

CHAIRMAN LABONTE: Okay.

MR. JAGGI: They don't have all of the standards like restaurants do. Not even -- there's a few.

CHAIRMAN LABONTE: Right.

MR. JAGGI: I think they need a stacking amount of certain amount.

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: There's a few standards, but it's nothing like drive-thru restaurants.

CHAIRMAN LABONTE: Okay.

MR. JAGGI: But they are both conditional uses in the traditional zoning districts.

CHAIRMAN LABONTE: So we would expect to see that here. Okay.

MR. JAGGI: They can be.

CHAIRMAN LABONTE: That's a statement that we would expect to see those here.

MR. JAGGI: Okay. Yeah. We're raising these as questions --

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: -- because we don't have all the answers on where -- also trying to assist you with something.

CHAIRMAN LABONTE: The other questions I had is it seems like there's a lot of uses in office that maybe aren't applicable. And so for something like, find one, full service restaurant, which would be 2511, would we expect to see today in our other zoning 2511 in something that's zoned for office?

MR. JAGGI: You could -- so, our commercial districts, you can have restaurants as conditional uses in all zoning districts, all commercial zoning districts --

CHAIRMAN LABONTE: And --

MR. JAGGI: -- and so those would allow --

CHAIRMAN LABONTE: -- but at the office, zoned for office, though.

MR. JAGGI: For Planned Office --

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: -- if we're just looking at that, and I don't believe they're allowed.

CHAIRMAN LABONTE: So, to me, I think we need to be more clear about what we mean with these new zoning districts because --

MR. JAGGI: Yeah.

CHAIRMAN LABONTE: -- that seems contradictory to what office would be. And it's --

MR. JAGGI: Yeah.

CHAIRMAN LABONTE: -- just kind of opening it up to --

MR. JAGGI: Yeah.

CHAIRMAN LABONTE: -- whatever they want to put there. Where I think we need, especially because where the office space is being on, you know, primarily on that corner --

MR. JAGGI: Uh-huh.

CHAIRMAN LABONTE: -- I think we need to be very specific about what office is.

And it would not be many of the things listed here.

So, if there's a way that we could look at -- because it was zoned office -- or what was it, research office, yes?

MR. JAGGI: Correct. Yes.

CHAIRMAN LABONTE: So I'm assuming that most of these things weren't allowed there before, so we need to not have them there now under the office section.

MR. JAGGI: Yeah, I would just say, I understand the point. Research office is a very narrow type of office district.

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: So, yeah, if they weren't tied to like a research type campus, which we have the Danforth Center and Monsanto Bayer as the only two properties that have that zoning designation, it's more narrower than your traditional office district, if that helps.

CHAIRMAN LABONTE: Well, maybe we could just look at what would normally mean in office district. Cause many of these things should not be going in the office building that they're proposing that's backing up to residential, so we wouldn't expect to see those there.

MR. JAGGI: Yeah, we can look at that further.

CHAIRMAN LABONTE: I think we should be -- if -- if the office district, which maybe we need to look at which zones it is.

MR. JAGGI: Yes, I think that would be helpful.

CHAIRMAN LABONTE: But many of these things, if it's where I'm thinking it is, they should not be a permitted use.

That's all I had.

Any other questions before I open it up?

MR. POTASHNICK: So these development standards, again, pretty short list.

MR. JAGGI: The development standards?

MR. POTASHNICK: That were listed.

MR. JAGGI: Yes.

MR. POTASHNICK: Pretty short list.

You don't think there's anything else that we should add to that?

MR. JAGGI: I think it looks pretty good as we feel like it is right now.

The questions with the uses, we should -- we should go back and take another look at some of those things.

But, yeah, I mean so the signage, you know, they're going to have to come back with a master sign plan for the whole development. That's in there.

We've touched on the architectural standards.

MR. POTASHNICK: That's going to be Creve Coeur standards, the signage?

MR. JAGGI: Yes, they have to come in with a sign package, like any large campus would have to do.

MR. POTASHNICK: Okay. And that's clear?

MR. JAGGI: Yes, it's -- it's in the document, yes.

CHAIRMAN LABONTE: Yeah, I think that would be the only thing. I know last time we talked about this a little bit, but if we're selling off pieces, there still needs to be a cohesive management plan, and we shouldn't have to be debating that with different develop -- you know --

MR. JAGGI: Yeah.

CHAIRMAN LABONTE: -- developers.

MR. JAGGI: So, my expectation would be when we have the final plat, and that's submitted, so what you have is a preliminary plat, that largely kind of mirrors the site plan layout, they're going to have to come back in with a final plat, that would be a recorded document to establish the actual lots and easements and streets, you know, which are dedicated to the public and so forth, when we get to that stage, we would expect to also see their covenants, that would be a list of restrictions and maintenance responsibilities for all of these areas, that should be in that document, so that will be a component of the project a little bit later --

CHAIRMAN LABONTE: Okay.

MR. JAGGI: -- that would address all issues.

MS. O'BRIEN: I just -- one other comment, it's kind of minor, but there's two streets called Twisted Branch --

MR. JAGGI: Uh-huh.

MS. O'BRIEN: -- and I didn't know whether that would be confusing.

MR. JAGGI: Okay. Yeah, we can take a look at that.

You mean it's just -- it's got different segments?

MS. O'BRIEN: Yeah, it goes like this.

MR. JAGGI: Yeah.

MS. O'BRIEN: And I just thought maybe it would be confusing.

MR. JAGGI: Okay. Thank you.

CHAIRMAN LABONTE: Thank you.

Okay. We are going to open it up for public comments. I'm going to go through just a couple of housekeeping items.

Anyone that wishes to speak tonight, we're going to ask you all to stand up at the same time.

There are comment cards in the back with -- if people want to fill them out and -- and share them.

So, we're going to ask you to stand up and be sworn in.

If there's anyone online, and I know last time we couldn't flip the camera, so we said just raise your hand, right?

If there's anyone online that wishes to speak, if you would raise your hand on Zoom, then we'll -- we'll swear you in.

And then we'll take the public comment cards, and we'll -- everyone will have three minutes. However,

if there are some attendees that wish to grant your time to someone else to speak on your behalf, we will certainly have that as well.

So, if everyone could, that wishes to speak tonight, could stand up, we'll go ahead and swear you in.

And is there anyone on the phone that wishes to be sworn in?

I see Lynn on there.

Okay. Thank you.

(The speakers were sworn in by the court reporter.)

CHAIRMAN LABONTE: Okay. Thank you.

Okay. So, we will start with Elizabeth David.

If you could please just come forward and state your name and also come to the podium.

MS. ELIZABETH DAVID: My name is Elizabeth David. I live at No. 9 Ramblewood Lane.

Ramblewoods is the small street to the immediate south of the existing Schnucks Store at Spoede and Olive.

So the very eastern boundary of Ramblewood touches the western border of the northern section of this plot.

I sent you all an email that pretty clearly enumerates all of my concern.

Based on what I'm hearing tonight, I'm pleased

to see that they're leaving more trees. It's still very bare along that border. And when we looked at one of the maps, there's a lot of red right in that section where we look up.

And they're raising the elevation of that land, and so the buildings are going -- which we cannot see today, really, from our street, the buildings and parking lots, are going to be much more evident to us.

And I have a real concern about the combination of the elevation changes and the massive loss of trees.

So, that's it. I'll yield the rest of my time to somebody else who wants it.

CHAIRMAN LABONTE: Thank you.

Adam Newman.

MR. DAVID NEWMAN: I'm yielding my time to Monica.

CHAIRMAN LABONTE: Thank you.

David Singer.

MR. DAVID SINGER: I will also yield my time to Monica.

CHAIRMAN LABONTE: Thank you.

Elaine Meede (phonetic).

MS. ELAINE MEEDE: I will also yield my time to Monica.

CHAIRMAN LABONTE: Steve Melnick.

MR. STEVE MELNICK: I will also yield my time to Monica.

CHAIRMAN LABONTE: Thank you.

Leslie Melnick.

MS. LESLIE MELNICK: I will also yield my time to Monica.

CHAIRMAN LABONTE: Okay.

Monica, you're up.

If you could state your name and address.

MS. MONICA MOORE-ZIGO: Good evening. Thank you, Chairwoman LaBonte and the Commission, for allowing us to consolidate and do a presentation this evening.

My name is Monica Moore-Zigo.

Can you hear me, by the way?

CHAIRMAN LABONTE: Yes.

MS. MOORE-ZIGO: Microphone. Thank you.

I'm a resident of 9 -- I'm at 9 Spoede Road, resident which backs up to the following.

And we're pulling this up today, so I have my neighbors here with me, so if you all stand up. We're together here.

So we are here representing the Spoede Woods Association, as well as we've also been in contact with a number of the other streets around us, Ramblewood, Mission Hills, Sunswept and Spoede Hills as well.

So we've had a number of meetings and community conversation the past few weeks about this, and so we just thought it would be, you know, helpful to kind of organize our thoughts and do a formal presentation, so thank you.

And in addition to the folks who are here tonight, not everybody could make it. We have some folks who are literally driving their children to sports practices or taking care of their one-week-old baby in the case of, congratulations to Cyrus and Connie.

So, we have some folks that wanted to just be on the list here.

And this is, by the way, just the folks who texted me yesterday, so it's not comprehensive list. We will continue to add to the list of stakeholders as we go through the process.

And I just wanted to preface by saying that we are really enthusiastic about getting a quality development on this site.

And just speaking personally, the unique combination of green space with amenities close by, of course, this very good school district, is what drew us, and I think a lot of other people to this neighborhood, so.

But we do have some concerns. And some of these are -- there are a number of things here. We're going to

focus tonight on the things which are really big picture items, which, you know, affect the overall planning and grading and all this initial phase stuff that's going to happen.

So I won't talk about all of these in detail tonight, but this is just a list of some of the things that have come up at the meetings that we've had.

Tonight, I think -- I think -- and the one thing I'll just touch on, though, while we're on this slide, that there are a number of things that we've heard here that have pointed out that the current development is really asking for special favors. There's a lot of factors by which they're not in compliance with Creve Coeur's land development standards currently. So I'll just list that.

Retaining wall height is normally limited to 6 feet. And we're seeing 20, 30 foot tall shared retaining walls in the presentations today.

Tree removal, I'm not quite convinced that they've reached the 50 percent limit. And I think you'll see why when I get to some of the photos of what we see from our backyards.

The current zoning standards, research and office that are currently in place require a 50-foot minimum green buffer. 35 feet is getting referenced as

the minimum standard. That's not correct as far as today's requirements.

And then the other thing that I haven't heard anything about from anyone, and I'm a little bit surprised that, you know, none of the professionals working on this project did the due diligence to find the -- the history of the culvert that's behind our house, and the reason why is that it's a stream. So we'll get to all this today.

But I'll talk a little bit about stormwater management, and I apologize, I realized today, I have way more content here than the ten minutes I originally planned for, so I'll skip through some things which have already been addressed.

But let's just zoom out a bit to put ourselves in context.

Those of us who live in Creve Coeur and have kids in Ladue Schools are well aware of Deer Creek. That's where the high school is. That's the floodplain it sits in.

And that is the region that MSD has got an awful lot of, millions and millions of dollars for the infrastructure projects upgrade.

Now, I know MSD still needs to review this project, and, you know, that will be in process and underway.

But there are two creeks on this site, and that's something that I have not heard mentioned in any of the presentations so far.

And you can see that on the FEMA map as well. So this is a FEMA map for the area. Apologize, I didn't get the little sliver that's over there, but I think you get the idea.

The blue area with the dot is -- that's zoned X, which is a moderate risk in stream area. And you can see how that curves around the edge of the neighborhood. They do have -- some of this will be replaced by the retention ponds that are being proposed. But then the stream just kind of stops on the current development plan and it doesn't account for the full stream, so.

As we mentioned, many of us here tonight are the folks who are upstream from the development. And we've heard a little bit about the proposed changes to the retaining wall at the back of the property, et cetera. But we just wanted to dig into a little bit more detail about what the drainage and that whole watershed looks like on the ground.

So, we -- we did a LiDAR scan. And so what this represents is the purple area is the lowest low point, and if you look, you can, basically, equate that, I don't have a laser pointer, sorry, to the upper corner of -- for this

site corner of the site.

Oh, thank you.

So, this corner here, is, essentially, what we're looking at on the LiDAR scan. And that corresponds to this purple area here.

And what's a little bit deceiving about this scan is that while the, you know, the drone software will take off the tree canopy, what is still shown here is a lot of really dense underbrush. So, this is actually not the lowest point. The lowest point that runs through here is about a 3-foot deep ravine where all of our properties and the subject property drains.

And, again, not sure why we don't know the history there, but this is the original path to the creek. You can clearly see that river valley here.

Zooming in again. Kind of showing the path of where that -- that ravine runs through this dense stand of trees. And, by the way, this current depth, I mean we're talking about 35 feet or 45 feet or 40 feet, even 50-foot buffer, this is currently 120 feet. And this is currently a natural drainage swale where the stormwater is going.

So, when we're looking at the development plan that's been presented and updated this week, the proposed retaining wall that's 40 feet away, as I pointed out, is, basically, cutting right through all that drainage. And I

haven't really seen a good plan for how all that works because they're not small retaining walls.

One of the site sections that was shown, it was kind of conveniently cut right here where the grades are approximately equal, but at Rachel's house, down a little bit further down, this is where we saw the 20-foot retaining wall going -- this house is below, and this would be above, where if you go uphill, this drops 40 feet from here to here.

Now, I think -- I'm not sure whose house this is here, No. 7, I think. These people are now 20 feet above the parking -- proposed parking lot below.

And we'll talk a little bit more about retaining walls in a minute. But I just wanted to demonstrate. You know, I think -- I think we've brought this up before, but we really just wanted to demonstrate. This is why we're not understanding the proposal and why it actually works because it doesn't seem to work.

So the retaining wall that's been proposed kind of on this side of the site are here, again, 20-foot retaining wall, 20-foot retaining wall, 20-foot retaining wall, maybe up to 25 or more here.

You know, that really -- I think that the burden is on the proposed design to prove that this actually works.

We really -- I mean, anecdotally speaking, I think most of us here have had water in our basement or storm sewer backups already with the current situation, and we just want to make sure that that situation is not going to get worse.

I won't focus too much on downstream, again, because realize that MSD (inaudible) and look at all of that. It's not surprising that they require the green standard for the basis of this development because it is an existing streambed.

I just wanted to point out, however, that, you know, in any development where we're proposing to move this much dirt, we need to look at this very carefully because we're talking about moving 20, 30 feet of fill (inaudible) depending on where you are.

So, as I mentioned, we do have two streams on the site. The right branch, which has been accounted for in the plan is a landscaped stream, which continues on further down and connects up to the tributary.

So, however, Dielmann on the development plan, basically, shown to stop right here somewhere. And it may seem a little bit odd that the creek goes through my neighbors' houses, but this particular part of the stream course is currently handled by these large culverts, which were mentioned earlier.

So that has been accounted for. The stream has been channelized through here.

And then you would say, well, why is there a stream across a parking lot. Well, what happened was the parking lot got built way before 2008 when the stream protection ordinance was passed. So, yes, there was a parking lot that was built over a stream, but what happens is the stream doesn't go away, it's still there. The alluvial soils are still underneath. And then all that water, basically, has gotten diverted to run back through along the fencerow (inaudible), which is fine, we just don't want that situation to get worse.

So, any natural watercourse, like Creve Coeur development, any natural watercourse, (inaudible) solid blue dash line, on the most recent U.S.G.S map requires streaming buffering.

We have two streams. This is the U.S.G. map -- U.S.G.S. map, and (inaudible) of these streams require stream buffering.

So what is stream buffering according to the ordinance. And it's been accounted for, again, on Monsanto, Sunswept Creek, but not on Dielmann Creek. It requires an undisturbed natural vegetative buffer, 25 feet in both directions (inaudible). In addition to that it requires an additional 25 feet on either side of no

pavement or buildings. So that's 100-foot pathway for the stream to take it's natural course.

And we believe that's what needs to happen here. We don't believe that placing an office building over the existing stream is an appropriate siting of that.

I wanted to touch a little bit more back to the retaining walls, because, interestingly, in the Creve Coeur development standards, retaining walls are in the erosion section, so there is a concern about erosion, and that's one of the reasons why retaining wall height is limited, because if you're changing -- if you're changing the grades that much, there's that much more chance of causing flooding issues or other issues. I don't know.

I -- we lived in the Vue for a while. I don't know how long they were working on that tall retaining wall, but I think they eventually fixed it, but if retaining walls get too tall, especially when they're sitting on, you know, alluvial soils, they're not stable, they are a recipe for trouble.

In addition, I think we can all just imagine what would be the effect of having a 30-foot retaining wall out of your backyard. What is the -- what's the provision, I guess you put a fence at the top, but whose fence is that? Is the developer providing that? Is some kid going to fall off? We didn't talk about that.

So, we mentioned that tonight we need to talk about -- am I -- how am I doing on time?

CHAIRMAN LABONTE: You're fine.

MS. MOORE-ZIGO: We -- so, we'll go ahead and talk about the buffering because there's been a lot of talk of, you know, providing an extra 5-feet of buffering.

And I just wanted to give some context, Mr. -- I'm sorry -- Potashnick, we would love to have you on our property, and take a look at what this looks like in real life, but I'd like to at least give you a little taste of that today.

These were all photos that were taken from out (inaudible).

Jumping back a little bit, you know, preserving the natural amenities on the site can be a benefit to the development itself. And I don't want to sound like we're against all development or anything like that, but I think we need to create a perfect balance.

And then understanding the history of this site, I think is a little bit interesting.

There is a major trail (inaudible) for maintaining, and I think that's -- that's a really nice amenity.

Here's a view of what it looks like. We agree it's really nice. It should be maintained.

But we need to talk about these trees. The current plan says that they're preserving 50 percent of the trees on site. I am not sure how they're counting that, because according to the city's standards, you can either count masses of trees or you can count individual trees. What's shown here -- oops, sorry -- there may be 50/50 on the masses of trees, but these -- but the individual trees, this is -- they're preserving like 10 percent of them or something. I don't know, just visually, I haven't gone and counted, but I think we need to take a closer look at that as well.

And just to put some context on what this anonymous mass of red actually looks like. These are not trash trees, these are not small trees, these are high value trees that are 75-years-old, 80 to 100 feet tall.

And, just as a sampling, directly behind our house there are 20 to 25 trees that, you know, would be required to be surveyed before being eliminated.

Over on the kind of wetland, nature trail area, we have a number of trees as well. Little easier to get over here, as you can see why these trees were surveyed and the other ones weren't. It's not quite as dense. But they're still very nice trees.

And we just need to understand that, you know, to create the detention or retention ponds, we haven't

even had that conversation, which it is on the site, we're taking out a lot of like mature high value trees.

So, you know, 35 feet, 40 feet, given all of the things I've just talked about, it's really not sufficient in any way, shape or form in our opinion.

So, this is what we're looking at today from Spoede Woods. This is somewhere in the middle of the street. You can see these are, again, the 80 to 100-foot trees. The scanner has caught most of.

And then this is what the new development would look like. And I emphasize that this, we just drew one building, we didn't draw the whole site, but just as a scale factor, this is a six-story building on our side. What they're proposing would be much higher. And these trees, which we are showing as a replacement, you can kind of catch what would remain, you know, with the 35 to 40-foot buffering, you might catch -- you might not kill the trees that are immediately next to the fence, which is great, maybe you have one layer of mature trees left, but these are 20 to 25-foot trees. This is what they would look like in like five to ten years. This is not what they would look like day one. So I don't care how many evergreens you put there, you're going to be able to see over that. And I believe this vantage point -- is this from the street or is this from the other side?

VOICE: That's from our yard.

MS. MOORE-ZIGO: So this is from our yard. Our neighbors across the street are a higher vantage point, and their view is that much more impacted.

So, we have some concerns. Be happy to talk about it. Be happy to have anyone over to our backyards.

Thank you.

CHAIRMAN LABONTE: Thank you.

Next would be Chip Fielder or Fielder?

MR. CHIP FIELDER: Correct.

CHAIRMAN LABONTE: Did I get it right there?

MR. CHIP FIELDER: Correct.

I just -- I just came. I'm not as familiar or prepared as this. But I just had one question, and I heard something I thought was encouraging.

I guess I don't understand, but this development now excludes all of your existing Planning and Zoning rules, and has its own new set of Planning and Zoning rules, which I thought was a big deal to take away your existing.

And I heard Mr. Potashnick say, if it's not clear, maybe you should have a default back to at least what you do have in place, so, anyway, I just agreed with that. I thought that's a good fallback position if this -- there's -- I heard you had some ambiguity with

the, you know, well, what's an office now; what does that mean? We know what it meant under the old rules.

The new rules aren't written probably as they haven't had 80 years or whatever to put them together, so, anyway, I would -- I would just say I like your idea of having a fallback to your existing plan, so.

CHAIRMAN LABONTE: Thank you.

Jeff Kintz.

Hello. I'm Jeff. I'm not as prepared as this, but I was just taking some notes as a local area person that participates in purchasing goods, participating with restaurants here in town. Just a couple notes.

Regarding the apartments. I couldn't tell from the pictures I saw, are they going to have swimming pools in their courtyards? I feel that's an important added value. That's one of my things. And the amenities that come with that.

My daughter lives in a newer complex, and they have the swimming pool and it's a huge sell, higher scale, higher cost, you know.

Another consideration, have you guys looked into going green regarding putting solar panels on all the roofs on every development that is possibly going to go into this complex?

Metro bus stops. Have you talked to St. Louis

about now having to possibly reroute to go through the Main Street here regarding Metro bus stops in Olia?

With that, also, I feel you will need dedicated ride share pickup locations on Main Street, so we don't have congestion. You need to have a designated area for ride share. That's a very popular thing now.

I heard restaurants. Number one, restaurants don't want you on their property if you're not going to, you know, use their restrooms, they just -- they don't want you in there.

Regarding that, I feel one of the board members mentioned some concerns about that as well when you have events.

Another consideration regarding green space. Instead of drive-thru restaurants. I don't know if anyone here has been out in Cottleville. Did you see Frankie Martin's Garden, or down in Affton, did you see the 9 Mile Garden? Great family atmosphere. They bring in food trucks. Green space. And they have movie nights, what have you. It's great for families. Something to consider.

Access to delivery trucks to the restaurants, to the retail operations, you have to have consideration of having to be 3-foot trailers, 48-footers, 28-footers to be able to navigate through these roads to get to those

establishments.

And last, but not least, I just encourage you guys to look at the Streets of St. Charles. They don't have any drive-thrus whatsoever. Restaurants, they have great established restaurants there: First Watch, Mission Taco, the Firewood Birds [sic], P.F. Chang's, Wasabi, Bar Louie.

We need upscale here in Creve Coeur, in my opinion.

And that's all I have.

CHAIRMAN LABONTE: Thank you.

MR. CHIP FIELDER: Thank you.

CHAIRMAN LABONTE: Angela Rose.

MS. ANGELA ROSE: Hi. Angela Rose. I live at 10335 North Sunswept. And I only have one thing.

I thought I saw the developer had forgotten about, you know, sending the walking path through Sunswept, and it's now up on Lindbergh, and I was like, yeah, cause that's what we wanted. And then I heard, well, no, that's probably not what's going to happen, you still have to talk about it.

So, please know, we don't want the walking path going through the Sunswept neighborhood.

Thank you.

CHAIRMAN LABONTE: Thank you.

Susan Murphy.

MS. SUSAN MURPHY: Good evening. Susan Murphy, 10305 North Sunswept.

I just had a couple of questions.

First of all, do we know when we're going to hear about the assessment that was done regarding school populations for our schools? Didn't hear anything about that this evening. Is that still on the docket?

CHAIRMAN LABONTE: Yeah, I think that was a followup that they were providing, so I don't think we saw that in our packet tonight, though.

MS. SUSAN MURPHY: Okay. Great. I'm glad to hear --

(Talking over each other.)

CHAIRMAN LABONTE: Yes. Absolutely.

MS. SUSAN MURPHY: Thank you.

And then the other thing I wanted to ask about was the density for the Category D.

Thank you to Jason for making the comment about the density for the Category D, which is the residential.

I don't believe the maximum twenty units per -- whatever it is reflected on the maps currently. And I would ask you as well.

I support what Jason said as far as removing that from the use permits, especially the medium density

line item that he -- that he mentioned.

And then, lastly, along with my neighbor, Angie Rose, I live next door to the Vantage Credit Union, and I have a lot of concerns about a pedestrian path there because what that would mean would mean a walkway, a sidewalk, from me to you, literally, between my bedroom window and a public sidewalk.

The neighborhood does not want that access, and I just fail to see the purpose of it.

So, thank you very much for your consideration.

CHAIRMAN LABONTE: Thank you.

Tom Walk.

MR. TOM WALK: Hi. My name's Tom Walk. I'm 1120 Basswood Lane in Olivette, Missouri.

Thanks to the Creve Coeur for organizing this meeting and going through this process. And thanks for allowing me this opportunity to speak here.

Thanks to the developers for keeping the lights on and maintaining the landscaping while we're making -- going through this process. And (inaudible) trying to invest in our community, so I appreciate this -- how complicated this is, and but I appreciate how much -- important this is and how much what this could mean for us.

I -- I'm glad that we're talking about multiuse,

and it is nice that we're going to consider having businesses and residences close enough together.

I drove here today, and it was nice to be able to drive here and go get chicken feed and come to the meeting here. We also have to consider other means of transport, and I appreciate you doing multiuse.

I share my neighbors' concerns here about the -- the tree removal. I would encourage developers to think more in terms of conservation and less in terms of mitigation.

We can -- I think we can preserve more trees there.

I -- my question is why were trees cut down in Plat 10, I think it is, and over the last year or two, why there's some large diameter trees that have already been cut, and I would like to know if -- why they were cut, and if they will be counted toward the tree removal.

I have a lot of questions about the economics and maintaining this. You guys have covered that. I think it's important that we have to have some binding terms for this. We can make agreements here, but you're selling off pieces here. Who's going to maintain the common areas? Who's going to maintain the common paths.

And I -- I share concerns about bathrooms, that these bathrooms aren't going to work in lobbies that --

that -- I would -- I go through -- I walk around the county, and I ride my bike a lot, and trying to find bathrooms in lobbies or in restaurants doesn't work very well. Having with dedicated public areas with dedicated public restrooms works for a lot of people.

And but I want to get to my main concern was about multimodal. I appreciate the multiuse here, but I had -- we need to think in terms of multimodal transportation.

And the connectivity here is -- is a concern to me. I don't like that they're replacing the island in the middle of Olive. They're proposing to propose grass island with a left turn lane. One of the best places for me to cross on right now is right outside Bayer where there are grass islands.

We need to think about those crossings, and there's a lot of sources for thinking in terms -- thinking transport in city planning and more walkable streets.

And I'm not going to give you internet links for that, but you can look up a lot about internationally, and this is much channel for the city planners too.

We need to re-think about Olive and making it more 25 to 30 miles per hour rather than 35 to 40 all the way from like Spoede to I-70. And we have these opportunities now to develop. And -- and this -- this --

another opportunity with connection here.

We can connect our communities. If we can connect the bridge and cross into the Bayer property, get Bayer's cooperation, we could connect all the way from pretty much from Creve Coeur City Center over to Price Road and take Old Bonhomme to Clayton downtown.

We can think about other means of transport like walking paths or bicycles.

And -- and we have schools along Spoede and Warson that disconnects to. I don't like that you took out the nature path. It seems like some of the residents don't like the connectivity or walking paths through their neighborhood, so I appreciate that, so maybe this won't be agreed on, but if we could connect through there to like Venables Park. I used go through Venables Park into my job at Danforth Center frequently when I was riding my bicycle, and, so, and if we can think about in terms of this much challenge for the city planners as for the developers, think about how we can connect, add more connectivity, and I appreciate you going through this process.

And I think that's all I wanted to say right now, but thanks again for this time.

CHAIRMAN LABONTE: Thank you.

VOICE: Thank you.

CHAIRMAN LABONTE: Thank you.

Blake Eastwood.

MR. BLAKE EASTWOOD: Last meeting you guys had asked to send out public -- a hearing notice to all the -- the neighborhood associations to get the board.

I'm the president of the Sunswept Neighborhood Association. And I want to communicate, again, that we have uniformal agreement with a couple residents that I haven't been able to talk to. There's a couple that have kind of fallen out of the -- the -- the communications sphere, but everyone is against adding the access directly into our neighborhood.

I think we got Planning and Zoning, you guys to kind of agree that, in the last meeting, that the access to Lindbergh is preferred. It gets us access to the neighborhood, but not through the neighborhood directly next to homes where we don't want to disrupt.

I also want to call back to the -- the pedestrian, the bike access, which I think is -- is big and important as part of the -- the Creve Coeur large plan. I think that was -- I can't speak to it directly, but I think that was a part of the plan to remove the cloverleafs on north of Olive, was to improve the pedestrian and the bike access. However, everyone that lives in Creve Coeur off of Lindbergh has zero access. We

have to walk on the shoulder of Lindbergh to get to Olive from our house.

So, adding the access along Lindbergh is exactly what we need. And we were pretty greatly compromised by losing that cloverleaf to get to Sunswept. Now we have to stop at the stoplight on Olive to make a left to go west on Olive, and then stop at another stoplight to go south on Lindbergh again. So, the fact that we're going to have access to the -- the Bayer exit helps, certainly, as part of this development.

But improving access, pedestrian, biking access for us in our neighborhood, but not just us, all of the other neighborhoods south of us on Lindbergh are all, I think, pretty excited about, you know, gaining access to get to the Olive Corridor, which we literally don't have right now.

I want to take my kids through the Bayer lot. My property backs up to it. And I kind of feel like we have to play frogger along Lindbergh now to do that. So we're -- we're pretty excited about gaining access into the development through Lindbergh.

One thing I talked to -- to Matt about previously was, again, that pedestrian and biking access.

I know part of the 39 North Plan calls for connecting the Great Rivers Greenway, kind of behind the

Danforth Center.

I just don't think there's a really great access, and I haven't seen a plan anywhere that gets pedestrians safely across Olive.

So, I would -- I would just, you know, continue to see if there's a better opportunity. I know in conversations, Matt and I had talked about, you know, is there a better way to connect across to Olive for -- for traffic to connect it to the Great Rivers Greenway.

In my mind, if we're having to cross Olive, I wouldn't say we're very well connected to the -- to the access in that trail, that trailhead.

So, those are the big pieces.

And then, lastly, it was really great to see the presentation that our neighbors put together to share the -- the -- the green and the buffer.

I -- I am -- and -- and we're pretty good shape at Sunswept in that there's a buffer that's being maintained as predicated by the creek, but I do feel like the points brought up with the -- with the residential planning in that Phase 5, which is the what's shown as townhomes, like I said, city, I -- I agree with all of that.

I do have some overall concerns that I'm going to continue to bring up, which is the mitigation of all of

that water. It -- when it crosses the current Bayer property, I own the property on both sides of the creek when it crosses in to Sunswept.

So, I'm going to be pretty greatly impacted, as are neighbors along the bottom of that, so I just ask the Planning and Zoning folks to be steadfast to ensure that all the calculations are correct, and that we hold the developers accountable for making sure that the plans address all of that, that watershed, cause there's an awful lot of water that comes through that creek.

And I heard a couple comments today where they felt like the, you know, the creek was overly wide, and didn't really know why. And I think we got some helpful context from the neighborhood on why that is, and it's a little bit scary to think that we have a developer that doesn't maybe have all of that information.

So, I can tell you, the bridge to get into our neighborhood is overtaken by water couple times a year. It's old infrastructure. And any more water that hits that watershed, it's going in the basements; it's going into homes, and it's going to tear out that bridge at our -- at the entrance to our street.

So, just something to be mindful of moving forward.

Thank you.

CHAIRMAN LABONTE: Thank you.

Rachel Protzel.

MS. RACHEL PROTZEL: Hi. I'm Rachel Portzel. I live at 12 Spoede Woods, which is right there at the L.

And I was planning on yielding my time today to Monica, and I totally support all the work that she and her husband put into this presentation.

So, I was not planning on speaking, but I was really deeply disturbed by something I saw in the presentation when some developer said to me right before this meeting when I had asked some questions about the pictures, and that is about the -- the sightlines and the view.

So I'm at the lowest part of the street, at the very bottom where the retaining wall is going to be well -- very high, and I have a view of the retaining wall.

And then I asked the developers how tall the buildings just behind it, there's two small office buildings right there, that they're -- been talked about.

They're one to two stories tall, and then behind that is the eight-story parking garage.

And I appreciate that they're planning to retain a few more trees, but they're still vastly removing most of those trees.

I walk on that trail all the time. It's beautiful. I would love to have all of you to come and see what it looks like now. It's beautiful.

But I will say in the wintertime all the leaves drop. There are not evergreens back there. And I have a very clear view of the entire property. I can currently see the existing buildings from my kitchen window. And that building's only three or four stories high, and then we're talking about right next to it an eight-story parking garage. That I -- it's directly behind my house, so I'm going to see a retaining wall. I think they said 20 feet tall. And then a two-story building and behind that an eight-story parking garage.

And I appreciate that they want to add more evergreens, I love evergreens, but there's no amount of evergreens that are going to protect me from that.

I directly asked the developer how he would shield us. He said you will see the buildings. We will see these buildings.

And even from the street, the other people on the other side of Spoede Woods will see it because these buildings are going to be well, well over our houses and well over the treeline. Especially since they're removing most of those trees.

There's just no way to protect us. No matter

how big of a buffer you put there. You put an eight-story parking garage, you know, 100, even 200 feet from our houses, you're going to see it, especially when you remove all those trees that are deciduous now, so. And that's five months out of the year that we have a clear view.

I can see all the way to Olive from my house, so everything they're putting there, we're going to see. Put those things really close to our homes, are very, very concerning.

I think that is it.

We also have a couple of -- as she mentioned, the impact on the school. I have little school children, and so we are concerned about crowding in the schools.

And, also, just the presence of the sense in terms of setting your own goals for this new development.

We're concerned about what kind of precedent you might be setting to future developments if you make all those exceptions to current ordinances.

I think that is it. Yeah, and I would, really, to me it feels like the city is sort of rushing us to pass this and to come up with a plan.

I appreciate that Mr. Potashnick wanted to come and look at the property. I would love to have as many of you as are willing to come to our backyard, and I will show you what it looks like from our vantage point. I'd

love for you to come in November when the leaves are gone, so you can see what we see.

So, I would encourage you to please don't rush this process. There's a lot of huge concerns for us residents.

Thank you.

CHAIRMAN LABONTE: Thank you.

That was our last card. Does anyone else wish to speak?

MR. PFUND: Would it be okay if I answered a few things that came up?

CHAIRMAN LABONTE: Sure.

MR. PFUND: Okay.

We're never going to make everybody happy here, but I'm going to try to answer some questions that came up.

We'll wait on some I -- I need the graphics for.

But swimming pools, yes, both of the large buildings will have swimming pools.

The engineering, we've also looked at all 50-foot -- 53-foot trailers trying to get through down to -- how they get through, where the back of the house and where the front of house transportation is.

We did agree, I think Susan brought up the Category D -- or for Subdivision D, twenty units per acre.

We are revising that. That's not something that -- that will stay.

We met with the school district today to go through our first round of conversation with them -- or second round of conversation with them, and we've got some follow-up to do next week, but we are working with them on quantity, costs, tax abatement, all those items, so there -- there's a lot of dialogue going on.

I think as Blake said, we've offered and we're happy to meet with anyone that wants to talk about or has questions about what we're going -- you know, what we've -- what we've designed and how something works or doesn't work.

I, you know, and I don't know that we'll go into it right now. But streams, stormwater, fish and wildlife, Corps of Engineers, MSD, EPA. It -- it's a -- it's required of us to provide all that engineering to the city, and it's all there, so, maybe the conversation hasn't happened, but all those things are fully engineered and evaluated.

I think Tom asked about why we cut down some trees so far. There was some dead trees that were removed in the spring before bat season. It was getting -- they were all dead and identified by our environmental team to be taken down before the bats would take roost in them.

Buffers. I -- I agree -- I didn't hear anything tonight that surprised me.

I think in a lot of cases if you drive through the site right now, you will note that this buffer is not good, right, it's -- it -- you can see through it in a number of areas today.

And that there is no amount of buffer that's going to completely block anybody's view of this development.

But I do think there's a difference between 40 feet of great buffer and any other amount, larger amount of a buffer like exists today with trees and vines and brush.

So, our proposal, and Toby kind of hit on this too, this -- what we've provided in this 40 feet along the south and the west side is over 2 acres of land that this development can't touch once that retaining wall's built. There's no access to it.

This -- this property, basically, becomes the -- an extension of everyone's backyard. We -- we're not touching any of the trees. I think there was a graphic shared that we're taking trees down in height. We're not touching anything, and that undisturbed buffer means undisturbed. We aren't touching anything in that 40 feet, but we are proposing to add to it at the -- where the

retaining wall sits.

CHAIRMAN LABONTE: I guess, though, can you speak to, and this might be a good view here, so, because I think when you look at the red, I mean there's a huge red area right in this area, correct? So --

MR. PFUND: A tree preservation?

CHAIRMAN LABONTE: Yeah. All along -- all along there, the upper -- upper buffer there, which is where the office building would go, right?

MR. PFUND: Right.

And I think that we made this graphic, so it's our -- it's our issue, but the -- this doesn't do it justice. There's not -- we've counted these trees now two times on the site. The -- the metrics for the 50 percent tree removal are 6 inches in diameter or greater at four and a half feet off the ground. Those are the trees that are being counted.

So, these areas where it's solid red are just where they're so close together that the canopy's covering everything, it's really hard to get in there and count, so there's just a different -- the surveyors mark that area differently. These other trees, they can walk right up to and there's grass on, you know, 20 feet all around it.

CHAIRMAN LABONTE: Cause the way it's viewed here, it's -- it's pretty much like you're taking out all

the trees then past that green line all the way up to where the office building is, and I think we don't really have a view of what that actually is today.

I mean that looks -- and I think that goes back to what, you know, Monica was saying with the hundred buffer or whatever now, if -- if -- what is that red line really denote today? Cause that looks enormous on this the way that that looks today.

MR. PFUND: And, again, I think it's -- it's partly this graphic that's showing it.

What really exists today, if you've count trees that are over 6 inches in diameter, is something that looks more like representative of individual dots.

So, yes, the brush and all the other stuff that is in the trees in those areas is removed, but, again, you can sit in our car right here and look into these backyards where it's completely clear all the way through, because the buffer wasn't designed to be, you know, West and his architecture firm are -- are proposing to come through and identify how to bolster that 40 feet to make it more impervious to sight and sound.

CHAIRMAN LABONTE: I think we probably need a better view of -- of especially that section, cause I think that's where there's a lot of noise there.

I think the other question I have is then, can

you speak to what she shared about the creek requirements of having the buffer on both sides to really allow the creek to flow as it should?

MR. PFUND: Yeah.

I'll have Chris talk to that because it -- (inaudible).

MR. CHRISTOPHER STRITZEL: Well, yeah. So there is -- she's right. I mean there was two creeks that are both blue line streams. The blue line stream on the map like that requires you to mitigate, if you're going to impact it at all, and that's because it get -- has to be mitigated by the Corps of Engineers.

The -- the stream on the left is already partially enclosed, so it's not -- it is a stream at points, and other parts it's not where a parking lot's gone over it, or they have relocated a portion of it.

We are proposing to eliminate that creek and enclose it completely through the property, which is -- which is required -- which would require a permit from the Corps of Engineers, so we have been in talks with the Corps of Engineers. We have -- we are almost to the point where they've signed off. DNR has signed off on. EPA have signed off on it. Everybody else has signed off on that.

And, so, we are mitigating that on site, so that

we can build across it. So that creek will no longer exist. We will enclose the entire portion of the creek from, basically, from Olive all the way down to the detention basin. And we're going to route it out and around. And there -- so there won't be no more -- so, part of my conversation earlier where we're decreasing the watershed to those backyards is true because we're going to be enclosing that creek from, basically, Olive to the pond, rerouted around the property.

So, it will no longer flow through the 48-inch, if it even does today, which I have my doubts.

CHAIRMAN LABONTE: Other questions you have?

MR. POTASHNICK: Well, I like the idea of getting a better graphic for the streets --

CHAIRMAN LABONTE: Uh-huh.

MR. POTASHNICK: -- because Jason's going to ask us how we feel about setbacks, and the only thing I can say is I don't -- which is one of the reasons why I want to go back out to the site, to have a better way to see -- to see what -- what's being proposed.

So, I'm -- I'm personally, I'm sort of stuck at the moment.

CHAIRMAN LABONTE: Any other questions?

Okay. Jason, what is the next step?

MR. JAGGI: Yeah, I think just maybe some

assistance that I could -- just a way to look at the project.

So, I think it was mentioned, you know, you have -- you have a -- a distance issue in terms of is a 60-foot buffer appropriate, is a 40-foot buffer.

There's questions about you're not following the ordinance. And there's questions, I think, about the Planned Zoning District process, which are understandable.

But the -- the Planned Zoning District process, in and of itself, by nature, intentionally, is meant to set aside or have the ability to set aside some of the traditional rules of the zoning code.

And -- and that's intentional because of the size of -- of this magnitude, with this many components it's almost impossible to follow a traditional zoning district requirement because there's too much going on.

So, that's intentional that the -- the Commission, ultimately City Council, who will take it after the Planning and Zoning Commission has to decide how much, you know, where to set these standards. And that's the exercise, I think, that we're all doing tonight.

So, going back to the buffer. You know, you can have a nice buffer at 40 feet if it's dense, if it has fencing and screening, so there -- you can have a quality buffer that isn't 100 feet wide.

If you have 100-foot wide buffer, that may help the distance, but if it's not filled in with trees and it doesn't have screening, it doesn't do you a whole lot of good.

So, I think from the developer standpoint, they're trying to say, yes, we have increased it from 35, which is the minimum standard in our Planned Zoning District wordings, okay, that is where we start.

It doesn't apply -- the 50-foot doesn't apply here because it's being re-zoned into something else, so I think it's valuable to know what would be the requirement under the existing zoning, and it would be difficult, but with our Planned Zoning District the minimum starting point, I guess you could think of, is 35 feet, and that's where they start. They increased it by 5 feet.

But I guess my point is is that they're proposing a very dense buffer that could have -- that would be a combination of existing trees and new trees to fill it in. And I do believe there's some areas here that are somewhat bare that you can see through, and it's not a very dense buffer all the way through there now, and that's what they're proposing to give to the city, if they can have that 40 feet as their proposal.

So, I just wanted to be -- kind of give you some guidance and maybe some thoughts on -- on how to look at

buffers.

Evergreens are important. Evergreens are, as they suggest, year round. But they're not going to screen buildings that are off in the distance.

You know, they're typically planted 6 to 8 feet in height at -- at -- when they're initially planted. It takes time for these things to fill in.

So, just to manage some expectations, I think it is correct, you might see buildings in the distance. You perhaps see some of those buildings now at Bayer in the distance. I don't know. I'm not in folks' backyards.

But the tall buildings that we're talking about, I think we need some clarity on exactly what the 8 feet --

CHAIRMAN LABONTE: I agree.

MR. JAGGI: -- I'm sorry -- 8 stories means.

Because as I looked at the codes that are presented, it says 8 feet, but then additional stories on the rear of buildings don't count for the eight stories.

So we need to kind of get clarification on that.

CHAIRMAN LABONTE: Well, and -- and -- and also understanding, I think we need to go section by section of what's proposed and what use is proposed because we didn't talk about an eight-story parking garage.

Now --

MR. JAGGI: Right.

CHAIRMAN LABONTE: -- in the Main Street it says you can be eight, but the other areas are not eight. And Main Street is one section. So I'm not sure how you'd get to an eight-story parking garage that's so close to the residents if it's not Main Street, and over by the apartments or whatever, right, on Main Street.

So, I think we need to understand, almost go section by section of looking at what is proposed; what those use, you know, what the building placement being proposed is; what the uses are being proposed, and be very specific because I wouldn't expect to see an eight-story parking garage right by the residential --

MR. JAGGI: Right.

CHAIRMAN LABONTE: -- piece.

MR. JAGGI: So the eight stories would be on Main Street, on the southern end of Main Street. Those are the two areas that would be allowed today to go up eight --

CHAIRMAN LABONTE: So we need to see what -- we need to understand, really, where that is and what the view is then from the residents.

MR. JAGGI: Okay.

CHAIRMAN LABONTE: But this is very important that --

MR. JAGGI: Sure.

CHAIRMAN LABONTE: -- we see from the residents.

MR. JAGGI: I think -- but I guess the point I'm trying to make is is I think we do need some clarity on exactly how we're applying the eight stories.

CHAIRMAN LABONTE: Yes, we need that as well.

MR. JAGGI: But what they're (inaudible) today is those -- the maximum areas of eight stories would be allowed on Main Street on the southern side of Main Street. It would not extend to any of these areas that are immediately adjacent to the existing residential.

CHAIRMAN LABONTE: Uh-huh.

MR. JAGGI: Those areas are generally in line more of a maximum of 50 feet. Some of those are one to two stories.

I think the parking deck that's closest to the residents would be more in the line of, perhaps, four levels, which is different height than a building story.

So, we can review all that detail. It's on the plans.

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: We just didn't go through it tonight.

CHAIRMAN LABONTE: Okay.

MR. JAGGI: But it does -- the plans do spell all of the height allowances per lot that tie back to the

category of land use within this development. It is all within the plans.

But I think it's important, yeah, that we kind of understand all that --

CHAIRMAN LABONTE: Uh-huh.

MR. JAGGI: -- because it's not being treated uniformly --

CHAIRMAN LABONTE: Right.

MR. JAGGI: -- through the whole site.

MR. PFUND: Is it helpful to walk through it?

CHAIRMAN LABONTE: I mean I feel like it needs to be blown out more of, I don't know if it's just me, but here's the resident, here's section one, I can't remember what the numbers we're talking about, but section one, this is where it is, this is what's proposed, these are -- like we need to be that detailed.

MR. PFUND: So, I'll just quickly, the garages are --

MR. JAGGI: Matt, you're going to have to come -- I'm sorry, you're going to have to come to the microphone if you want to speak to that. Maybe somebody can bring it up to the front.

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: You have -- you do have to speak in the microphone. This is a public hearing and we're

transcribing.

Does that work?

MR. PFUND: Okay.

CHAIRMAN LABONTE: If -- yeah, if you could bring it up closer that would be better anyway.

MR. PFUND: Is this a good spot?

So, the garages are all incorporated into the buildings, right, so this garage is actually wrapped on the front. So this is Main Street, and you have a five-story building down Main Street. Where that turns and goes south, that's going to look like it's the building along here.

This entire development is built around the, I think we talked in one of the early workshops about the plateaus; that this is all at a higher elevation. So, these buildings that make that east, west Main Street line, the south side of Main Street, are retaining wall that lets us go to that second level of the plateau.

Now, when you come down to this level, the existing G Building is five stories with a two-story penthouse. So you have seven stories in this location already.

The bottom level of G will be at the same elevation as the bottom level of that garage.

Questions on that?

Same on this end. As you come around, the garage will sit underneath the building in this case.

This is that amenity space with the pool on the deck.

CHAIRMAN LABONTE: How is G seven stories?

MR. PFUND: Seven stories on G?

CHAIRMAN LABONTE: Yeah.

MR. PFUND: It's five stories tall, and then you have a two-story penthouse (inaudible) on top.

CHAIRMAN LABONTE: Five stories tall.

MS. HALL: So where is the eight-story garage? Is that south?

MR. PFUND: The eight-story garage is right here. That's the eight-story facade of the garage.

Now, as you go up this street, it starts to go from eight to five. As you -- this -- this street is going uphill.

MS. HALL: And what's that right behind it? Right behind the eight --

MR. PFUND: Here?

MS. HALL: Uh-huh.

MR. PFUND: That's a one to two-story office building.

We had greenhouses in here at one point. I don't know if can see by those, but we removed those

because of the lighting concerns.

MR. BLAKE EASTWOOD: Matt, what about the parking garage that backs up to Spoede?

CHAIRMAN LABONTE: Oh, wait hang on. We have -- we can't have people just yelling out from here, so if you want to come up and ask your question, just announce your name, so we can have it transcribed.

MR. BLAKE EASTWOOD: Sorry.

CHAIRMAN LABONTE: Yeah.

MR. BLAKE EASTWOOD: The parking garage that abuts all the neighborhoods and Spoede, what's the height of that parking garage there, Matt?

VOICE: Yeah, the top deck is four.

MR. PFUND: Top deck is four stories here, but it's -- it's about at the level of the junior box store and the grocer, so it's not going to stick up.

CHAIRMAN LABONTE: And that was Blake Eastwood, for purpose of this record.

MS. RACHEL PROTZEL: (Inaudible.)

CHAIRMAN LABONTE: Come up, and if you just say your name again.

MS. RACHEL PROTZEL: Rachel Protzel again.

So, what he just pointed out was what I was talking earlier with the eight stories of the garage facing our property.

So I just like to know from the developer, can -- are there other parking alternatives that can be explored other than a parking garage that size?

I mean could some of the parking go underground?

Are there other areas where parking can be added to maybe reduce the size of that?

And I'd also like to know, is it really necessary to have office buildings right there?

I can think of other uses for that space that would be more family-friendly for the residences in the area, like a park or something -- a playground or something. We don't have anything like that in our neighborhood. We have a lot of residences right there, and it seems like an odd place to put research offices right behind homes. It seems -- I love the Main Street idea. I think the development overall is great. But it seems very odd to have research offices there, and then to have such a huge parking structure right there.

So I just -- I'd like to know is -- you know, is this in stone or can we -- you know, could you explore other alternatives for that -- those few lots right there that abut our homes?

I think that would solve a lot of issues that -- and maybe some other ideas can be explored and maybe reduce the size of some of those buildings that are right

behind our property.

CHAIRMAN LABONTE: Thank you.

MR. PFUND: So, I -- I will say, you know, the -- the goal of this development has always been to be dense, to be urban, to be a main street. It's not -- it's not something that, you know, we purposely push this density up as close to Olive as we could.

Now when you do that, you don't want to park in a garage down here and walk to your apartment all the way down here, so sprinkled throughout this development we have six or seven garages.

Now, we also use the garages because we didn't want to eat up green space and put parking lots in. So I mean there's a tradeoff to all these decisions.

CHAIRMAN LABONTE: Uh-huh.

MR. PFUND: There's a tradeoff to what, you know, this was senior living at one time back here. We worked with the city.

We've been working on this for a year. This isn't getting pushed through in a hurry.

We changed that because there was a need with 39 North for office space, research office space, and it's a quiet use that sits in the back corner.

CHAIRMAN LABONTE: Other questions?

Okay. Thank you.

MR. JAGGI: So, I guess at this -- this point, the Commission needs to decide do you want to keep the public hearing open --

CHAIRMAN LABONTE: Yes.

MR. JAGGI: -- and what information do we want to look at for the next meeting. Maybe some summary points on that, based on what you've heard tonight, would be helpful.

CHAIRMAN LABONTE: So what -- what I've heard is this tree -- understanding the actual tree count there; the usages, and like be more specific with the four categories on what the usages are and actually understanding what eight stories mean. I think that's not clear right now.

I think I've heard several ask for another field trip requested to have a view from more of the resident perspective.

Any other -- the school district, obviously, we heard -- we heard that, you know, you all are meeting with them, so thank you.

Any other?

MS. O'BRIEN: And the bathroom issue.

CHAIRMAN LABONTE: Oh, the bathrooms, yes.

MR. JAGGI: I want to -- I think we probably need to talk about the field trip idea.

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: That could create some complications in terms of our public hearing process in a venue like this where everybody can attend and it's successful, I don't know if we could achieve that if we're meeting out in -- meeting in folks' backyards or --

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: I think a little more discussion on that.

CHAIRMAN LABONTE: Yeah. No, just can you give us an alternative what you'd recommend?

MR. LUMLEY: I think a way to simplify that would be, to the extent there are residents who are willing, you know, to provide that access, maybe they can provide, you know, a couple hour time block, and no more than a couple commissioners at a time, you know, would go, so, you know, fifteen minutes, kind of have an appointment scheduled where we don't really have a whole bunch of commissioners at any one time, and they can just get that vantage point as opposed to a formal tour.

MR. JEFF KINTZ: One --

CHAIRMAN LABONTE: State -- state your name.

MR. JEFF KINTZ: I'm Jeff Kintz.

CHAIRMAN LABONTE: Thank you.

MR. JEFF KINTZ: One more suggestion regarding

our last topic regarding the office space that you had mentioned.

I want to suggest that, potentially, like we have a grocer that's going to be in this new development, that instead of having the office in the very back of the property, that we replace the grocer that's currently where it's at and put the offices there, since it's already an existing building, I don't think that the current people would have a problem with that, and make the office area that's currently on the blueprints a green space for more family entertainment and the food truck venue like Frankie Martin's or the 9 Mile Garden to look at.

I think that might be a -- just a possible suggestion.

CHAIRMAN LABONTE: Thank you.

Are there any other -- Larry, did you have anything else you wanted to add?

MR. POTASHNICK: Yeah, I -- I would like to hear from the consultants again, and in particular I'd be interested in their professional opinion on the weaknesses of the project. The things that we haven't yet considered.

And I think we've talked about the development standards, so, and how to modify them or -- I'm just using

drive-thrus as an -- just an example for something like that.

MR. BARRY GLANTZ: It's hard -- hard to hear you.

MR. POTASHNICK: Okay.

That covers me.

CHAIRMAN LABONTE: Thank you. Okay.

Okay.

MR. JAGGI: I think that's it then from the Commission.

Our next regularly scheduled meeting would be Monday, October 2nd.

Like we did last time, any updates, resubmitted information, we will post again on the website. And we'll have a revision date on there.

So, the public, if you're following along, you'll be able to see that.

Given it's a two-week timeframe, we don't have a lot of time between these meetings, so it would probably -- anything that would be sent would probably be in -- out on the web middle of next week, perhaps, so to let you all know.

And if there's any updates to the meeting schedule, that also will be on our website. But you can also give us a call to check in.

But absent of that, our next -- our next meeting will be October 2nd.

CHAIRMAN LABONTE: So then can I have a motion to continue.

MR. POTASHNICK: I move to continue the public hearing on Application 23-027 and 23-028, the Zoning Site Concept Plan, Site Development Plan and Preliminary Plot Plan for Village Plan Mixed-Use Development to October 2nd, 2023 to allow the staff and applicant to address any concerns and comments brought forth by the Planning and Zoning Commission.

MR. WANG: Second.

CHAIRMAN LABONTE: Ms. Hall?

MS. HALL: Aye.

CHAIRMAN LABONTE: Mr. Potashnick?

MR. POTASHNICK: Aye.

CHAIRMAN LABONTE: Ms. Richter?

MS. RICHTER: Aye.

CHAIRMAN LABONTE: Mr. Wang?

MR. WANG: Aye.

CHAIRMAN LABONTE: Ms. O'Brien?

MS. O'BRIEN: Aye.

CHAIRMAN LABONTE: And I vote aye.

MR. LUMLEY: I was just going to suggest you might want to reconsider on Items 2 and 3 under --

CHAIRMAN LABONTE: Oh.

MR. LUMLEY: -- the New Business and push those to another meeting out.

CHAIRMAN LABONTE: Okay.

Can I just take a vote on that now?

MR. LUMLEY: That's pretty complicated.

CHAIRMAN LABONTE: Can I take a vote on that?

Can I have a motion to move our other public hearings, 23-033 and 23-032.

MS. O'BRIEN: So moved.

MR. JAGGI: To October 16th, would be the second meeting in October.

MR. POTASHNICK: Second.

CHAIRMAN LABONTE: Ms. Hall?

MS. HALL: Aye.

CHAIRMAN LABONTE: Mr. Potashnick?

MR. POTASHNICK: Aye.

CHAIRMAN LABONTE: Ms. Richter?

MS. RICHTER: Aye.

CHAIRMAN LABONTE: Mr. Wang?

MR. WANG: Aye.

CHAIRMAN LABONTE: Ms. O'Brien?

MS. O'BRIEN: Aye.

CHAIRMAN LABONTE: And I vote aye.

(At 8:38 p.m. the Public Hearing was continued

to the October 2, 2023 meeting.)

oOo

STATE OF MISSOURI)
) SS
COUNTY OF ST. LOUIS)

I, Deborah K. McLaughlin, Registered Professional Reporter, Missouri Certified Court Reporter, Illinois Certified Shorthand Reporter and Kansas Certified Court Reporter, do hereby certify that I reported the Planning and Zoning Public Hearing stenographically and later reduced to typewriting; and that this is a true and accurate transcript of the public hearing.

Deborah McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR

Deborah K. McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR

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PLANNING AND ZONING COMMISSION MEETING

CITY OF CREVE COEUR, MISSOURI

300 NORTH NEW BALLAS ROAD

MONDAY, OCTOBER 2, 2023

6:00 P.M.

PUBLIC HEARING

APPLICATION NO. 23-027 AND 23-028

THOSE IN ATTENDANCE:

Ms. Julie LaBonte, Chair
Ms. Muriel Hall
Mr. Larry Potashnick
Mr. AJ Wang
Ms. Rhonda O'Brien
Mr. Thomas Buelter
Ms. Marjorie Richter
Mr. Carl Lumley, City Attorney
Mr. Jason Jaggi, Director of Community Development
Ms. Bethany L. Moore, City Planner
Ms. Megan Waller Administrative Supervisor/Recording Secretary

McLaughlin Court Reporting Services, Inc.

Deborah K. McLaughlin, RPR, MO-CCR #314, IL-CSR, KS-CCR
4772 Gatesbury Drive
St. Louis, MO 63128
(314) 974-1199

CHAIRMAN LABONTE: We'll call the meeting to order at six o'clock.

And we'll start with roll call.

Ms. Hall is not here.

Mr. Potashnick?

MR. POTASHNICK: Present.

CHAIRMAN LABONTE: Ms. Richter?

MS. RICHTER: Here.

CHAIRMAN LABONTE: Mr. Wang?

MR. WANG: Here.

CHAIRMAN LABONTE: Ms. O'Brien?

MS. O'BRIEN: Here.

CHAIRMAN LABONTE: Mr. Buelter?

MR. BUELTER: Present.

CHAIRMAN LABONTE: Mr. Lumley?

MR. LUMLEY: Present.

CHAIRMAN LABONTE: Mr. Jaggi?

MR. JAGGI: Present.

CHAIRMAN LABONTE: Ms. Moore?

MS. MOORE: Present.

CHAIRMAN LABONTE: And, Ms. Waller?

MS. WALLER: Present.

CHAIRMAN LABONTE: So we will move to our Unfinished Business.

Our Public Hearing for Application 23-027 and

028, Rezoning from Research Office District to the Olia Village PMD, Planned Mixed-Use District, with a Site Concept Plan, Phase One of the Site Development Plan and Associated Preliminary Plat for the 96-acre property at 10300 Olive Boulevard.

So, the plan tonight is we're going to open the public hearing and swear in the applicant and our staff.

We'll have a review from our staff. The applicant will present any of the updates coming forward. Then the staff will present. And then we'll do a final public hearing for comments, where, at that point, we'll swear in anyone that's here tonight to speak in the public. We'll get our final applicant and staff replies. And then we'll take the exhibits offered and then plan to close the public hearing.

We're not going to put a time limit on the meeting tonight, so that we can get through everything, but we will, potentially, be taking a ten-minute recess around maybe 8, 8:30, somewhere in there, assuming that things will probably get lengthy.

So, at this point I will ask for opening the public hearing, and then if we could please have the applicant and the staff sworn in.

(The speakers were sworn in by the court reporter.)

(Ms. Hall is now present.)

MR. JAGGI: Okay. Good evening, Members of P&Z. Jason Jaggi, Director of Community Development with the City of Creve Coeur.

This is the third public hearing and the third time this application has been presented to you this evening.

Of course, it's for the rezoning of the 96-acre Bayer -- former Bayer West site into a new zoning district, a Planned Zoning District, which would entail its own regulations outside of traditional zoning district regulations, as well as a list of allowable uses, building heights, all sorts of development standards related specific to this project that we've, of course, been reviewing over the past couple of meetings and are continuing that tonight.

So, really, I think tonight's objectives in terms of how staff has kind of laid out our staff report, as well as the presentation tonight.

And I think the Chair articulated it pretty well, also, in terms of how we're going to run the meeting.

But what we have focused on is to review the updates that have been made since the last meeting on September 18th.

So, we will have -- staff will have our presentation to give, and I know the applicant also has a presentation. And then, of course, we can have public comments.

And then after that portion, really believe it's time for the Planning and Zoning Commission, after the public hearing, to deliberate the aspects of this project, and, really, conduct a point-by-point discussion on all of these components that are part of the bigger, that make up the whole project, but are specific components of it.

And that includes, we'll cover the changes of the site concept plan; the changes to Attachment B, that's the document that's called Attachment B, but it's really the development standards that are specific for this project. If it moves forward, we will be looking at both of these documents for all of the phases that are to come, as well as the use table, and that is a specific table of allowable uses for this development, but it has been broken down into certain subdistricts within the -- within the overall development.

And then the preliminary -- the preliminary plat, and that is a component that will actually stay here at P&Z. That is a -- an action that you would vote on, that component, actually, does not move to -- to City Council, but, really, it's kind of wrapped up into the --

the whole project, to some degree.

And then what we prepared, and it's in your packet, are recommended conditions, and a draft ordinance to help facilitate your discussions upon -- to help with your recommendations of the City Council.

And, again, what we're looking at is the site concept plan, the rezoning, the site development plan for Phase 1, and the preliminary plat. Those are -- those are the components that you're being asked to discuss tonight.

After this evening, or, you know, upon the conclusion of your recommendations, this project will move on to the City Council, and there it starts that process with the City Council.

And they would, of course, receive your recommendation, based on the discussion that you have, all that information will get forwarded to them, and they would require at least two readings to approve the ordinance, subject to, you know, whatever issues or thoughts they may have to -- to work with the ordinance that you're presenting to them.

The final subdivision plat is still yet to come. That will also include indentures in terms of, you know, maintenance and other arrangements for the whole subdivision, as well as shared use agreements. So access between the lots, parking, sharing of parking and all of

that, that is still yet to come. That will come through you as well as the City Council.

And, then, of course, future phases. Each of these phases requires a site development plan. That schedule is a component of these plans that has been presented. Those submissions have to come back to you in a public meeting, where we will look at the specific designs of the buildings, you know, detailed landscape plans, and all that is still yet to come.

And then those would move on to City Council as well.

So, there's still a lot yet of details to come forward with this project, and I do want to remind you that we are still at the concept level, except for all the elements that are related to Phase 1, which is the site plan, we'll call it.

So, that really concludes my remarks. I'd be happy to answer any early questions, but I think, otherwise, we could turn it over to the applicant to have their presentation, and then we will come up and have our full presentation.

CHAIRMAN LABONTE: Questions? No.

Okay. Thank you, Jason.

MR. JAGGI: Thank you.

MR. PFUND: Very good.

Thank you, Everybody.

As this is our third Planning and Zoning public hearing, we're going to focus on a few high-level updates tonight.

As you're aware, we've had numerous meetings, open houses, workshops, bus tours, walking tours and hearings over the past thirteen months to get to this point.

We've had hundreds of conversations with the city and successfully found solutions and agreement to every item and issue that has been presented and discussed.

I believe the city staff will report the process has been very collaborative and transparent in gaining the recommendation.

Sorry.

We have aligned with the metrics of the City of Creve Coeur strategic plan, including the development of an urban downtown.

We have aligned with the 39 North Master Plan, and we have checked every box in the city's development ordinance.

We have left one-third of the property undeveloped with massive areas of green space for wild life and natural trails.

We have included substantial public benefit, including natural trail areas and urban village green space with amenities and restrooms, water features, miles of shared use paths and sidewalks, provided for on-street and structured parking in lieu of vast parking lots; 78 percent of our parking is in garages, 39 percent of which is located below grade.

We've provided for pedestrian connectivity outside the property.

Provided for connections to public transportation and upgraded facilities.

Provided for public art opportunities.

Provided substantial landscaping and tree planting.

Improved stormwater drainage systems that include volume and runoff reduction exiting the property.

We provided for all new public infrastructure loops located underground.

We have re-purposed and saved all of the existing buildings from demolition.

And, most importantly, created a walkable, mixed-use Main Street downtown for Creve Coeur.

We are proposing a development that generates substantial economic benefit to the region.

We have approvals in hand from the U.S. Army

Corps of Engineers and the Missouri Department of Natural Resources with regard to the federally controlled waterways.

We have approval of the Missouri Department of Transportation on traffic impact analysis and modification plans.

In response to public comment in the last meeting, we also met with Spoede Woods neighbors last Tuesday in an effort to answer questions and find middle ground.

Unfortunately, we did not reach agreement. But our plan limits buildings to a maximum height of three stories on all adjacent lots to residential.

Our plan limits garages to a maximum height of four stories on all lots adjacent to existing residential.

Our plan proposes a buffer width that exceeds the minimum requirements and includes very dense screening enhancement plantings exceeding $18,000 along each of the fourteen individual lots.

Our design team is now going to discuss some details of what I just shared.

CHAIRMAN LABONTE: Thank you.

MR. WEST HAID: Thank you, Matt.

Good evening to everybody.

CHAIRMAN LABONTE: Can you state your name,

please.

MR. WEST HAID: Yes, my name is West Haid. I'm a landscape architect with SWT Design.

We are an integrated landscape architecture, civil engineering, surveying, planning and urban design firm.

We currently have around thirty-one employees, eleven of which are licensed landscape architects, and we offer a variety of services and sectors throughout the region and country.

Part of our role in this project is to really look at the -- the experiential aspects of the development and help -- help create those -- those -- those different place-making features, like the materials and plant materials and defining space, and looking at all those things that really gives this project a sense of place.

One of the other parts of our role is to really look at the proposed buffer along Lots 1, 10 and 17, and -- and really look at what can be done to help mitigate some of the concerns that the neighboring residents have. Some of those concerns being screening views, blocking light, noise mitigation, things like that.

So, last meeting we showed a 10-foot wide buffer, basically, stretching the whole length of what you can see on the screen.

Since then we have gone back and sharpened the pencils and put together a planting plan that shows individual species, heights, densities and everything like that.

And I wanted to hit on a few aspects of what's shown in that plan.

So, again, it's -- it's this 10-foot wide buffer with a variety of, primarily, evergreen trees in a row to -- to help do those things; to screen, to block light, mitigate the noise and everything that we've -- we've spent a lot of time looking at species and integrated the diversity of species for a number of reasons.

You know, right now we have nine different species and twelve different cultivars of evergreen trees along that buffer for variety of reasons.

One is the -- for the esthetics, you know, have a little variety, differences in height, colors and different things like that throughout the year.

And also to prevent, really mitigate any sort of disease concerns if a disease, bagworms or something, comes in and affects one tree, this variety of trees really helps mitigate the potential loss of trees.

The, like I said, the trees are strategically arranged. We've looked at views into and out of the development and appropriately placed trees and sometimes

double row of trees where -- where there's more open spots to help with that buffer and really bolster and to re-enforce it.

We've -- and we've considered aspects, sun versus shade, water requirements, maintenance requirements, items like that.

And -- and -- and, really, I -- the final point I wanted to -- to bring home on that is that the development team is fully committed to doing all the necessary preparations that really give the trees and these buffer plantings the ideal scenario to survive on, so it's proper soil preparation in the area, maintenance and -- and things like that.

So, with that, that concludes my portion, and I will hand it off to Chris.

CHAIRMAN LABONTE: Thank you.

MR. CHRISTOPHER STRITZEL: There you go.

Chris Stritzel with Crawford, Murphy & Tilly.

Our role in this project is acting as a civil engineer. So we cover things from, you know, geometry to drainage and beyond.

What we're going to do tonight a little bit is go through -- I want to share some of the plant changes that have been made to date, plus what we've done since the last time we walked in here.

So this slide kind of encompasses that.

If you remember, when we first started this, we had the nature trail going from, basically, Schnucks all the way around the west side of the property. You know, we listened, we removed that, staff agreed with us that -- so we took away the nature trail on Lots 1, 10 and 17.

We straightened the wall. So, if you remember early on, the wall was serpentined. It was in and out, you know, and we had the buffer set at 35 feet, which is the current P&Z ordinance requirement.

So, since then we've straightened that wall. We put the buffer at 40 feet, and we put, basically, the back of the wall will be set at 40 feet, so the wall will project towards -- towards the development.

We've -- like Wes talked about, we provided a quality landscape buffer along Lots 1, 10 and 17.

We have further restricted uses in the Office District, so there are current uses within the current city code in the Office District that is allowable, that we talked about with staff, and staff has asked us to remove, so we have taken away. And you'll see, I think, when we get into the -- the details of that table later about some of the uses that have been removed at staff's suggestion.

Staff also suggested that we added some

additional lighting components to Lots 10 and 17 specifically. So, that includes adding -- requiring occupancy sensors, full-cup fixtures, so there's no light spill on the neighboring property, and we've reduced the light poles to a maximum of 16 feet.

Normal light poles are 20, sometimes 30 feet, so, really, what's going to happen on -- on the west side, they're -- most of those residents won't even see the light poles because they're going to be shorter than the top of the wall.

And then we've also added, since last time, irrigation. So, staff has asked us to come back and add irrigation requirements to Lots 10 and 17, so we've added that as a requirement as well, to not only help beautify those two lots, but also to help with the growth that some of that stuff that West has been talking about.

The wall itself, when we came in here last time, the maximum wall height was 24 feet. It was actually 24 feet on the west side and 20 feet on the south side. We went back, we looked at the grading, we fine tuned and we sharpened our pencil.

So, what you'll see on the right here, the items -- the numbers in blue is if the wall faces the development, so that's the height of the wall at the wall as it faces the development.

The ones in red are the height of the wall as the wall faces the neighborhood.

So, as you -- as grade transitions around the corner, you go from the wall being really tall on the development side where the neighbors don't even see the wall to the wall actually facing the neighbors where the numbers are red.

So, as you can see, our max height is now 20 feet, and it's actually 14 feet any time it faces the -- the residents to the south.

This is a little bit of a recap from last time just to show where we ended up with the pedestrian stuff.

So, the red lines, again, are the shared use paths, you know, we were proposing a shared use path, staff came back and asked us to add a second one, so we have two shared use paths at staff -- staff's request.

Not only do those connect, you know, the future Olive and Lindbergh connections to the south and to the north, but it also now provides a loop with inside the development, so those are minimum 8-foot wide concrete paths.

The nature trail has not changed since last time. It's still showing green there at the bottom, so that loops between, you know, the internal walks, but it's basically the limits of what exists today, we're going to

make connections to those internal sidewalks.

The blue lines are all the internal sidewalks. We took some of those suggestions that -- that the Commission had. We've actually increased the sidewalk clear widths on Main Street to 8 foot clear now, anywhere on Main Street, and we've got 7 foot clear now anywhere -- anywhere beyond Main Street that has a storefront. So that should provide for that extra, you know, cushion you guys were looking for the last time we came into the meeting.

Anything around the peripheral would still be 6-foot minimum concrete, and all those are concrete pads as well.

Since we came in here last, we've actually received MoDOT approval of the traffic study, so MoDOT has signed off on all the changes to Olive, the Schnucks intersection, and then the Lindbergh pedestrian improvement, so that is signed, sealed and delivered, in hand as we speak.

Wanted to get into the drainage a little bit, cause that, obviously, was a big concern of some of the residents and some of the Commissioners.

This -- this exhibit was shared last time at this meeting, and it's a little hard to see on that, faint here. But, basically, this is -- this is the U.S.G.S.

topo map. The U.S.G.S. topo map is a federal funded program -- well, it used to be federal funded, now it has no money, so now it's all volunteers.

So, basically, this is -- this is probably fifty years old, and it shows two creeks on our property, Dielmann Creek, and then to the right is actually the extension of the Monsanto Sunswept Creek. Okay.

So, these maps are not updated. They don't -- they don't include any new -- new or man-made structures and they -- they rarely get changed.

And so what happens here is we use this as a starting point. So when we go to develop a site or the developer goes to develop a site, we look at maps like this and we ask ourselves, okay, is there a blue line stream. If there's a blue line stream, which literally means the screen is blue on the screen, the Corps might take jurisdiction over that.

The Corps doesn't look at these maps and say there's a stream here. They require you to go out and -- and do -- they have a jurisdictional determination that you have to go out and do an aquatic resource determination.

How do you do that? You either wait for the Corps to do that, which would take months or years, or you hire an environmental scientist to come do that for you.

So, that's what the development team did. We took our environmental professionals out to the site, and delineated the streams and the wetlands and the endangered species on site, so we have a document, a record of all that information.

Other -- other -- there's all kind of other resources out there. This is -- this is a copy of the County GS map, and you can kind of see -- I don't know if (inaudible) on here, but you can kind of see, it's -- it's not even completely accurate either, but it's not showing the blue stream either, cause the stream doesn't exist right here. Okay.

So, what's in yellow is the floodplain limits. And what's in blue is their interpretation of the streams or open waterways.

So this is just another example of something that's out there that's really not accurate as well.

You know, throughout all of this, we're going to have -- before we can move any dirt out here, we're going to have to sign off from the Corps, Department of Natural Resources, US EPA, MSD, US Fish and Wildlife and the City of Creve Coeur.

This is another map that we -- we go to. So here's your floodplain map that you'll see, and, again, you know, they're showing floodplain limits down here.

Which these are -- this is a, basically a -- this is a flood insurance map you can get on the internet, okay.

What -- what's behind this, the data behind it is the flood insurance study.

The -- we -- we checked with MSD, cause they're the ones that govern this stream because of the size of the sewers and stuff. There is no -- there is no flood insurance study within 3500 feet of this property, so that means we have to do one ourselves.

So, as part of the MSD process, we're going to have to do a flood study that, and this is straight out of their language from the letter they sent us doing a conceptual review, we're going to have to show a zero increase downstream for within the Deer Creek Watershed.

So, you'll see right here there's a snippet of where we're going with our model. This is a hydraulic model showing -- showing what that creek's going to look like in the before condition, and when we're done we have to show there is absolutely no rise in flood -- water -- water, flood downstream of this site, or else they're not going to approve the permit, we won't be able to do construction.

Just so it's clear, we do not have MSD approval yet. We've submitted for a conceptual review. We're getting ready to submit for our first set of permits

within here very soon.

This is the -- this is the inside the Corps, I believe you guys were given the Corps study that we did where we submitted our documentation to the Corps.

The map on the left shows what our environmental team came up with to -- as far as on-site streams and wetlands.

So, what you see in the dark blue is an actual stream that they delineated, and the Corps said, yes, you're right, that is a stream.

What you see in dashed blue lines, the cyan lines, that is an enclosed storm sewer where the stream was enclosed and permitted, but before this project even started.

So, there is -- there is no Dielmann Creek anymore. The only piece of Dielmann Creek that exists on this portion of the property is this little guy right here. And there's a green -- the green's the wetlands. There's a little wetland, a little piece of stream. That's the -- that's the piece we're delineating, and we're going to remove and mitigate that as part of the process.

And this is a blowup over here, you can kind of see the same area. So this is the same area next to Schnucks where you got a little piece of Dielmann Creek

left, and you got a little bit of watershed.

There is -- there's water coming from the north through this area that's piped. It leaves in a pipe. And it goes around in this blue line around the property down and it dumps out in the creek down here, which eventually goes to the south.

Last week we received full approval from the Corps to do this work. As part of the city's ordinance, the city has a stream buffer. The stream buffer requirements where it requires us to keep 50 foot on either side of a stream undisturbed, and another 25 past that as no paving.

Within that ordinance, there's an exception that reads, any activity approved under 404 permit issued by the Corps of Engineers and 401 water quality permit issued by the Missouri Department of Natural Resources are exempt from that requirement.

That, basically, says if we -- if we get the Corps to approve that we're going to eliminate the stream or the wetlands, then the stream buffer ordinance does not exist the city has in place.

As of last week, late last week, we actually received our -- our 404 permit from the Corps, along with our 404 water quality from the Missouri Department of Natural Resources, so they have signed off on this

project.

Where we are leaving stream -- yeah.

MR. BUELTER: Just for clarification --

MR. WEST HAID: Yeah.

MR. BUELTER: -- point when -- go back one more, please.

So, realistically, and, again, in novice terms, did there used to be a stream that ran down the west side of the property there --

MR. WEST HAID: Yes.

MR. BUELTER: -- and whenever it was developed over time, they just ended up putting the stream underground?

MR. WEST HAID: Yeah. The -- Monsanto, when they -- when they developed this, they would have to go through the exact same process we're doing right now to get rid of this little guy, and they would have put the stream, eclosed it in a pipe.

In order to do that, you have to mitigate that off -- either on site or somewhere off site by -- by buying wetlands credits in a bank that somebody's developed, you know, way off side of town.

And, so, this is not like this is -- we're -- there's no disturbance here at all. We're going to, basically, take the -- the lineal footage of stream that

we're going to remove, and we're going to go buy credits in a wetland bank to offset those so the water -- within the watershed, so it all stay equal.

But, yes, that is -- to answer your question, that is a piped sewer now. It is still part of the stream, but it's no longer under the jurisdiction of the Corps because it's going to enclose (inaudible).

And that's exactly what we will be doing as well. We will be picking up the offsite storm sewer here, and we're going to, basically, wrap it around and a new pipe all the way around -- around the development and out of the way of the building.

Then there's same thing happens over here. So you've got Monsanto Sunswept where you see they built parking lots over the top of it. This is enclosed -- the dash line is enclosed storm sewer that the Corps no longer considers a U.S. -- waters of the U.S., and they don't take jurisdiction over anymore because that has been approved and paid for and somebody's mitigated that somewhere offsite.

There's a little piece of stream up here. These two little guys right here, both of these we're going to mitigate as well for the development of Lot 12.

MR. BUELTER: Okay. Thanks for the clarification.

MR. WEST HAID: Yeah.

So the streams that we are leaving, we are going to meet the ordinance. So, what you'll see, the dark blue lines here, those are streams that are going to remain in place. The green line is the 50-foot buffer where we cannot touch. The orange line outside that is another 25 feet, so a total of 75 feet where we can't -- we can grade inside that, but we can't pave or put sidewalks or any parking lots or any buildings.

So those are all going to be maintained as part of this development. And -- and we will be meeting the code as far as any streams that are to remain on site.

Little more detail to this -- this little bit area here. You know, we did have a topographic survey completed by a sub-consultant, Cole & Associates. They did that in November of '22.

So, what you'll see here, it's very hard to read, but this is the, basically, the boots on the ground survey.

So what that means is we sent -- they sent a team out there and took physical shots with a pole and a rod and did the entire site, and that's how we found some of the trees and we ended up with some of the waterways and the (inaudible) we have.

This survey was signed and sealed by Missouri

registered land surveyor. The city staff has a copy of this that we delivered early on in the project.

Just as a side note, when you fly -- when you fly LiDAR or you fly a drone or you fly a plane with a -- with a survey instrument on there, it has to be done in the winter.

LiDAR does not penetrate tree canopies or dense vegetation. So, any type of flown topography that you do at this time of year is not going to be accurate.

So, that's why -- that's why we took the time, and we spent -- I mean it was over $100,000 to get a -- get a survey done for this entire property by hand.

CHAIRMAN LABONTE: Can you speak to, because I think a lot of the things that were in the packet show the red line was the outline, right, but as we look at the impact, how far, as you look at the impact, into the residential?

MR. WEST HAID: Yeah, I've got a slide coming up, I think.

CHAIRMAN LABONTE: Okay.

MR. WEST HAID: If not, we'll back it up, but --

CHAIRMAN LABONTE: Thank you.

MR. WEST HAID: This is the watershed, so I know some questions had come on about whether we're managing offsite water --

CHAIRMAN LABONTE: Right.

MR. WEST HAID: -- that comes through us, and we are.

This is the watershed for -- for, basically, that portion of the stream that remains, and then the -- and then the enclosed pipe that takes it around the corner.

So this, obviously, goes off the site. You can't even see it's off the page.

This is what we consider the Dielmann Creek Watershed for our site. It's a 40-inch culvert that takes it now. The water site is 66 acres; 32 of that is offsite water coming from the north that just passes through the site. So all of that will remain as part of the calculations for the storm sewer to -- when we relocate this piece, and we're going to have to do that as part of MSD's permitting process, which is -- they're going to require us to put the 100 year storm event inside the pipe. So there will not be overload flow during a 100 year storm event. It will all be enclosed in a sewer underground.

This, I think is what you're referring to. And we shared this last time. We tweaked it a little bit.

So, I just, again, copied a section of the code in here. The city's code requires us to have no adverse

effect shall mean that the proposed changes to a property will not increase the volume, direction, velocity or intensity of stormwater runoff for adjoining properties for the (inaudible) storm.

We have to meet that requirement in order for -- for us to get a permit, not only from MSD, but from the City of Creve Coeur.

So, again, this shows, basically, the difference between what's happening now, what's happening after the wall and the development is built.

The one on the top is the current as exist today.

Everything north of here ends up in that 48-inch storm sewer that you can see in black right here that runs all the way around and it gets around the property. It does not flow through this 48 inch behind these peoples' houses.

This is about 4.71 acres in the current condition.

When we put the wall in, we're going to end up blocking that and -- and redirecting the stuff to the north, and so it's all going to come back on site, and we're going to put that into the on-site storm sewer system, and reducing the watershed, the amount of water that comes to that 48-inch sewer to 3.41 acres.

There will be drainage, and you can kind of see this, this yellow line is the existing ditch. It's not -- it's a creek, it's not a stream. There's a ditch back there that does take water from the west and from the south that goes through the 48-inch today. When we are done, we are going to have to build a small, basically, a paved gutter, paved ditch, along the base of the wall, load that up high or down low to -- to collect the drainage that comes at it and direct it back to the 48-inch -- through the 48-inch.

So we will be accommodating that drainage all on the right side of the wall in order to make sure that there is no water backing up or pushing on to the neighbors' properties.

Anything on that? Might be it. Oh, I got one more.

Okay. This is another slide kind of showing, you know, everything we're taking into account on this project as far as drainage goes.

So the total watershed is 240 some acres. 60 percent of that comes from offsite. Everything you see in cyan, blue and pink, that's all water coming from off the development, and we're going to have to pass through the development.

Again, this is controlled by MSD. They're

requiring us to go back to grass with everything on site. Everything offsite will pass through as -- as it exist today. Everything on site will be taken back to grass, which means we will be reducing the amount of flow, the runoff from the site that goes to the downstream neighbors to the south.

So, we're -- the on site, at the very bottom there on the right, talks about the difference in. So the current -- the current discharge rate is 410 cubic feet per second.

MSD is saying back to grass. We're going to get 355 cubic feet per second. We're currently proposing 340 cubic feet per second.

So it's about a 17 percent reduction from where it exist today.

Coupled with the flood study we're doing, and having to make sure there's no rise on the floodwater downstream, we're going to end up doing everything we have to do to get the permit from MSD, which is, hopefully, going to be coming soon.

I think that might be -- Toby?

Yeah, that's all I had on that.

Anything else on that?

CHAIRMAN LABONTE: Any other questions?

MR. WEST HAID: It's a lot.

CHAIRMAN LABONTE: No. Thank you.

MR. WEST HAID: Thank you, Guys.

MR. TOBY HEDDINGHAUS: Hello, Everyone. I'm Toby Heddinghaus. I'm a principal with Gray Design Group.

I wanted to just elaborate a little bit on a few of the points that Matt brought up at the beginning, really, that kind of focus on responsible development.

We got a goal to provide a responsible development. We want to feel really good about this when it's done. I know that's the goal of the Planning Commission, and I know it's the goal of the residents as well.

So I want to just point a few of the things out that went into our heads when this project was initially conceived.

I know we discussed it before, but it's extremely intentional to have all of the highest density to the north and to the east. The lowest density to the south and to the west. Extremely important. And it's really kind of guided, you know, how this site is laid out from day one.

As Matt said, a third of the property remains undeveloped, and for a site this large, that's -- that's pretty remarkable.

Structured parking. So there's ten parking

garages on this site, which is an enormous cost to the development. But if you want to have a walkable development, you really have to get rid of the cars, so you have to have a place to have, you know, for people to put their cars away and bring the buildings closer together, and allow space that can be -- that is pedestrian friendly.

So, that's what we've done. We've got ten enclosed parking garages. And they're -- and then please note too that they're -- they're scattered about the site, so they're -- they're located closest to where the uses are going to be, so that they're successful, and their used -- used very easily.

Actually, 78 percent of the parking is in structured parking. And, as Matt said, 39 percent of it is either fully or partially below grade in these garages.

One garage that has been brought several times is the Central Parking Garage, which is the largest of the parking garages.

It's located right here behind football -- or design team calls Hemi 2, which is the mixed-use development that has the bend in it right here.

It -- it services a lot of adjacent it's -- because of its location and central on the site, it serves a lot of uses nearby. It serves the apartments, the

retail, the re-purposed G Building. Really, everything around it, so it is -- it is larger than the other garages.

It's -- it steps down to the west, so it's --

VOICE: We can't (inaudible).

MR. TOBY HEDDINGHAUS: Oh.

VOICE: I'm sorry.

MR. TOBY HEDDINGHAUS: I guess I need the microphone.

CHAIRMAN LABONTE: Okay, yes, you need to be at the mic.

MR. TOBY HEDDINGHAUS: Okay.

CHAIRMAN LABONTE: Yeah.

MR. TOBY HEDDINGHAUS: The garage is five bays wide, so five 60-foot-ish bays wide.

The ramping is in the center of the building. The three bays to the -- to the east are one floor taller in order to match up with the building to the north. And then the two bays of garage on the west side are a full floor lower.

So, at the end of the day, the garage is -- is approximately the same size as the buildings around it.

CHAIRMAN LABONTE: So, that was a question, I think, I had, is -- is just confirming that the garage is not taller than the building -- than G Building.

MR. TOBY HEDDINGHAUS: The west side of the garage is a little bit taller than the G Building. The east side -- I'm sorry, the east side is.

CHAIRMAN LABONTE: Can you point that out with the -- cause I think that was one of the conversations.

MR. TOBY HEDDINGHAUS: But in terms of massing, they're relatively similar.

MR. POTASHNICK: How much taller?

MR. TOBY HEDDINGHAUS: Let's see, we are -- we worked this out. It was, I think about -- well, it depends. On the west side, you're about 20 feet taller; on the east side it's about 8 feet taller.

CHAIRMAN LABONTE: Can you -- can you point that out with the laser.

MR. TOBY HEDDINGHAUS: Sure.

So like right from here -- here. It's a little bit taller than the G Building. Then the other side, it steps down. So only half back here is higher.

MS. O'BRIEN: Individually from the residences it can be seen?

MR. TOBY HEDDINGHAUS: The -- there's a row -- there's a two-story office building in front of it.

I do have a section further into the slides if you want to wait till the end.

CHAIRMAN LABONTE: Yeah, it just seems odd, I

mean I guess looking at parking, it just seems odd that we have a parking garage bigger than any of the buildings.

I mean I don't think that's a view that anyone would, you know --

MR. TOBY HEDDINGHAUS: Well --

CHAIRMAN LABONTE: -- that just seems odd to me.

MR. TOBY HEDDINGHAUS: -- I think it's -- it's bigger than the adjacent G Building, but not bigger than the proposed development, so it's not the tallest building.

CHAIRMAN LABONTE: It looks taller than, frankly, everything on there.

Am I just misreading that plan or not?

MR. TOBY HEDDINGHAUS: It is not. It is not as tall as this building here.

CHAIRMAN LABONTE: It's as tall as that or not as tall?

MR. TOBY HEDDINGHAUS: The top deck of the garage here --

CHAIRMAN LABONTE: Yes.

MR. TOBY HEDDINGHAUS: -- walks into the top level of the apartment building --

CHAIRMAN LABONTE: Okay. Okay.

MR. TOBY HEDDINGHAUS: -- so, part of the building structure is higher than that top --

CHAIRMAN LABONTE: Than that. Got it.

MR. TOBY HEDDINGHAUS: And then placing the building on the site, it's roughly in line with the south leg of the G building, so it doesn't go any further south than the south leg of the G building. It's actually just slightly north of that.

CHAIRMAN LABONTE: So the way it's set up then, do all the floors walk into the building that --

MR. TOBY HEDDINGHAUS: They do.

CHAIRMAN LABONTE: -- comparable to?

MR. TOBY HEDDINGHAUS: That's correct.

CHAIRMAN LABONTE: Thank you.

MR. TOBY HEDDINGHAUS: This is the section I was -- I was mentioning earlier.

CHAIRMAN LABONTE: Uh-huh.

MR. TOBY HEDDINGHAUS: So, you can see at last -- last meeting we brought four sections as you go around -- around the site. This is just the last section that shows the parking garage.

All the backyards are minimum of 75 to 80 feet. This one actually is -- is bigger. This is a section through farthest west -- I'm sorry -- farthest east lot in the corner that goes through the backyard, retaining wall surface parking, office, two-story office building, and then the parking garage beyond that. And, so, this

section, there's a couple of things that shows the view of what part -- portion of the garage you would see, and then it also shows how we compare it to the sky exposure plan requirements.

CHAIRMAN LABONTE: Uh-huh.

MR. TOBY HEDDINGHAUS: Which is this line here that goes way up here.

And then the last -- last thing I want to mention to you is I think it's important to -- to consider the development we provided directly adjacent to the neighborhoods.

I think there's lots of requirements for the lots directly to the neighborhoods, so that includes these lots all through here and then even over here too.

We've got no buildings over three stories. We got no garages over four stories in those -- on those lots. And then, you know, in a big mixed-use development like this there's lots of uses that can be placed anywhere in the development. That's the whole point of a mixed-use development. Office is really important, I think it compliments this -- this development very well.

We have had interest from other users. Senior living is one that really comes to mind. There's a lot of activity on this corner. Really wanted to do senior living project there. But we didn't want to do that. We

knew that would probably be an issue, so we located a very low-impact, low-rise office building and a parking lot next to residents who are currently looking at a office building and surface -- surface parking lot, so.

CHAIRMAN LABONTE: Thank you.

MS. KRISTIE BAILEY: Hi. Kristie Bailey with Fireside Financial.

Thank you for your patience and your time on this, I know that this is quite a -- quite a project.

As Matt mentioned earlier, we've been at this with you all and -- and the city for over a year now. So, we're really exciting -- excited to, you know, continue through this. And during this time our plan has evolved and changed and taken a lot of effort and a lot of engagement with all of you, as well as with the neighbors and the city.

This has come at a substantial cost. Not including the land or the carrying cost, we have spent to date over $4 million to get to this point on the development process.

Our team has been very accomplished and respectful with everyone involved and have received enormous positive feedback.

We have stepped down densities, modified uses and added to strengthening in areas to be respectful of

bordering neighbors.

We made specific design adjustments to eliminate noise and light.

We have committed to limits on buildings and garage heights on all lots adjacent to existing residential.

This, too, has been very difficult to fit into our -- our -- our overall numbers.

I, too, was part of the meeting with the Spoede Woods neighbors last Tuesday. We made our design team available to help answer questions and to educate on the slides that we have produced. There were a lot of opinions shared, but our request for ideas to find a workable middle ground were met with silence, and we are left unsuccessfully in finding a compromise.

I, personally, myself, requested to try to meet for a second time last week, but the request was not entertained.

It did bother me a little bit to see the social media and the website information posted by this same group over the weekend continued to include misinformation about our development.

Similarly size buildings in developments adjacent to the residential areas in Clayton, Des Peres, Town and Country, Frontenac, Olivette that are all along

major arteries that have been very good to surrounding property values.

My relationship, my relationship, with Creve Coeur stems for the past eleven years. We have been business owners, we have been neighbors and we have been taxpayers to the tune of, our company and our investments in Creve Coeur, has paid taxes in over $17 million for your community.

We all want this for Creve Coeur. We all want to see that development that takes in account for the betterment of Creve Coeur; that adds quality restaurants; that adds great places to be, nature trails to walk on, and we've been very respectful to try to figure out how to continue to work with our team, the neighbors and with the city and county officials.

The market's excited about this location. We are excited about this location.

This past week my husband and I were at the Land -- at the Urban Land Institute, and we were asked to be speakers there on development, and this development in particular.

It sold out with over 106 people that usually get 35 to 40 people. We were tied up for hours afterwards. The amount of energy and excitement for this project in this location is irreplaceable, and we are

super excited to be able to present this for everybody.

It's unfortunate that we can't make everybody happy. Not everybody is going to be. And I feel like we have brought a great proposal for you all and for the neighbors and for the community that I and my family have put money into. I'm a neighbor, business person and taxpayer in this community.

We can't absorb any more changes or push the start of this important project any further.

At the end of the day, a proposal is important and significant. We must be about what's best for the city, the region and the community as a whole for the longterm.

We ask that you move this proposal on to Council with your support and recommendation tonight. And I appreciate all of your patience and listening to us.

Thanks.

MR. JAGGI: If it's okay, it sounds like their presentation is over, I'm going to ask Bethany Moore to begin the staff presentation, and then I'll come up and -- and finish the presentation, and we'll see what questions you have before the public.

MS. MOORE: Bethany Moore, City Planner.

So, I'm going to go over the updates, the revisions that were made to the plan, submissions since

the last meeting.

So, before I start that, just wanted to give a general overview again of the site concept plan.

So, there are four different areas to the project.

In blue up here is the Main Street element, that's our densest area. That's where the -- we'll have this park and the central gathering space along here with the wider sidewalks, they're 8 feet here, 7 feet throughout the rest of Main Street. That's where our restaurants, our shopping, uses like that will be located.

And then in our pink is the mixed-use. That would be here and here.

And then yellow is the general office use along here, along the residential.

And then brown down here, that is the residential portion, and that is an area that's still being worked out. And in terms of phasing, that would be the fifth phase, the last phase completed.

And then here is the -- the table, the -- the heights and the -- the uses for the property, then which areas are in Category A, B, C and D. Number of stories for the buildings and the lots.

So, then these are the submissions -- revisions since last meeting.

So, the changes to the site concept plan are what we've seen before. They did remove that pedestrian path that was along here and the 35-foot buffer. That buffer has now been upped to 40 feet. And they will be leaving as much of those trees in there as possible. They have moved the retaining wall back to start at the 40-foot line in order to leave more trees within that buffer.

And, as they stated, the retaining wall heights have been edited as well. So, here we would have a maximum of 20 feet along here, and that's when the retaining wall would be facing the development.

And then along here in the residential it will be a maximum of 14 feet when it is facing residential.

And here's the materials for the retaining wall. It is a material that's supposed to mimic natural stone. It has multiple different faces and types, so it's not a -- a strict pattern. It should be less uniform in view.

And, again, that retaining wall will be outside that buffer, so that 40-foot buffer will then have the trees and nothing else in that.

And then some -- some minor changes that we do have to the site concept plan would be the addition of an architectural shelter up here at the existing bus shelter along Olive. I'm sorry, there's an existing bus stop, there's no shelter, and it would be an architectural bus

shelter in place there.

And then there was some updates to use table, including office and research as a general use for Lots 9 and 13. And I think those are down here, 9 and 13.

And then single-family townhome for Lot 16, which is the residential portion down here.

And then the greenhouses that were proposed for Lot 17 here, which would back up to the residential, have been removed.

So, then the changes to the shared use path. The shared use path did used to come up here along the Main Street, and staff did have some concerns about that because that would be introducing bikes, skaters, not just pedestrians along that sidewalk in the Main Street area.

So that has been shifted to go along the outside of Lot 7 instead of along here, which does free up that sidewalk for a more active streetscape there.

And, again, the sidewalks here along the Main -- Main Street have been widened to 8 feet and the sidewalks around the rest of the Main Street are 7 feet.

And, again, the public restroom for this space and for the park will be here in Lot 4 in the leasing office.

All right. They did cover significantly the landscaping, but I did want to make sure that that's

pointed out that this is the landscaping that would be between the residences and the development in that L area here where the -- the uses are the closest to the residents.

And they are proposing significant landscaping in there along the base of the retaining wall. Several varieties of evergreens to provide a more dense buffer for screening, noise cancellation, light cancellation, that kind of thing.

A condition could be added to require additional plantings, if -- once it's completed, if there are concerns about views or noise or anything like that, so a condition could be added to adjust for that then upon final landscaping inspection.

And then the tree conservation plan is part of the preliminary plat, and that's something that they have worked on to come down from that, I think it was in the 60 percent range of the tree removal, and now it's in the 50 percent range of all tree masses and individual trees.

Staff does have -- staff is wanting some clarification on some of those numbers. We are a little confused by that, so that is something we've asked for in addition.

But a condition of approval by the Planning and Zoning Commission can be added. This applicant will

provide those details for staff prior to final consideration vote by City Council, so that we can review that again.

CHAIRMAN LABONTE: Did we have our arborist do a review of any of the trees or like gold standard trees or anything like that that are being removed on site or proposed to be removed?

MS. MOORE: We did not. But they do have theirs sealed by an engineer, I believe.

CHAIRMAN LABONTE: Cause I thought I was reading something about our arborist also could take a look at the types of trees maybe being removed or --

MS. MOORE: They can. I don't believe we have an arborist on staff.

MR. JAGGI: Yeah, we have a building inspector, ISA, which is International Society of Arboriculture certification --

CHAIRMAN LABONTE: Uh-huh.

MR. JAGGI: -- but he is a building inspector.

We have utilized him from time to time, but due to the scope and size of this project, we have not asked him to look at.

But I think, like Bethany's mentioning, is we do want to make sure we understand where they're getting the calculations.

Our tree ordinance is -- is very basic in terms of how you go about this, so there could be more than one interpretation in terms of how you come up with this number. But we're suggesting that a condition could be added and all those calculations be provided to staff, and that could be part of your recommendation to present to the City Council, so we can kind of be clear on how -- on how all of this is being calculated.

But, I do think the map that you're seeing here graphically shows what's being remained and what's being removed. And that is part of the ordinance that says show us the tree masses and also the individual trees there are being saved and removed and that's -- that's what this map shows.

CHAIRMAN LABONTE: Which is why I think people question it because it looks like there's a whole lot more red than green, right, so.

MR. JAGGI: Yeah, that's why we want to understand exactly how these calculations were done, if they have an approach to it, and I think we need a little bit more work on that.

But that condition, again, could be forwarded as part of your consideration this evening.

MS. MOORE: And now I will turn it over to Jason.

MS. RICHTER: Thank you.

CHAIRMAN LABONTE: Thanks, Bethany.

MR. JAGGI: Thank you.

Jason Jaggi, Director of Community Development with the City of Creve Coeur.

I think Bethany did a really good job with summarizing some of the changes to the site concept plan. And I know the developer has also provided a lot of detailed information, I think, that you all have been asking about in their remarks, so, certainly don't want to belabor some of these things.

But I do want to point out some of the changes.

So the Attachment B, which are the development standards, again, I mentioned this earlier, but this is the document that would be attached to the ordinance that gets forwarded to the City Council for their final review and approval that will have all the requirements for this development that may be unique compared to what we would have in the -- in the regular zoning ordinance. Because this is a unique project that kind of stands on its own merits, and the regulations are based upon what they're proposing in their site concept plan. So, that's the relationship here.

Some of the changes we've made. Bethany mentioned this is broken down into four different zones or

districts or subdistricts, what have you.

So, to emphasize some of the sensitivities with the adjacent residential area, I have conferred with them, and I think they presented information as well tonight, to try to really kind of focus in on some of the uses that are closest to residential.

And, so, what we've done here on Category C, which is the General Office District, that would only allow generally office type uses, the height is limited to three stories or 50 feet. So, those lots that are closest to the -- to the residences they can't go any higher than that, okay, and that's on Lots 10 and 17.

For Category D, the residential development. That is that area on the southern portion of the site. That's just residential, there's no mixed-uses at all.

We have been clarified that, that it only would allow townhouses, which are attached single-family homes, as well as detached single-family homes, so like a detached villa that we would see on the north end of Mosley behind the subway, those types of developments might be appropriate there for attached townhomes. That's really about -- about it that's allowed.

So, we wanted to then put some standards to that. So, if they're attached townhouses, which are, you know, a little bit more of a dense type of residential

unit, those could go up to three stories or 40 feet in height.

If they're detached single-family houses, that would follow our regular zoning standard for single-family homes at two and a half stories or 35 feet in height. So, we added some more specifications to that type of development.

With respect to landscape and tree requirements, we have adjusted that to acknowledge that there may be some of the existing parking lots that are to remain; that they -- they may need to have additional landscaping to bring them up to the city standard, so that has been reflected in the amendment to the development standards that when we get to the site development plan phase, we will be looking at these parking lots to see if it needs some additional landscape enhancements. So that has been clarified.

And then I think it was mentioned earlier, we noticed that Lots 10 and 17 weren't really addressed with requirements for irrigation. These are new development sites. So that has now been put in there that those sites must be irrigated.

And we'll see the details of that later on in terms of what area are irrigated and how it's going to get irrigated. That comes later. But their requirement to do

that is here now in the development standards.

And then lighting. Certainly, lighting has -- can be an impact to adjacent properties. In order to really minimize as much as -- as you can with the lighting, we have built some standards into this development code, which was discussed earlier by the developer. We have limited the light poles of 16 feet in height. The new police station that we have here, that's the size of those light poles, so those are 16 feet, and that would be as tall as you could -- as they would be allowed for the areas that are adjacent to residential, again, to really reduce some of the -- the lighting impacts.

They also were agreeable to have occupancy sensors in the buildings, these would be office buildings anyway, so we wouldn't expect them to be used all night, but in the event there's lighting in the buildings, certainly, in the winter you're going to have lighting in the evenings, that sort of thing, they would have occupancy sensors to, again, minimize their existence with adjacent residences.

And then to fully cut off and shielded fixtures. That is a requirement of our code anyway for projects, but we wanted to memorialize that and put into the standards, so there's no ambiguity in terms of what the expectations

are for these specific properties that are immediately adjacent to residential.

Moving on to the public private improvements. Our Public Works Department has recommended some changes to those standards, and the developer has updated those standards to reflect that. Essentially, the main takeaway here is that all of the roads that are going to be public will be constructed out of concrete. So that is what the Public Works Department recommends, and they were okay with providing that, so we have that into the -- into the standards.

With respect to retaining walls, I know that's been a lot -- a subject of a lot of discussion and interest of the Commission, as well as the public.

There was some information on the retaining walls that the height, you know, would not be limited. We felt that we really should be looking at what is shown on the concept plan for a site development plan, and that's what should be followed. So we didn't want to just leave it open, so that has been reflected now to say the retaining wall heights are as shown on -- on the approval amendments.

There's also some requests or questions about the EV charging, bus shelters and public art. These are all components of this development. But we have now

spelled out when and how they will be moving forward, because, again, we are at the concept plan stage.

We do not have all of the details at this stage, and that's intentional. That's yet to come.

But the EV charging stations, those will be considered at -- for each site plan as appropriate, and we can discuss it at that time.

They have committed to improving the bus stop that's on Olive that Bethany mentioned. We can expect transit riders here, more than, perhaps, we have now, so that should be a consideration that we have in terms of providing an acceptable shelter for our mass transit users, and that they're committing to develop a architectural bus shelter. Of course, Bi-State or Metro would need to approve it, as well as MoDOT, if it's in their right-of-way. But, again, it's in -- it's in the documents now that they have to do that.

And then the public art that's -- that's shown in the central park, if you will, or the public plaza there, there is a whole process that we have for public art, and that that has been spelled out here, that they will have to follow our procedures, and that means going to the Arts Committee and getting their review and recommendation on the actual pieces that will be provided. And then that will come to you as a site plan, and then

you'll see the details, and then the Council will have to set up agreements for the artwork.

So, each of -- if you can see, a lot of these steps require separate processes, and those are yet to come, but we want to make sure it's all in our package here as we move forward.

Going on to the permitted uses.

There is -- it's referred to as Table A, and that would be an attachment to the draft ordinance. It will list out our NAICS codes, which are the codes that we use in our zoning ordinance to regulate the land uses.

Some cities say, you know, general office, medical office, commercial retail, and that's -- that's as far as they go. We have a very specific land use code because we use the NAICS classification system.

So, we have performed a second review of that, and now what you're going to see is the removal of all marijuana-type uses except for dispensaries, and those would be allowed within the mixed-use area or the Main Street area as a storefront-type use.

Right now that's how it's presented to you. Certainly, if you want to discuss it further, you should. But that's how it's been presented. Any cultivation, growing, manufacturing, all of that has been eliminated that previously showed up in the use table.

Drive-thrus. That was also something that came up before. How do we regulate drive-thrus.

There are -- those would be limited to the Mixed-Use District, which Bethany showed you which areas of the site. So, what my understanding would be, the -- the potential might be for a coffee shop on the north end of the site along Olive on one of those shorter buildings. That might be something that -- that we would see in the site development plan, but that will be reviewed as part of the site development plan process. You'll see the layout of that. And then we can use our zoning ordinance, you know, as sort of a baseline in terms of how does it compare.

But we have not gone so far as to say that we have -- we want to (inaudible) twenty regulations for this at this project because that's really a difficult task to do, but I think the point is we can use our guidelines, our standards, and then how does that compare with this site and this project. Okay.

The last thing is -- is Criteria No. 14. If you remember the first meeting there was -- I went through a big list of the criteria that you and -- recommended to the City Council in terms of does it meet all these requirements. This one was missing. It's No. 14. And that, basically, states will the public costs for some of

the improvements or to provide municipal services for this development, what is that relationship and, two, based upon the projected revenues from the project.

And where we're at tonight is we don't have clear understanding of the projected revenues. That is still something that our planning consultant and finance consultant is looking at, and we're just not far enough along to be able to state what those revenues might be because there -- there's a lot of questions still with them because it's early on.

But what we did do is a lot -- several departments here, including the Community Development Department, the Public Works Department, as well as the Police Department, we reviewed what costs that we would expect to see as a result of this development, and it was in your packet. And you can see here there's some personnel costs in terms of maintenance with Public Works. We had some capital expenditures with Public Works in terms of some of the streets, annual maintenance, so forth. And then there's a twenty-year cost here that was a projection with an inflation factor included as well.

So, if we --

CHAIRMAN LABONTE: So, will the revenue piece be required then by the time it goes to City Council?

MR. JAGGI: Yeah, so what we have -- we can

discuss this later, but we have a suggested condition that you could forward to the Council that says based upon, you know, final projections of revenue, the Council should ensure that it outweighs the cost of the city.

I will say at this point, I think we don't have any doubt that the revenues that would be projected would be higher -- is going to be higher than some of these -- these -- these numbers that we're showing, so.

But I, certainly, wanted to let you know that we don't really have the numbers to present tonight. We're just really early on in that component of talks.

Not to leave the police department out of this conversation, but they are projecting two additional officers that would be needed in order to service the -- the -- the new development, and as well as one patrol vehicle.

And in their standards, they replace patrol cars every three years. So that cost has been built into here, as well as maintenance on them.

So, you can see the twenty-year cost projections with the inflation is about 12 -- $12.5 million is what -- what the projections are when put it altogether.

That concludes my remarks.

If there's any questions, I'd be happy to answer them, and I think as I mentioned earlier, after the public

comment period, we will certainly be available, and we can go through detail all of these components and look at the use table in -- in detail, as well as all of the attachments. We can do that little bit later on after the public comment.

CHAIRMAN LABONTE: Questions?

Thank you.

MR. JAGGI: Thank you.

CHAIRMAN LABONTE: Okay. So we will open it up for the public comment period at this point.

Anyone who wishes to speak, and I don't know if we have anyone -- how we want to do it online, if we want to just have them raise their hand.

MR. JAGGI: Yeah, I think last time we -- everybody in the room --

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: -- went first, and then you asked if anybody in the audience, and then --

CHAIRMAN LABONTE: Okay.

MR. JAGGI: -- you asked to raise their hand, use the raise the hand feature, then -- they would be called upon for three minutes.

CHAIRMAN LABONTE: Okay. So I see one person has their hand raised online.

If anyone in the room who's going to be

speaking, if you could please stand up so you could be sworn in.

(The speakers were sworn in by the court reporter.)

CHAIRMAN LABONTE: Thank you.

Okay. The first one I have is Monica Moore-Zigo.

MR. JAGGI: Chair, I don't know if we have members of -- if there are speakers that are representing other folks in the audience, but if they're yielding their time, that might be something you want to discuss.

CHAIRMAN LABONTE: I do have some on here. I know at least three.

So, we have three minutes, right, cause I don't think anyone's yielded their time to you, is that right?

MS. MONICA MOORE-ZIGO: Well, I'm first, so I guess not.

CHAIRMAN LABONTE: Thank you.

If you can state your name and address.

MONICA MOORE-ZIGO: Monica Moore-Zigo, 9 Spoede Woods.

I'd like to say that Kristie Bailey and I agree on one thing, for sure. We are looking forward to a great development on this site.

And a number of my neighbors and I walked around

this weekend and talked to all of the neighborhoods around the development, listening to peoples' concerns and bringing people together.

But tonight I'm speaking mainly for Spoede Woods, cause that's where I live.

I would say, first of all, we have concerns that we've noticed a lot of mismatches between the branding and the stated vision and the pretty pictures of this site, and -- and what's actually written into the Planning and Zoning ordinances, which is what you all will be deciding on, so we need to pay close attention on that.

They said that they've been collaborative in conducting public engagement -- oh, it was made clear to our neighborhood at the first meeting that no significant changes were possible.

They told us that the retaining -- the retaining wall height facing our neighborhood has been lowered. No changes were made to the individual plan.

They told us that they're preserving over 50 trees -- 50 percent of the trees on site. No changes were made to the plan.

They've told us that this is a village, but the height limit on the -- on the main parking garage, that you all were just looking at earlier, given the grades and the slopes on the site, could be up to 130 feet, almost

twice the size of the G Building. That's what the ordinance, and that's what we need to be cognizant of.

So, I just wanted to make two -- two more quick clarifications here because I know a lot of other people want to speak.

One of those has to do with watershed. And this is something that we heard from almost all of our neighbors. I'll let the folks from Sunswept speak, but since they're downstream, they'd had a lot of personal experience with flooding over the years.

And, so, one -- and you can just -- oh, sorry.

I mentioned last time this concern about the creek and the engineers addressed this, and so I'll flip through these slides real quick.

And it is true, and I'm glad they provided the wetland impact report, because it really does validate our concerns. And I share the concerns that the documentation is not accurate.

So, what you see here is the wetland they described. All of this upstream area, including a lot of -- lot of water that's coming from offsite is directed through this stormwater pipe, which is, essentially, where the creek is. Creek's don't just disappear.

So, what happened, from our own non-professional local observation of the situation is that, yes, this was

the original U.S.G.S (inaudible) for Dielmann Creek.

Monsanto came and constructed a parking lot over in the '60s, back when there was no stream buffer projections, and, yes, they, as part of that, constructed stormwater packet to pick up the upper level of the drainage.

But the service drainage is -- has been for fifty years, basically, draining into the woods back behind our house, and that is what is currently being shown on the stormwater management plan. That the ditch its -- its surface grade is challenged. It's not small. It's not a small gutter, it is significant.

Thank you.

CHAIRMAN LABONTE: Thank you.

Adam Newman.

MR. ADAM NEWMAN: Hi, I'm yielding my time to our attorney.

CHAIRMAN LABONTE: Okay.

And Lisa Newman.

MS. LISA NEWMAN: Same.

CHAIRMAN LABONTE: And then is it Ian Newman?

MR. IAN NEWMAN: It's Ian Newman. Yes, I'm doing the same.

CHAIRMAN LABONTE: Thank you.

Is there anyone else that I have a card from

that's yielding their time to the attorney?

MS. DANIELLE SINGER: I am. Danielle Singer.

CHAIRMAN LABONTE: What -- what is it?

MS. DANIELLE SINGER: Danielle Singer.

CHAIRMAN LABONTE: Danielle Singer.

And then is David Singer still speaking or --

MR. DAVID SINGER: I want to speak for myself.

CHAIRMAN LABONTE: Okay. Thank you.

So we have four people yielding. I don't know if you want to set up twelve minutes.

Thank you.

And I believe that is -- sorry, is it John Nations?

MR. JOHN NATIONS: Yes.

CHAIRMAN LABONTE: Okay.

MR. JOHN NATIONS: Madam Chairman, Members of the Commission, good evening. My name is John Nations. I'm a lawyer with the firm of Doster, Nations, Ullom & Boyle. Our address is 16150 Main Circle Drive.

I appreciate all the yielding and the time, hopefully, I won't take the whole time in order to shorten your meeting a little bit.

I'm here on behalf of the Spoede Woods Subdivision with regard to this rezoning proposal.

I really want to make clear at the outset that

we're not here to oppose the redevelopment of the Bayer site. We actually support it.

We're just concerned about this development, and, frankly, what amount to some very minor concerns about how this development is proceeding and the current plan that is in front of you.

While there have been meetings, people often forget that in an environment like this, residents often feel overwhelmed by a process which is new to them, but which greatly affects them.

Standing up in a public environment, going up against teams of paid professionals who have been working over a year to put all kinds of professional studies together, and then stand up in public and, say, well, we met with the residents.

Okay. Meeting with the residents is not the same thing as saying they addressed their concern.

This is the type of environment that can be very intimidating for the average resident. And so the residents really didn't get to see this proposal until the end of August. And while there's been a lot of talk about the collaboration that's been going on for more than a year, the residents didn't see the proposal.

And the residents are the people who are going to live with this proposal and this development long after

these lots are sold and long after the developer's gone.

It is critical to remember when you're doing planning and zoning, despite all the pretty pictures, they're great. I -- I represent developers, and I have to admit I've been doing this work for a very long time, they're great.

But what's critical to remember is that everything is controlled by the ordinance, not by the pretty pictures you see tonight.

The city has nothing in its code that reserve power beyond the statutory minimums to the Planning Commission when reviewing site development plans once the ordinance is actually approved. And nothing prevents amended plans from the developer from being filed in keeping with the ordinance as it is passed.

It is not apparent, frankly, that the ordinance encompasses changes already agreed to. In fact, the enhanced buffer in the ordinance does not mention Lot 17, which creates an ambiguity with Attachment B in Section D2A2.

The developer's intent not to disturb the buffer is mentioned in the staff memo, is not in the ordinance, and it is not enforceable.

The development plan doesn't actually reflect what is actually permitted by the ordinance. When you

look at the way the buildings are set out, you have absolutely no idea whether that will actually be constructed that way.

The residents are asking, really, something very simple.

They're asking that the current 120-foot buffer along their property line be preserved and enhanced rather than reduced to 40 feet.

Ask, ask yourselves, is denying a simple request amounting to probably 2 percent of a 96-acre site, is denying that request reasonable? Of course not. You've got an enormous site of 96 acres. You have residents that are asking for a consideration on what will amount to maybe 2 percent of that site.

The proposed 40-foot buffer combined with a 35-foot setback from the buffer would mean that a building 50 feet high could be constructed within 75 feet of the property line, or approximately 50 feet closer to the edge of the buffer as it currently exists. A 50-foot building within 75 feet of the property line. Combine this with 100-foot buildings and garages permitted on Lot 4, and it will amount to no buffer at all.

There's a lot of talk about buffers. There always is in zoning, right?

And you talked about the underlying mixed-use

ordinance provides for a minimum of 35. The developer believes he's making a huge concession and making it to 40.

Which is right, 35 or 40? That's not the question to ask. That's never the question to ask.

What do you ask? What is the purpose of a buffer? The reason buffers are in planning and zoning and the reason they're prescribed in plans is to help ameliorate the affects of a proposed development on the adjacent and neighboring properties.

What you have in front of you tonight is about the most striking distinct change in zoning that can come together.

You have an intense commercial site backing up to single-family detached residential. That's about as stark as it gets. About the only thing that would be more stark than that would be some type of an industrial use.

The mixed-use ordinance in your planning and zoning code empower the Commission and the City Council under the code to enact 120-foot buffer requirement and other reasonable requests from the residents and still allow for a quality development.

Follow the guiding principles of your own planning process and the new mixed-use ordinance. You know what it says, you know what the principles are?

Preserve and enhance desirable site characteristics, such as topography and vegetation. Nothing ambiguous about that.

Promote development that is acceptable to the area. Really nothing ambiguous about that.

Promote development that is compatible with the surrounding neighborhoods. There's nothing ambiguous about that.

What the residents are asking for is really a pretty simple request. We've lived here for a long time. We'd like to preserve our neighborhood. The request that we have amounts to almost a de minimus portion of this site.

If you look at this acreage, if you look at the site, just stand back and take a look at it for a minute. Is that the way you'd design it? Would you put the commercial over and shove it against the residents? Is that the best planning? I've never seen a plan quite like that. Maybe it is, but you have to ask yourself that question.

What the residents accordingly are asking, what the Spoede Woods Subdivision is asking is that this request be held over until such time as the residents can present their concerns and have them addressed.

They have been intimidated throughout this

process. I've dealt with this for decades, both I used to be a planning commissioner, I understand what it's like, and I've also represented residents.

Alternatively, we request that the Planning and Zoning Commission recommend to the City Council that this proposal be denied, so that the affected residents and neighbors can work with the city on an appropriate plan for the site.

We know that such a viable plan is achievable, and we'll help the city achieve its goal in considering the welfare of the community as a whole and enhancing the city for generations to come.

Remember, you can deny -- you can vote to recommend denial of this proposal to the City Council.

Do you know what that means? What that means is at the City Council level six of the eight votes would be required to approve it.

When you have a site that's this transformative for a community, it ought to have at least six votes at the City Council no matter what, when you're having this type of an impact on the community.

Finally, I'd like to make one comment that it just came up as I was listening to the public speakers.

And, Ms. Bailey, I think, is that -- is that your name.

MS. KRISTIE BAILEY: Yes.

MR. JOHN NATIONS: Okay.

Ms. Bailey made a good point.

Ms. Bailey stood before you this evening and said that they are taxpayers in this community. That's important to have. You know who else are taxpayers? All of the people sitting in this room and are filling up these chairs tonight, they're taxpayers too.

As George Bailey said, it's a wonderful life, thank you, the working and child-raising and the living and dying in this community. And if you add up the economic impact of the dozens of people here and the many people who are not, they have more of an impact than the developers whose businesses are in this community. They're the ones that make this community work, and that has always been true.

And to pretend that someone has somehow pre-empted the issue that they're a taxpayer overlooks, frankly, what it takes to make a community. These are the taxpayers and the people that make this community work.

And right now what you've got is a developer who says they're not worth 2 percent. We believe they are worth 2 percent. It's a reasonable request under an enormous proposal to protect your existing residents who are going to be here, have been here for generations, will

be here for generations long after the thing is developed, long after the lots are sold off, they are still going to be here living with this, and all they ask is for your consideration to make sure that their neighborhood remains one of the -- they believe one of the finest that you will find anywhere and where they want to raise their families and continue to do so.

Thank you very, very much.

CHAIRMAN LABONTE: Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: Our next speaker, Elizabeth David.

MS. ELIZABETH DAVID: Good evening. I'm Elizabeth David, and I reside at No. 9 Ramblewood.

I'm, basically, going to throw out my comments and do this ad hoc.

First of all, I fully support what was just said. This is very important to all of us who live around this development and who live in Creve Coeur and love Creve Coeur. I've been here for more than fifty years.

This is where I plan to live for as long as I live in the St. Louis area, so it's important to me.

And I also want to emphasize the need to pay attention to all the details.

I heard several times during the presentation

tonight special considerations for Lots 10 and 17 because they abut residential. Part of Lot 1 abuts residential. It abuts my street.

So, in all of the details and all of the things that you look at -- look at in the coming discussions, please consider that whatever cautions you and exemptions and special consideration you give to Lots 10 and 17 because they abut residential, the same thing is deserved on Lot 1.

I thank you for your time. I thank you for listening to me. Thank you for your service to the city. It's very important what you do for all of us.

Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: Tomislav Zigo.

MR. TOMISLAV ZIGO: Good evening. Tomislav Zigo, resident at Spoede Woods, I think still? Yeah, my wife will stay there.

MS. MONICA MOORE-ZIGO: Seventeen years today.

MR. TOMISLAV ZIGO: So, yes, as Monica pointed is today's our anniversary. It's been 17 years that we moved in the neighborhoods on October 2nd, 2006. Still love every minute of it.

I also happen to be fortunate enough to be in a profession where being exact, being thorough really

matters. I've been a registered architect for 27 years, and I don't know if I'm fortunate or not, but also oversee how 1200 architects, engineers, builders use the knowledge. I mean I'm a guy that is complaining if something is (inaudible).

And very often in my profession, again, I'm blessed to work with, really, one of the greatest urban teams in the City of St. Louis, I'm being asked to depict what new developments will look like. Depict them to residents like us, so they know what's happening in their neck of the woods.

So, 1:40.

This is 12 feet, I believe, add another 8, and then imagine yourself lounging and staring at a retaining wall, and then add another 80 feet or 88 feet of a parking structure and, you know, enjoy the view from your backyard. That's not Spoede Woods. That's not what we moved in.

I want to share a video. Would you mind sharing with Council members.

As I said, I like to be exact. I also cringe when somebody tells me to sharpen their pencil, cause I don't use pencils.

(Video playing.)

This is what our neighborhoods look like now

with a -- with a -- that 120-foot buffering question. It's green and, yes, you do -- we have the rest of the LiDARs if somebody needs to go and really survey the site the way it should be. Happy to borrow a few of those.

This is the way it's going to look from our yards when two adjacent office buildings happen at 640 feet, going down to 630. And then if you pull back, actually, unfortunately, didn't see the garage there.

It'll play it again. Goes again. There you go.

The garage -- garage is lurking there in the back. It's actually 20 foot higher than existing Monsanto office building.

Yellow thing in the back is the residential.

Need to say that far from that -- those new office buildings are being built is at 640 feet. The lowest spot in Rachel's yard is 625 feet. It's a 50-foot drop. The higher part of Spoede Woods is 650 feet, so 10-foot overlook over a retaining wall, which, by the way, is shown as a straight line.

Nobody can build a 20-foot retaining wall that's a straight line without having leaning over.

Thank you.

CHAIRMAN LABONTE: Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: Martha Smith.

MS. MARTHA SMITH: Martha Smith, No. 26 Spoede Woods.

My name is Martha Smith, and I'm a resident and trustee of Spoede Woods Subdivision.

My husband and I purchased our home 22 years ago on July of 2001.

We relocated from Shadybrook Drive, which is -- which sits near the south end of the Bayer West Campus. We have been homeowners in Creve Coeur for 30 years.

I speak this evening for myself and on behalf of the residents of Spoede Woods.

Change and new development is inevitable in any city. We are not against change or the development on the former Bayer West site, in fact, we welcome it.

At this time we believe the timeline for the current development is moving very quickly and does not take into consideration the concerns of our residents, many of whom have lived in their homes for nearly 60 years.

We have co-existed with Monsanto and Bayer for many years. Both were good neighbors and were respectful of their proximity to our residence.

We ask that future development respects our residents and the residents of adjoining neighborhoods.

We believe many items contained within the

current development plan would alter our subdivision permanently.

We wish for our street to remain desirable for our current -- current and future residents by ensuring continued cooperation and respect for our properties and quality of life.

Thank you.

CHAIRMAN LABONTE: Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: Steve Melnick.

MR. STEVE MELNICK: Hi. My name is Steve Melnick. I live at 16 Spoede Woods. My wife, my family and I have lived there for 20 years as of a couple months ago.

And, you know, I wish -- I know there's been a lot of hard work, and I wish in the last thirteen months we've had much more time to be able to think through these issues, and we could work with the developers and work with you and try to come up with alternative solutions and compromises along different elements of this development.

And I'm really excited about this. My wife and I talked about this. This is the kind of place we would want to retire to, but I'm not retired yet. We're not retired yet. So, we're still there. We probably have many more years in this house.

And I want to talk specifically about trees.

So, we talk about buffers and we talk about distances. But if you go back there, and I think you were -- I think you were invited last time to go to our properties, and I urge you to go and stand on the back porches at each level, and it goes way up. And also come over to my side of the street, which is on the south side of the street where I'm looking over the houses and the house that's next to me that's higher looking over. And that's -- and that's higher.

We have a bird's-eye view. Those walls are going to be great, we're going to look right on top.

And when I talk about the trees, you think about what -- go there and look and see how far is 35 feet from the property line, and, literally, how many trees.

So, on this map we show masses, they're shown as masses. But those trees are identified. There's a little yellow dot on those trees. We can count those trees. And we've ran a string at different parts of that line, and when you run that string, you'll see you might have certain sections of four trees that remain. Move back to 40 feet, might get one more tree. It varies by section.

The massive trees that protects us is actually provide this buffer that we're talking about from sound, from noise, from light, is at that section from 70 to

120 feet.

So, when we talk about a buffer, we're not talking about distances. We're talking about functional protection from the development that's there, so that we can enjoy our homes in peace and retain the idea that we are Spoede Woods not Spoede Plaines.

That's all I have to say. Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: I have Judy Fiedler, who's yielding her time to Keith Huckshold.

So if you could put six minutes.

Thank you.

MR. KEITH HUCKSHOLD: My name is Keith Huckshold. I live at No. 19 Tealwood Drive since 1981.

I'm a graduate of the high school, as are -- Ladue High School, as are my two sons.

Schools. I can't believe we've gotten this far and this much discussion without mentioning schools.

This development is at providing 1,000 families who enter this school district.

CHAIRMAN LABONTE: Sir, can you make sure --

MR. KEITH HUCKSHOLD: This development --

CHAIRMAN LABONTE: Sir --

MR. KEITH HUCKSHOLD: Oh, excuse me.

CHAIRMAN LABONTE: -- can you make sure to speak

into the microphone. Thank you.

MR. KEITH HUCKSHOLD: Okay. All right.

I'm trying to face the audience.

CHAIRMAN LABONTE: We're your audience.

MR. KEITH HUCKSHOLD: Okay.

CHAIRMAN LABONTE: Thank you.

MR. KEITH HUCKSHOLD: Okay. So, expect many families with kids to come in, maybe one or two per family, I don't think that's unreasonable, may be higher than that, 1 to 2,000 new students into the district.

The current size of the school district is about 4300 students. Okay. Just think about that now. So just doing a rough estimate, that would increase class sizes from 23 to 46 percent across the board.

Our short-sided Board of Education was counting on a stable residency number. They weren't counting on highrise multi -- multifamily apartment buildings being sprouting up all over the place.

We have not, you know, and my neighbors to the east have already taken advantage and they're filling up some of whatever extra seats might theoretically exist.

Okay. So, ask to think about.

Has any -- have you had any contact at all with the school district about this? Do they know what's coming towards them and what the impact will be?

Anybody from the school district here? Have you had discussions --

CHAIRMAN LABONTE: No, you can't -- sir, you need to address us. I'm sorry.

MR. KEITH HUCKSHOLD: Okay.

CHAIRMAN LABONTE: Thank you.

MR. KEITH HUCKSHOLD: All right. (Inaudible.)

Okay. So that's that.

That's a major concern because the school districts cannot absorb these at any time in the near future.

I'm saying that, you know, because they just went through a major redevelopment at the schools, but it didn't reach capacity. They just made them nicer. Okay.

Next issue is access to this site.

You have three lanes in, three lanes out of this area.

I would like to get a comparison to West County Shopping Center. The planned parking spots here is 4334. West County capacity is 5551. There are five entrances in, which branch out once you get inside. Ten -- ten exits. If you've been there in West County any time between Thanksgiving and Christmas, you know that that place gets totally gridlocked.

So, the road system cannot handle this many

cars.

Well, it can, but going to have people waiting six, seven, eight or nine, ten light changes just to get out on to the roads. So you'll end up having -- you'll get a whole bunch of people who are going to be very dissatisfied with the current services and lot more exits, which are those who pays for this. Okay.

My last one is kind of a minor one. In the drainage situation, there's a feature in Monsanto that maybe has been overlooked. They have planted a tall grass prairie right in the middle of where they want to put the condominiums.

Now, tall grass prairie will -- will absorb 9 inches per hour of rain. It's the best retention environment mother nature has ever invented. So, that's been paved over now.

So, you've got these -- your ponds to the -- to the left, or to the west. Probably already in a deficit, as far as maintaining the current volume of water coming out of the site.

So, they need to do their -- re-do their calculations. I can't tell you how many acres that is because I looked at it on Google and it didn't know -- I couldn't tell the grass. Okay.

CHAIRMAN LABONTE: Thank you.

MR. KEITH HUCKSHOLD: Clarification from anybody? Okay. Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: David Singer.

MR. DAVID SINGER: Hi, Guys. Dave Singer, 6 Spoede Woods.

I'm here to just speak on my own behalf, I don't speak for anyone else, not even my wife. She gets mad about that.

First of all, thank you, Guys, for the presentation. You really addressed a lot of our concerns, and it was great to -- great to see that.

And I apologize, personally, if it seems like we've been -- like I have been contentious. That has not at all been my intention. I'm excited about this development.

I think the frustration of all sides here comes about due to a process that did not have community involvement early on to allow us to give our feedback in a way that would have been helpful to change the plans prior to you spending $4 million on plans.

Just to speak about how this process has affected me personally. I got a flier before the first meeting from my neighbor, Rachel Protzel, who was kind enough to ask us, as neighbors, to come here and listen.

I'm for the development. I think it'd be great. I -- I said, okay, I'll go.

When I got here, I realized there was some problems, particularly for lots other than our own. Our lot is probably one of the least affected in Spoede Woods by this that's on that side of the street.

And prior to the development, about a year ago, my wife had come to me and said do you think we should move. I said, no, this will be great. We'll -- we'll do great. This -- this'll be fine. And now I think I might have made a mistake.

I'm really concerned about all of this. Over the past three weeks, it's been a monumental lift for us to bring the neighbors together to discuss these things.

When we haven't given feedback, it hasn't been due to the fact that we don't care, it's we have to bring 26 homes together and somehow come to a consensus on how we're going to respond to this. This is 26 homes with multiple people living in them with multiple opinions. So, this has been a 20-hour a week job for me.

I developed the website, which I'm sorry if you think it's factually inaccurate. That's my first website. It's fun to do.

But I'm a small business owner. I don't have 20 hours a week. This wasn't something that I wanted to do.

And the last thing I wanted to do was come off as someone that's against development.

I think this process could use an upgrade. And I'm not blaming that on anyone. I know that you are volunteers as well, and I really appreciate your time, but this has really been a tremendously stressful process for, obviously, all sides. And I hope that we can get somewhere where we can agree, so that we don't have to have this fight again in front of the Council.

Thank you.

CHAIRMAN LABONTE: Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: Danny Wolk.

MR. DANNY WOLK: Hi there.

I showed up tonight --

CHAIRMAN LABONTE: Can you state your name first --

MR. DANNY WOLK: Danny Wolk --

CHAIRMAN LABONTE: -- and your address.

MR. DANNY WOLK: Danny Wolk at 20 Colonial Hills Drive in Creve Coeur.

CHAIRMAN LABONTE: Thank you.

MR. DANNY WOLK: And -- you're welcome -- as a resident of Creve Coeur, I do support the concerns of the residents of Spoede Woods. It's very much -- it would be

a concern of mine if I lived across the street and in that neighborhood.

But, even more so, as I sat here and thought about it, I have other concerns.

I -- my wife and I, with my family, we moved to Creve Coeur because of the fact that it was not engulfed with commercial development.

And I have concerns over the next few years, based on this multiyear development, of the traffic patterns and how, and, hopefully, if this does go forward, that the city helps to mitigate the -- even the temporary concern -- construction vehicles, the trucks, and how that relates to, hopefully, staying away from the smaller roads and residential roads, including Spoede and Graeser and maintaining their -- their movement on the state streets like Olive and Lindbergh.

And the schools. And I have to assume that every time a development comes in front of the city, that the school system, Ladue Schools, are being -- their concerns are being met because of the sheer numbers that this development might end up bringing to the city.

So, there's -- there's a lot of good things that are being said tonight.

And I appreciate everybody, hopefully, working together to protect everybody's interest.

Thank you.

CHAIRMAN LABONTE: Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: And I believe we had one -- that was the last card I had in -- in hand for in-person.

Is that right?

MR. JOHN MURPHY: I did not submit a card.

CHAIRMAN LABONTE: Okay. Do you want to come -- did you -- were you sworn in, though?

MR. JOHN MURPHY: I'm sorry? Yeah.

CHAIRMAN LABONTE: Were you sworn in?

MR. JOHN MURPHY: I was.

CHAIRMAN LABONTE: Okay. If you could state your name and address, please.

MR. JOHN MURPHY: My name's John Murphy. I'm a resident at 10305 North Sunswept in Creve Coeur. We're in the Sunswept Subdivision.

On September 18th, Mr. Jaggi stated that the Commission should be prepared to give direction on the desirability of -- of pedestrian path connection to Sunswept neighborhood.

I was here for the presentation, and then I saw the notes posted online, and I didn't see the -- that specific concern addressed in those notes talking about the reconfiguration of that path.

So, we had a -- we have 25 residences at -- at Sunswept Subdivision that signed a petition with our concerns on that -- on that entry into the neighborhood. So, I'll go ahead and mention on here, I think what brought it about is all the drawings that we've seen to date, we hadn't seen anything that indicated that; it didn't have any elevations or anything to indicate it.

And the red line that was put up on, I think on the 18th, that location's 12 feet from that -- from that house that's on the end of that property.

So, it's a position to oppose the Sunswept Subdivision pedestrian walkway connecting the miss -- mixed-use development.

We, the undersigned residents and property owners within the Sunswept Subdivision come together to express our opposition to any proposal advocating for the establishment of pedestrian walkways through or immediately adjacent to the Sunswept Subdivision.

Such a proposal would impose an excessive burden and substantial negative impact.

We firmly assert that a walkway for the mixed-use development should be established on North Lindbergh Boulevard roadway and believe this location will better serve additional development into the future.

So I've got six points.

That first one's a lack of compatibility to Sunswept Subdivision. This is mostly because of the mystery of not having any reports, elevations, designs referencing the design or the zoning district regulations, including provisions relating to impervious surfaces, green scape, landscaping, pedestrian amenities, a yard setback, screen buffering, erosion and stormwater control, as well as depressing existing obstacles in a unique topography where those -- the path was suggested.

Number 2, general welfare. This will distract from the overall design and ambience of the subdivision impacting the enjoyment of our properties.

This may lead to increased noise pollution and littering, along with height potential of safety concerns or trespass.

Number 3, privacy intrusion. Varied elevations provide to our sightlines in the homes infringing upon privacy with increased foot traffic.

Then the traffic safety of the influx of pedestrians, vehicular, bicycle and pedestrian traffic conflicts, liability and maintenance. The city and established adjacent property owners responsible for the maintenance of public sidewalks, and by ordinance, liability and responsibility shared by the city and the adjacent property owners.

There's a property value consideration.

But we respectfully request that Creve -- City of Creve Coeur consider our concerns, prioritize the protection of the residents and property owners in Sunswept Subdivision by rejecting any proposals for construction of pedestrian walkway through or immediately adjacent to Sunswept Subdivision.

So we're looking at the North Lindbergh area. We got 25 residences.

CHAIRMAN LABONTE: Thank you. Thank you.

(Applause from the audience.)

CHAIRMAN LABONTE: Were you sworn in? Yes.

MR. BLAKE EASTWOOD: Yes, I was.

CHAIRMAN LABONTE: Okay. You want to come up.

State your name and -- state your name and address.

MR. BLAKE EASTWOOD: My name is Blake Eastwood. I'm a trustee of the Sunswept Subdivision.

I think I've said from the start throughout this process, I've had some good conversations with the developers and the construction team.

I share a lot of the same concerns as does our neighborhood with our friends in Spoede Woods, and I ultimately feel like Dave's points, I think are -- are probably the biggest issue in that, I kind of feel like

the overall process seems a little flawed in that we had, you know, essentially, a month and a half to -- to go through and bring public comment directly to the developers, and the feedback has been, there can't really be changes implemented due to the -- the plans kind of already being begged.

And I definitely feel like the development team has worked hard and done all that they can, but, you know, the fact is that the public was able to comment far later in the process than -- than what I would consider to be viably providing feedback that can enact a change that I think we've all been made to think is possible, we've just been -- that's my position, that hasn't brought that to the fold.

I guess from Sunswept's perspective, we do have concerns. They -- they really aren't centered around the minimum space and the buffer, because, again, all that -- all that infrastructure and all that build is happening along Spoede.

So, I definitely feel for those folks and we support them as much as we can, but we're -- we're kind of in a different situation in that we have all the runoff that's coming through Sunswept Creek that runs right along ten properties that abut that creek. So, the fact that we can't take anymore runoff, and rainwater is something that

I'm going to persistently bring up throughout this process to ensure that the plans that they have are held to it, and that we don't get anymore water than -- than has been promised throughout this process.

Additionally, tapping into the existing infrastructure of the sewer system, I would like to propose that we get actually reports from MSD and studies done on the 60-year-old infrastructure that runs through our neighborhood for the sewer system.

Obviously, you've got a lot of occupants that worked at the Bayer facility and -- and Monsanto, but that's a very different condition when we have a thousand residences, plus two hotels planned, and all the restaurants and commercial space. So I think there's going to be a big burden applied to that existing MSD infrastructure for the black water, not for -- for drainage. So that is another thing that I wanted to bring up.

And -- and just on a sidebar note, I feel like, you know, the -- the rules and regulations, as it pertains to setbacks, specifically thinking through Spoede Woods development, it calls for a, you know, the minimum of 35 feet, is the language. It's a minimum of. And I feel like the way that I interpret that, and it might be my own interpretation, but I feel like that should be applied on

a case by case basis.

If there's a development being built where there's currently already a commercial development, and if there's already a building there, I think that setback is -- is -- is strong, if that makes sense.

But as it applies to this property, where this property seems like a parkland for the back peoples' properties, and it's this beautiful, lush landscape, I feel like 30, 40 feet is really -- is really pushing it.

And I think a lot of the concerns can be addressed with the setback and the green space, and the handle on the water is that setback was actually increased to something that feels like it could be pragmatically decided upon based on your guys' input, so --

CHAIRMAN LABONTE: Thank you.

MR. BLAKE EASTWOOD: -- that's all I got. Thanks.

(Applause from the audience.)

CHAIRMAN LABONTE: Okay. I think we had, was it Jules or someone --

VOICE: There's two questions.

MS. MELISSA BRADFORD: Their hand was raised.

We do have two submitted questions through the Q and A feature. I don't know if you want those read, or if you want that person to raise their hand and ask their

question or --

CHAIRMAN LABONTE: What do you want to do?

MR. JAGGI: It's really at your discretion whether you want to read comments into the record, or I think what we've done in the past is, you know, anybody online that wanted to speak, they would --

CHAIRMAN LABONTE: Right.

MR. JAGGI: -- be given the opportunity --

CHAIRMAN LABONTE: Yeah.

MR. JAGGI: -- but it's your decision.

CHAIRMAN LABONTE: I think, can they -- can they -- I know we only had one person sworn in, so.

And that was not the person.

MS. MELISSA BRADFORD: I don't see this person online anymore.

CHAIRMAN LABONTE: Okay.

So, can you put the questions up there as well.

MS. MELISSA BRADFORD: Yeah.

CHAIRMAN LABONTE: Do you want me to read it?

Okay. It says, is it possible to ask these questions. What will be the age and the height of the trees when planted, and how long the area will need to wait for appropriate coverage and privacy. Will you be employing local Olivette companies for the planting.

I submitted a question to the committee a little

while ago, I need to sign off, but wanted to ask my question.

Oh, it was, I assume several Creve Coeur companies will be utilized, but it would be nice to expand out of the area as well.

So, it's just about the tree -- type of trees, age of trees, height of trees when planting. Okay.

And then there was one person, I think it was Jules.

Is there still someone online that we should -- wishes to speak?

Okay. All right.

MR. JAGGI: Chair, Members of the Commission, Jason Jaggi, Director of Community Development.

Just a couple, I guess, closing points after hearing the public comments tonight that I would like to make, and the developer may also want to address you and respond to some of the comments that have been made tonight.

But I will say in terms of process, I appreciate hearing some of the comments tonight.

We have followed our process as it's outlined in the ordinances. The public hearing notices were posted in middle of August, you know, the notices were sent to everybody as required by ordinance.

We have really been really diligent trying to get the information out to the residents as they have been received, as well as updating our website.

Every call that's been placed to me, I have responded to a lot of the residents.

So, in terms of keeping the communication open, I think that is a very important component of the process and what Creve Coeur should be doing.

And that's -- that's the expectation of staff -- or that the city puts on the staff, is to respond to our residents that way, so, we, certainly, want to fulfill it.

So, I do believe we have done that. But I understand the totality of this project and that it is a big project. It is a change for this site.

You could state that this was a corporate -- corporate portion of the campus, and it has been with a fairly minimal development over the years.

A lot of it is -- is -- was parking lots and buildings that are -- that are internal to the site.

Going through the planning process that we went through, it -- we really articulated a lot of different areas, you know, in terms of goals and objectives. And my, I think, conclusion on this project is that it hits a large amount of those, almost, you know, a lot of the objectives, this project is met -- is being met with.

So, I think there has been a process here with some revisions, feedback, gone back revisions, and it is a lot of back and forth, and it can be very time consuming, and I'll be the first to speak to that. But that is the process that we have here.

And -- and, really, some of these things are being addressed to you, and you're a very important component of that process.

So, I think after we conclude the public hearing, it's really in your hands in terms of what questions you have; where are you at with this project based on the public comments, the comments that staff has provided to you and the -- the information from the developer.

But this is a significant project. It is a -- probably one of the largest projects in the whole St. Louis region that is before us.

It's not something we saw a few years ago. But it has a lot of components to it that would really serve the city well into the future.

And these are the objectives, these are the types of developments that I think the city has been wanting for years, probably decades.

So we do have this unique opportunity to maybe advance some of these goals with this particular site, and

also fulfill some of the requirements and some of the objectives of the 39 North District, where employers and employees that are looking for the St. Louis area in terms of do I want to take a job in this area; what is this area like.

These are the types of things that we hear about talking with 39 North that is missing. And it's missing not only here, but regional. And you're seeing some of these projects now come to life regionally because St. Louis is trying to -- I think we're finally -- we need to get competitive and bring the region forward.

So, that is the big picture that I also wanted to point out in terms of how this little project, or big project, depending on the perspective, fits within -- within the region.

We have engaged the assistance of professional planners who are also looking at development finance information to review the project because we felt this -- this project needed an additional set of eyes. So we have brought them on board and Catherine is here, and can certainly speak if you have any questions of her.

So, we have gone through an extensive process.

With regard to the buffer, I think I'm hearing that loud and clear tonight.

I will say that I have had conversations with

the developer in terms of the buffer, you know, what can be done, what -- whatnot. And that started early on.

And we did start with 35 feet because that's what the ordinance says, that's your minimum. So, I think through this process they have bumped that up as much as they are saying that they can do to still keep the project intact and to meet some of their requirements.

But that's really a question you need to ask them in terms of, you know, how they settled on this -- on this buffer.

But I will say that the buffer that would be established here, it would have a combination of native or existing trees that are in place, some of these areas are pretty bare, some of it, quite frankly, has not been kept up very well, and it's kind of just left wild, and, you know, there's dead trees in there, so it's not a very attractive area, but it is in its natural state, I suppose.

So, this project would add to that, okay. So, the existing buffer area that's there, yeah, some of that is going to come out with this proposal, that -- that's -- that's the case. But the way it's enhanced and how it's, you know, improved within that buffer area, I think is something that we certainly have to work with the developer on.

But I just wanted to mention to you, that, you know, we have certainly explored the topic that is in front of you tonight as well, and the developer may be able to speak some more as to their reasons why -- where they're at with -- with the buffer placement.

I'd be happy to answer any questions you may have before you conclude the public hearing.

Yes.

MS. O'BRIEN: I had a question. One of the comments mentioned that the traffic and the roads and the exits and whether there's enough parking, and I know you always, before the individual parcels are developed, you always do a -- a calculation of how much parking.

Do -- do you feel comfortable with the number of exits and what -- is it valid to compare it to the West County Mall or --

MR. JAGGI: I can, yeah, we haven't compared it to West County Mall.

But we have hired our independent third reviewer, if you will, our traffic consultant, Kyle Evans, he was here the last couple of meetings, and he has been advising the staff, as well as reporting to you on the traffic impacts. And I think his recommendations were that it meets the requirements that you would expect for a development like this.

The developer also mentioned MoDOT's approval. So they have provided a letter of concurrence or a document that says they agree with the findings and recommendations of the traffic study. That's been included with your information tonight, and so they are, basically, issuing their approval of the traffic study and the impacts that this project will generate and the mitigation that's required to handle some of the additional traffic.

So, I think with all that in mind, staff is at a comfortable point with the traffic impacts of this project.

Now, they will also have to come in and pull specific permits with MoDOT to construct the improvements, so they're going to do some signal timing; they're going to reconfigure some of the Pavilion Drive intersection; they're going to install that additional left turn bay coming south into the development.

All of those are improvements on MoDOT's right-of-way and they will have to get permits when the final design is complete.

CHAIRMAN LABONTE: Questions?

MR. POTASHNICK: Yeah, would you just comment briefly on where we're at with the school -- with the school system.

MR. JAGGI: Yeah, so --

MR. POTASHNICK: I know there's -- there's more to that that could respond to one of the questions.

MR. JAGGI: Yeah, I'll tell you, I can't respond a whole lot with the school district because I have not been engaged with them and have not been part of the conversations.

What I can tell you is I think the school district is very much aware of this project. I know the developers have told me they have met directly with the school district representative, so those discussions are happening. It's probably not much further along than that at this time. But I know they -- they have consultants that have been giving information to the school district, is my understanding. But I have not been directly involved with -- with those conversations, but they have been occurring.

And you can certainly ask the developer when they give remarks to you more specifically about those (inaudible).

CHAIRMAN LABONTE: So I have -- I just have a general operational question.

MR. JAGGI: Uh-huh.

CHAIRMAN LABONTE: Because I mean the public hearing is to get feedback from the public on changes that

maybe people would be looking for.

MR. JAGGI: Right.

CHAIRMAN LABONTE: And when I think we hear we can't support any more changes, then that doesn't seem like we're really having a public hearing. So I think --

(Applause from the audience.)

CHAIRMAN LABONTE: I feel that way as well. I think we're here to hear the information and make recommendations, so there's definitely, I think when the developer comes up, changes that, you know, I think we need to discuss, and I think a lot of conditions, obviously, that we've heard tonight.

MR. JAGGI: I think --

CHAIRMAN LABONTE: And it sounds like you already have quite a few conditions as well documented.

MR. JAGGI: Right.

I think -- and wherever you're at in this process tonight, I think you've been given, really, a lot of the information that you've asked about, you know, you may have some questions in terms of some components of this that you can deliberate.

So, I think when the developer comes up and maybe has some responses to some of this information and their perspective, you could take that information, and then assuming there's no more public comments, the

Commission really is -- the task that is for you all to deliberate what you heard, the documents that have been presented, taking into account all the revisions that have been made and -- and formulate your recommendation to the City Council.

That is really your charge in this process.

CHAIRMAN LABONTE: Thank you.

MR. JAGGI: And then that -- that would be the next step is the City Council review after -- after your recommendation has been made to them.

CHAIRMAN LABONTE: Thank you.

MR. JAGGI: Did you want the developer to come up and make some closing remarks or --

CHAIRMAN LABONTE: Yes.

MR. JAGGI: Okay.

MR. PFUND: Matt Pfund again with Jack Matthews.

Apologize, my handwriting's really bad, but I'm going to try to answer as many questions as I can.

Trees that were proposed and are 6 to 8 feet at the time of planting, which would be the fall of '25.

First full plantings in the development would be in the summer of '26, so they'll have a full growth year.

I do appreciate the comments that we've heard tonight, especially David Singer's comments.

You know, we've -- we've offered a lot of

individual meetings, and -- and I think Blake even mentioned that.

And we're -- we're not hard to get ahold of. And I think there's been some -- John, you made a comment about this being a scary process where if you're not used to it, and maybe that's part of it. I don't think I'm too scary. But we've been willing to meet with whoever we can and go through this.

And I don't think we've ever said the plans have been set and we can't make changes. I mean we've made changes three times now in this meeting. This is our third meeting here.

I do agree someone else said, you know, the buffer shouldn't be about distances, but about functional protection.

I mean that's our position here is that we want to provide quality buffer; we want to provide something that is better than is there today. Yes, it's not going to be 120 feet, but it's going to be a better quality buffer than is there today.

And, again, each one of these lots, there's 17 lots in this development, each one has to come back through this same process again for a site development plan review.

So, this isn't the final vote, and then what you

just saw gets built.

The, you know, the risks of an office building being built 50 feet from a property line, those all come up in the next round of meetings for each one of these lots. So there's seventeen more.

CHAIRMAN LABONTE: So how -- I mean I know 40 feet, but normally, and, frankly, in the Office Research, the minimum would be 50.

So where -- really, where can we go? I mean I know like final offer, right, but if the residents are asking for 120, where -- I mean, really, 40, or we can go 50, 70, where -- really what is the impact to get to that doesn't blow up the whole project, because I -- I feel like that's where we are right now with the residents, right?

MR. PFUND: Yeah. And we came with our best foot forward tonight of 40 feet.

CHAIRMAN LABONTE: 40 feet. So you can't go to 50?

MR. PFUND: Cannot.

CHAIRMAN LABONTE: Okay.

MR. POTASHNICK: And why can't you?

MR. PFUND: And this is at Lots 1, 10 and 17.

CHAIRMAN LABONTE: Yeah, cause it looks like it's parking there, right? Like, really, so what would

you be giving up to --

(Talking over each other.)

MR. PFUND: (Inaudible) park, correct.

We can look at a map of Lot 10 and 17, but then that may not be the final configuration of how that lot's built.

CHAIRMAN LABONTE: So what does that mean?

MR. PFUND: So that means we --

CHAIRMAN LABONTE: Because I think we need to be fairly specific when we're building close to that point, right, and --

MR. PFUND: You'll -- you'll see that in the site development plan.

CHAIRMAN LABONTE: And our current -- and our current guidelines in that area is 50 feet, frankly, before it's rezoned, so today, I'm assuming that the closest they could build is 50 feet, is that correct?

MR. JAGGI: Under the existing zoning ordinance, which is RO, Research Office, you can go up to -- you have to have a 50-foot buffer yard as long as the building is no higher than 45 feet in height.

CHAIRMAN LABONTE: 45 feet in height?

MR. JAGGI: Correct.

CHAIRMAN LABONTE: And what's the height of the building that's proposed there right now?

MR. JAGGI: So the plans show is that buildings and the areas that would be adjacent to the Residential District would be 50 feet, so it's -- it's close to the 45.

The RO District requires two additional feet for every foot of additional height beyond that, as well as conformance with the sky exposure plane, which they are showing that they comply with.

But I would use that as a reference point in terms of the existing zoning district. This project contemplates many uses that would not be allowed under that zoning district, that's why they're proposing to rezone it and establish their own standards.

But in terms of the reference, in terms of what's allowed today under the existing zoning and the uses that are allowed in that district, what I told you was -- is what would be required.

CHAIRMAN LABONTE: Because I think that's why we've asked for that to be Research Office there.

So, is it possible to keep the zoning for those areas as Research Office, or it has to go all PM?

MR. JAGGI: I think it really would behoove the city to regulate this as it moves forward under the Planned Zoning District standards and procedure.

That's something that we talked about in the

Comp Plan, that that's the right zoning district procedure for this project because of all of the different components to it, so I think if you're trying to carve that out, I don't know that that's -- would be the recommended way forward.

But if you wanted to, and -- and, again, based on your discussions of this, I think that will be coming after this --

CHAIRMAN LABONTE: Yes.

MR. JAGGI: -- you could recommend to the Council a certain minimum distance for a buffer for those lots, and that would be carried forward to the Council for their consideration.

CHAIRMAN LABONTE: Okay. Thank you.

MR. BUELTER: I have two questions, everybody in the room.

First one is when we get to the end of the plan, and the plan said we come up with the IC drawings, and we go to construction, who has the authority on doing this, in part, for the residents, is if changes occur during construction, where -- where does that come from and who has the authority to make changes once the plan is set?

MR. JAGGI: Sure.

So the Planned Zoning District ordinance specifies some of that, so if it's a very minor change, it

could actually be approved by the -- by the staff, it's a very minor change.

If it's a change that affects, you know, the height of the building, the placements and a lot of the standards that are actually in these development requirements that we've put forward that the developer has presented, that will require an amendment to the ordinance.

And if there's different changes to the site concept plan, that would require amendment to the site concept plan.

I will tell you that projects like this, you can expect some amendments as we go forward. What you're seeing today is the information that they are telling us that they know and that they intend to move forward with.

As projects evolve over time, we see this on hospital campuses, what -- what they're thinking today, two years from now something might change a little bit, but we have a process to -- to understand that and to consider that.

And so if it's significant enough, like I'm telling you, it will have to come back and there'll be a public hearing and it'll have to be amended.

MR. LUMLEY: Through the P&Z and then on to Council.

MR. BUELTER: Okay.

Second question is major project. And, again, that was my scope question, now my schedule, is phase construction on this, is if I'm living next to a construction site, what do you expecting to build and when are you expecting to build it and what should they see?

MR. PFUND: So, the Lot 17 and Lot 10 are in our Phase 3, I believe, phase, so that wouldn't happen till farther in, you know, '26, '27 timeframe.

MR. BUELTER: Okay. And for the rest of the -- rest of the project, how is it phased out?

So, I'm thinking -- I'm looking for --

MR. PFUND: Streets --

MR. BUELTER: -- them plus --

MR. PFUND: -- creating sewers, utilities, streets, that all happens in Phase 1. Retaining walls, Phase 1. Plantings after retaining walls, Phase.

MR. BUELTER: Okay. Then --

MR. PFUND: To get that ready. And then we're going to focus on from the grocer at the west end east to establish Main Street.

MR. BUELTER: Okay.

So they shouldn't see traffic till Main Street's established?

MR. PFUND: That's right.

MR. BUELTER: Okay.

MS. O'BRIEN: I have a question.

The video was presented as the visual of what the bottom (inaudible) will be seeing.

Is that -- and maybe your arborist would know --

CHAIRMAN LABONTE: (Inaudible.)

MS. O'BRIEN: Oh, I'm sorry.

Is that accurate based on the plantings you're putting in there?

MR. PFUND: I didn't prepare that video.

MS. O'BRIEN: Well, I mean just looking at it, is that -- is that what they would see?

MR. PFUND: I didn't see any plantings that were in the video other than the buffer that's there now.

CHAIRMAN LABONTE: I think maybe it was more the -- the -- the height of the wall, and then the visibility of the building like sitting there, is that what you'd expect to see?

MR. PFUND: I think we provided sections, and they've argued that they're not accurate.

I -- I don't know. I haven't researched their -- their sections on their video.

MR. WANG: I have a quick question.

CHAIRMAN LABONTE: Go ahead.

MR. WANG: So, we don't know how much revenue

this will generate, but it seems to me like the big generator would be the Schnucks -- or I mean the -- the grocer.

As far as the offices, it's just business license fees, they don't generate as far as revenue for the city. And it's just going to be dependent on retail then.

So, yeah, I understand it's going to be hard, but you can estimate that it's higher -- going -- going to cover the Public Works and -- and the police?

MR. PFUND: Yeah, I think all of the financial projections are in place and all the models are built. They're just being reviewed now.

And that actually comes kind of concurrently with the City Council reviewing, so, but the -- the city's consultant and our consultant are talking about, you know, different -- the model is very huge on something like this with where the revenues are and how it's all projected.

MR. WANG: Okay.

MR. JAGGI: Mr. Wang, I -- I would agree with that statement. They have been submitted. Our consultants are reviewing it, and those discussions are taking place.

MR. BUELTER: And the -- that was my third question is, the cash flows again with big project over

multi years is where -- where do we start instituting police; where do we start booking those expenses and where do we actually start booking revenues? Cause, obviously, we don't want to impact the Creve Coeur budget at any given time along. This is a big project, so.

MR. JAGGI: It -- it is, and that's why --

MR. BUELTER: Financials are critical.

MR. JAGGI: That's right. And that's why the requirement was put into the planned zoning district ordinance.

I think Mr. Potashnick is -- brought this up early on when we were looking at -- at modifying our ordinance to facilitate the review of this project because it's so complex, because it has so many components to it.

The charge that you have, though, is really about based on the projected revenues, again, which we don't have, but based on the revenues, as well as the city costs to service this project, as well as maintain it, all of these things, cause the public roads that I mentioned, those will require snow removal, that cost has been included. It would require re-striping a few years down the line, that's included.

And then as you get further on the time horizon, you know, then you're looking at more expenses to keep up public roads as they age over time.

The police department has also looked at it. We included the memo from the Chief in there that talked about the policing.

So, the question of timing, it really depends. Street maintenance begins as soon as we accept the streets. Then the police are involved because then it's a public -- but, you know, we're going to have different components to this.

It'll be phased in over time, so that's why the projections you have for the city expenses will be out 20 years because that's the horizon that we used to be able to estimate costs.

But, as the -- as Mr. Pfund mentioned, they are -- they have submitted their model to the city. Our consultants are reviewing it. They have questions. So it isn't appropriate to throw out numbers when those numbers are being questioned.

So, that is something, though, I think -- I would suggest that I think we're comfortable knowing that the revenues would be -- exceed what the costs would be, but we don't have that figure, and that's something that you would also maybe emphasize to the City Council that they verify that as part of their costs.

That's really the best that we can offer at this time.

CHAIRMAN LABONTE: Well, because we, potentially, would have expenses before revenues, potentially, right, so, but that would be something that Council would review.

MR. JAGGI: It's hard to -- I mean I think -- so, the growth that you're hearing, that is part of Phase 1; roads will be built, streetlights would be put in, all of that. But that doesn't mean we're going to accept those roads right away. It means we're probably going to accept those later on, because we don't want to deal with all the issues of construction and damage to roads and things like that.

Those are details, quite frankly, that you have to probably still be worked out on timing of some of this.

CHAIRMAN LABONTE: Okay.

MR. JAGGI: But I think the general plan, what you have is the roads you see, that would be public. We would not be maintaining sidewalks or streetlights. Those are actually being in easements that the developer and the property owners will maintain.

So the city's only taking curb to curb on the pavement.

Within Main Street, we have said since very early on, and our Public Works director, which, by the way, I didn't acknowledge, Mr. Jim Hines is here, if you

have any questions for Public Works, that we don't really want to maintain that Main Street. It's got too many different -- it's going to have unique pavement. It's going to have landscaping, it's not going to meet city standards because the city has basic road designs, we don't really have anything to vary from that, and that's a unique component. That will be privately maintained.

But a lot of the other circular roads, those would be dedicated, but just the roadway, not any other sidewalk and things like that.

CHAIRMAN LABONTE: Okay.

MR. WANG: I do want to say thank you for the -- on the 8-foot sidewalks that were brought up last time, so, thanks.

MR. POTASHNICK: School district update?

MR. PFUND: School district. School district's on the same track as the financial. We have met with the school district.

Our unit mix here is -- is two -- or it's one bedroom room, so we don't, just based on other like and similar projects or properties in -- in Creve Coeur, we don't expect it's going to have a big impact on the school district, but those projections are being looked at by both sides right now as well.

MR. POTASHNICK: So, just to clarify for the

resident, probably the number of school children will be more on the limited side as opposed to --

MR. PFUND: It'll be limited, right.

MR. POTASHNICK: -- rather than thousands?

MR. PFUND: Yeah, no, it won't be thousands.

MR. BUELTER: And this might be out of my purview, but I'll ask anyway, tell me, I'll slap my hand.

Multiyear project, large multiphase, and not to be derogatory towards the developer, but developer goes bankrupt year two and walks away from the project, do we have a performance or are we bonding them? Is there a performance bond involved in this?

MR. JAGGI: I think those are probably things that the City Council might consider with part of the financing proposal for the project.

Again, that is very early in the process.

With respect to developments, you know, we're approving a plan based upon what they're presenting. We're acting on that request.

So, that's -- that's what you're doing tonight. And then looking at conditions or things that you may want to require of them beyond what they're showing.

But the City Council has a little bit different of a role in that, you know, they're the legislative body, and when there's, you know, there's financial information

that's being presented, you know, their -- this is a partnership, at the end of the day, this development is, but the city, based on the planned development nature and things that are -- things that will be coming for this development, you know, we're accepting streets and so forth, so it is a partnership, and that's really the Council's purview to really consider.

MR. BUELTER: Okay.

CHAIRMAN LABONTE: Questions?

MR. LUMLEY: (Inaudible.)

CHAIRMAN LABONTE: Yeah. Okay.

MR. LUMLEY: (Inaudible.)

CHAIRMAN LABONTE: Yeah, I think we'll close the public hearing, and then we can take a ten minute recess.

MR. LUMLEY: I offer the following exhibits into the record of this public hearing: Documentation in possession of the City Clerk that reflects the public notice that was provided regarding the hearing, the staff reports from the various meetings, as well as the prior minutes, transcripts of the hearing, the presentation documents from all participants; developer, residents, staff, the petitions that were referenced, one was from the Sunswept Subdivision, but I believe another petition was provided to staff described as --

MR. JAGGI: Yes, thank you, Mr. Lumley.

MR. LUMLEY: -- from the -- from the Spoede Woods Subdivision.

MR. JAGGI: Yes. The title is "Creve Coeur Neighbors For Responsible Development", and there -- I do have copies of the petition here as well.

MR. LUMLEY: Okay.

The City Code of Ordinances and the Charter, the City Comprehensive Plan and the public file regarding this application.

And, additionally, I'm not sure if we -- if there was a alternative site concept plan presented by a Kara Clark.

MR. JAGGI: Yes, so you have hard copies of a comment that we received this afternoon, I believe Megan put those at your station, so that is a public comment that was provided. You should have copies of that.

CHAIRMAN LABONTE: Okay. I think there's a question.

MR. JOHN NATIONS: Could I just offer one suggestion? Could I --

CHAIRMAN LABONTE: We haven't closed the public yet, right, or we didn't?

MR. LUMLEY: We did.

CHAIRMAN LABONTE: Okay. We did. Okay.

(The Public Hearing was concluded at 8:26 p.m.)

STATE OF MISSOURI)
) SS
COUNTY OF ST. LOUIS)

I, Deborah K. McLaughlin, Registered Professional Reporter, Missouri Certified Court Reporter, Illinois Certified Shorthand Reporter and Kansas Certified Court Reporter, do hereby certify that I reported the Planning and Zoning Public Hearing stenographically and later reduced to typewriting; and that this is a true and accurate transcript of the public hearing.

Deborah McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR

Deborah K. McLaughlin, RPR, MO-CCR, IL-CSR, KS-CCR

OLIA VILLAGE PROJECT
RESIDENTIAL MARKET STUDY

Creve Coeur, Missouri
August 30, 2023

PGAV PLANNERS
ST. LOUIS, MISSOURI

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SECTION I – OVERVIEW AND SUMMARY OF FINDINGS

Project Overview

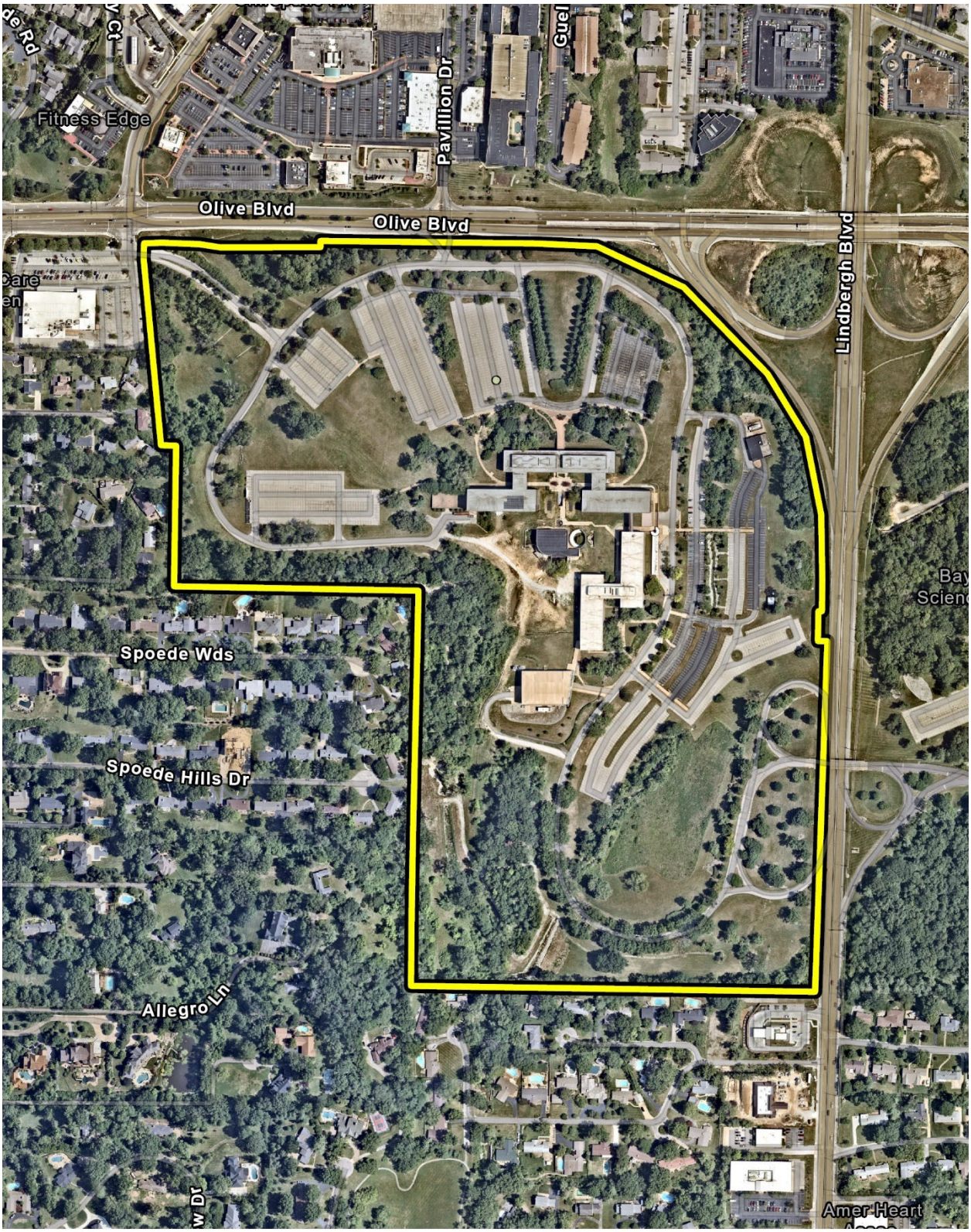
The Olia Village Project is a mixed-use, multi-phase project proposed on the former Bayer West Campus property at the southwest corner of North Lindbergh Boulevard and Olive Boulevard (the "Project"). The Project is located within the City of Creve Coeur, Missouri (the "City"), which is located in St. Louis County (the "County") in the State of Missouri (the "State"). Matt Pfund, of Jack Matthews Development, representing 10300 Olive, LLC (the "Developer") submitted a zoning amendment application and a series of documents outlining a development proposal to the City. The Developer purchased the approximately 95-acre property in 2022 after Bayer decided to sell the property citing a reduced need for physical office space post-pandemic. The Developer has planned to utilize some of the now vacant, existing buildings and is proposing a mix of new buildings to house commercial and residential components with a town center feel.

The Project is located within the 39 North District, a bioscience focused planned innovation district centered at the intersection of North Lindbergh Boulevard ("Lindbergh") and Olive Boulevard ("Olive") that includes a variety of uses. The Donald Danforth Plant Science Center and the remaining Bayer campus are located to the northeast and constitute the heart of the district, with other adjacent businesses and complementary land uses. Single-family residential development surrounds the Project to the west and south. A rendering of the Project is shown in Figure 1, and a site plan of the Project, with lot numbers for the components of the Project that include residential uses, is shown in Figure 2.

The Developer is seeking the required approvals from the City for a development that will feature a variety of building uses including commercial, restaurant, mixed-use with ground floor retail/commercial and multifamily above, hotels, apartments, parking, office, research, and attached townhomes. The City engaged PGAV Planners, LLC ("PGAV") to review portions of the Developer submitted materials and develop this Residential Market Study (the "Study") as an independent analysis of the current and projected demand for the housing types proposed by the Developer, mixed-use multifamily apartment buildings and townhomes in a district setting.

The Project is currently expected to include approximately 1,000 residential units. Figure 3 shows a breakdown of the residential project components. The Developer is proposing 130 of these units as single family townhomes with the remaining 870 units as multifamily residential. The Developer is proposing 17 total lots in the Project, as well as a park area, and the residential units are located on five of these lots. The multifamily residential units on lots 4, 6, and 7 are located in new construction, mixed-use buildings with commercial space on the lower levels (retail, office, and restaurants uses) and multifamily residential above. The Developer is proposing to renovate the existing building on lot 14 into multifamily residential units. The multifamily residential units are spread across four lots with 170 to 290 units in each building and an average square footage per unit of approximately 1,100 square feet. The 130 single family townhomes are located on lot 16 and have an average square footage of approximately 1,600 square feet per unit.

Figure 1 - Project Site Rendering



AERIAL IMAGE & SITE BOUNDARY

Olia Village
Creve Coeur, Missouri

0 125 250 500 Feet

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Figure 2 - Project Site Plan

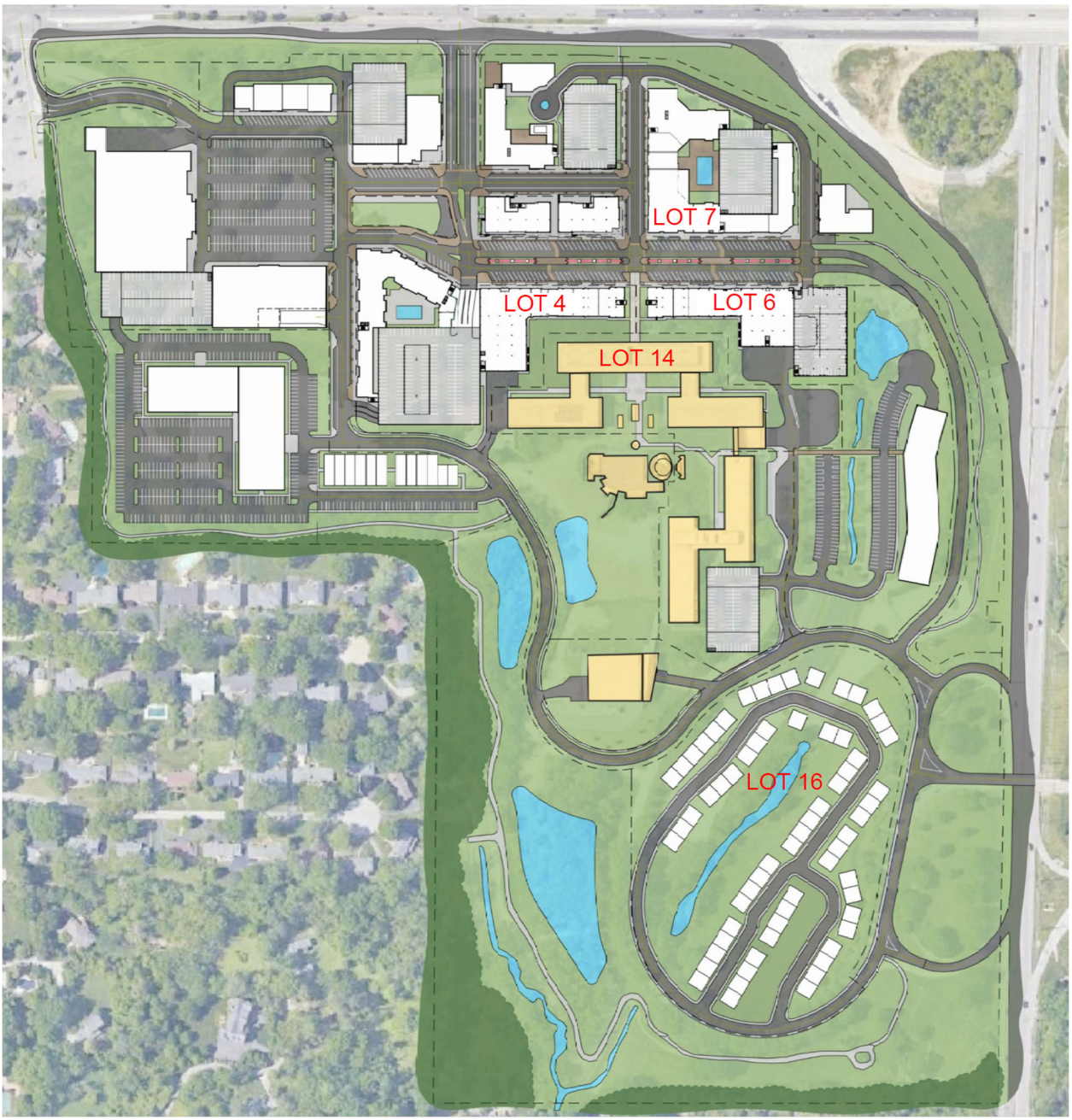

Figure 3 – Residential Project Components

Residential Project Components

Lot #	Use Type	Proposed Zoning Category	Phase	# of Buildings	Bldg Footprint (SF)	# of Stories	Gross Bldg Floor Area (SF)	Retail Floor Area (SF)	Office Floor Area (SF)	Restaurant Floor Area (SF)	Storage Floor Area (SF)	Multifamily Residential Units (SF)	Single Family Residential Units (SF)	Approximate # of Units	Average SF Per Unit
4	Parking, Retail, Residential Above	A - Main Street Development	1	1 - Proposed	130,600	8	869,000 to 1,087,000		66,000	8,000		334,000		290	1,152
6	Parking, Retail, Residential Above	A - Main Street Development	2	1 - Proposed	60,000	6-8	364,000 to 455,000	45,000		2,200		175,000		170	1,029
7	Parking, Retail, Residential Above	A - Main Street Development	3	1 - Proposed	83,800	5	401,000 to 502,000	25,000		5,000		242,000		220	1,100
14	Storage, Residential	B - Mixed Use Development	2	1 - Existing	65,528	4-5	307,000 to 384,000				90,900	216,800		190	1,141
16	Townhome	D - Residential Development	4	65 - Proposed	100,500	2	207,000 to 259,000						207,000	130	1,592

Summary of Findings

- This site presents a rare opportunity to create a new mixed-use district in a fully built-out community. This site is well-located for a higher density, mixed-use district development and has the potential to build on adjacent catalytic development and provide a new product in the region.
- The St. Louis region is not projected to add significant new population in the next five years. That being said, if the Project ensures new residential units are engrained in a mixed-use setting of retail, hotel, office, and restaurant uses, providing an environment that activated throughout the day and throughout the week as opposed to during limited portions of time, these residential units are likely to be more attractive than the current inventory and be absorbed by existing demand.
- The current phasing plan predicts more than 850 residential units becoming available across three years. With approximately 676 units projected to be delivered each year for the next two years in the Mid County submarket, these 290 units proposed annually for the Project are a considerable portion of the market. To maintain economic viability and a positive absorption trend, it is recommended that the Developer weigh the cost of more incremental phasing against the cost of potentially slower absorption or reduced asking rates if a high number of similar units simultaneously enter the market.
- Employees currently coming to Creve Coeur for work, students at nearby educational institutions, and existing Creve Coeur residents that are looking for new housing typologies represent potential markets for the residential uses in this Project. If these units are marketed to these groups, it is anticipated that absorption can be successfully attained in a reasonable timeframe.
- The townhome/condominium component planned for the southern end of the Project is a popular, in-demand land use in the region. That being said, the projected rent levels provided by the Developer are at the high end of the market and additional details are needed to determine if this is a viable option.
- With the large number of units in this Project, most if not all of which will be at unrestricted market rate rents and sale prices, the net operating income and return on investment flowing to the Developer (or sub-developer) may allow for a percentage of these units to be restricted to rent levels and/or sale prices below market. This consideration expands the market for potential residents and could provide for an inclusive district that reflects the current employee and residential makeup of Creve Coeur.
- Appropriate oversight and flexibility, long-term partnerships, thoughtful phasing to not overburden the market, and continued analysis of how the markets perform in the near future are all imperative to the Project's success.

SECTION II – DEMOGRAPHIC AND ECONOMIC ANALYSIS

Project Location

The City is a premier community centrally located in St. Louis County. The City is well connected to the St. Louis region with close proximity to Interstate 270 and Interstate 64. The Project is located at the southwest corner of two heavily trafficked roads. Lindbergh is a major north-south connector with an annual average daily traffic count, in both directions, of over 23,000 vehicles.[1] MetroBus Route 49 connects South County Center with Lambert International Airport via Lindbergh, directly adjacent to the site. Olive is a major east-west connector with an annual average daily traffic count, in both directions, of over 22,000 vehicles.[1] MetroBus Route 91 connects Chesterfield Mall with the Delmar Loop, running adjacent to the Project on Olive.

Lambert International Airport is an approximately 15-minute drive from the Project. The University of Missouri-St. Louis and Washington University are an approximately 15-minute drive and have a high concentration of students that could be a potential market. Significant jobs centers include Barnes-Jewish West County Hospital and Mercy Hospital, both located in the City, and Missouri Baptist Medical Center, all within a 10-minute drive. The Plaza Frontenac retail node is a quick 6-minute drive south on Lindbergh, and the St. Louis Galleria retail node is also close, with a drive time of approximately 11 minutes. The City is an established community with access to parks and a variety of recreational opportunities as well as employment opportunities.

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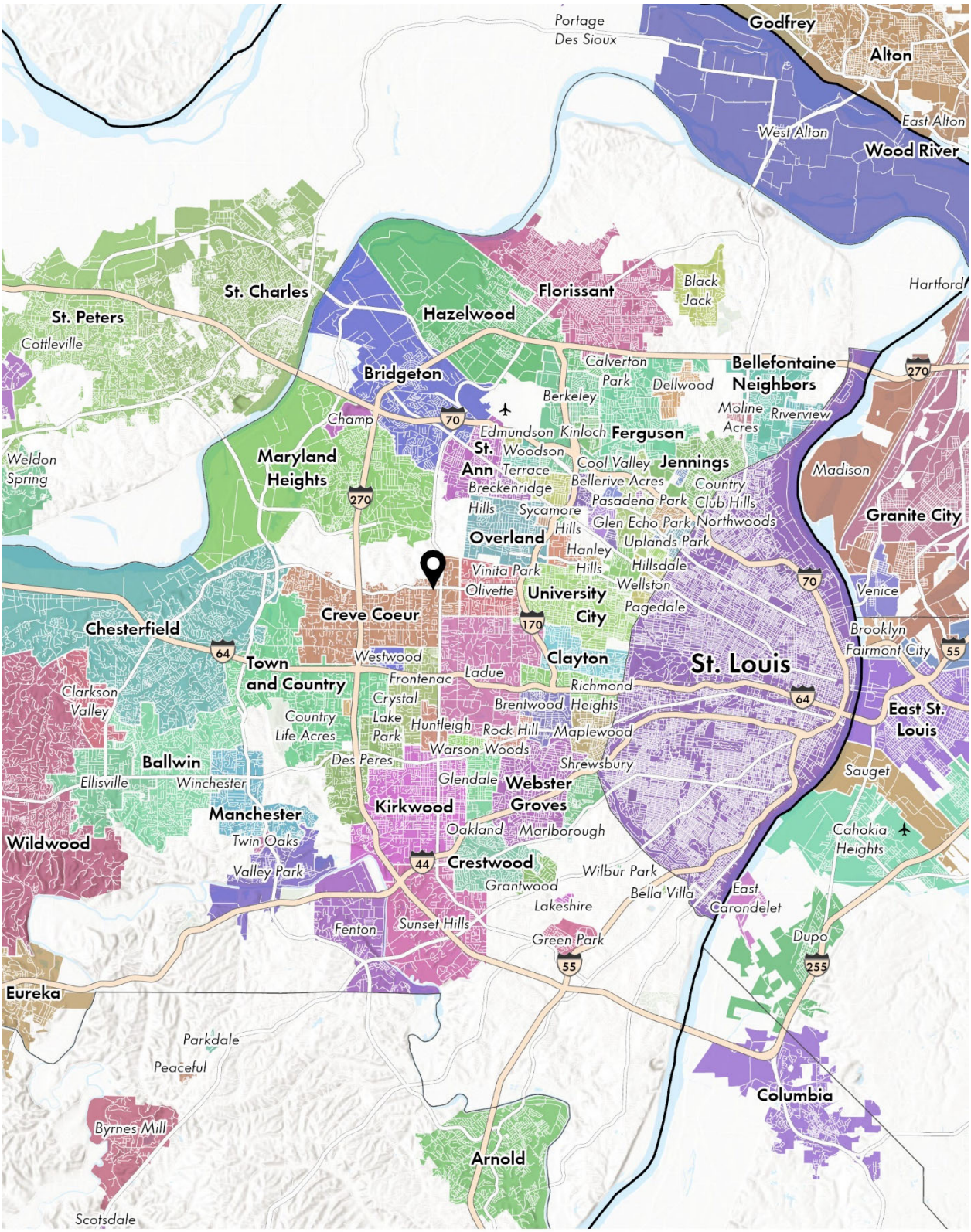
[1] MoDOT, 2022.



REGIONAL LOCATION

Olia Village
Creve Coeur, Missouri

Market Area Overview

Two market areas were defined using drive time data. The Primary Market Area ("PMA") is the area within a 15-minute drive of the Project. This area includes Town and Country, Frontenac, Ladue, and Clayton along the Interstate 64 corridor. The area also extends south into portions of Kirkwood. On the north, the area includes Maryland Heights, St. Ann and Overland and extends north to Lambert International Airport. The Secondary Market Area ("SMA") is defined as the area within a 30-minute drive of the Project. This area encompasses a large portion of the County. The area also extends into Illinois on the east, to Arnold on the south, Eureka on the southwest, and Chesterfield Valley on the west. Florissant, St. Charles, and St. Peters are included in the SMA on the north. Olive and Lindbergh facilitate transportation within the PMA, while the SMA is also served by Interstates 64, 270, and 70. These trade areas are shown on the map on the following page.

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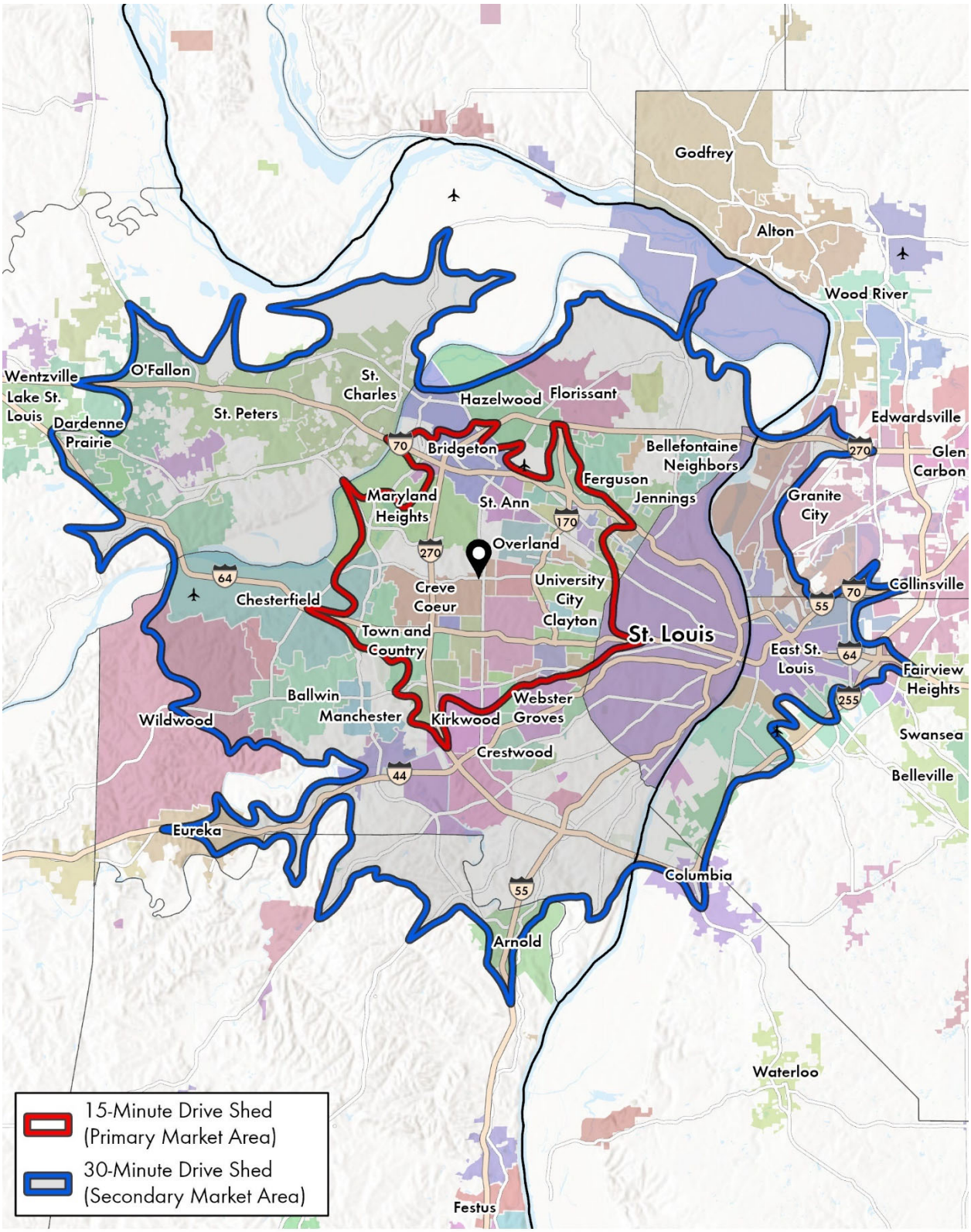

15- AND 30-MINUTE DRIVE SHEDS

Olia Village
Creve Coeur, Missouri

0 1.5 3 6 Miles

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Population and Households

The MSA is home to approximately 2.8 million residents in 2023, ranking it the 21st MSA by population in the United States. The MSA has been only slightly growing by 0.1% annually since 2010. The State has experienced a population growth rate of 0.3% annually, and the County population change is flat. Within the PMA, the number of residents has grown by approximately 4,000 residents since 2010, which matches the MSA at 0.1%. In 2023, the PMA was home to approximately 261,000 residents, and the SMA was home to approximately 1,529,000 residents.

Population growth is expected to remain fairly flat in the upcoming years with the City and the County experiencing an estimated -0.2% population change and the MSA experiencing an estimated 0% population change. If the number of residents within the PMA and SMA decreases as estimated, -0.1%, then the PMA and SMA will have a surplus of housing units. That being said, older housing stock may need to be replaced or renovated to meet the estimated demand. Providing new housing units has the potential to pull residents from older housing units, who can afford new construction rents, while opening up older housing units for residents who need the lower rents that often come with older housing options. While older, these still need to be quality, well-maintained housing options for this result to be realized. Additionally, even without an increase in population, new construction units may still be absorbed into the market by pulling residents from other locations throughout the City and/or region. This indicates the need for analysis of the region as a whole and a comprehensive and regional approach to development and decision making. Table 1 shows the population totals and trends since 2010.

Table 1 - Population Trends

Population Trends	Primary Market Area 15-Minute Drive Time Area	Secondary Market Area 30-Minute Drive Time Area	City of Creve Coeur	St. Louis County	St. Louis, MO-IL MSA	Missouri
Population Totals						
2010 Total Population	257,233	1,548,121	18,018	998,917	2,787,701	5,988,927
2020 Total Population	262,686	1,536,141	18,834	1,004,125	2,820,253	6,154,913
2023 Total Population	261,461	1,528,852	18,687	998,778	2,823,156	6,208,310
2028 Total Population (Est.)	260,479	1,521,966	18,468	990,252	2,821,210	6,239,262
Population Change						
Annual Pop Growth Rate 2010 - 2023	0.1%	-0.1%	0.3%	0.0%	0.1%	0.3%
Annual Pop Growth Rate (Est.) 2023 - 2028	-0.1%	-0.1%	-0.2%	-0.2%	0.0%	0.1%
Population Density						
Area (Square Miles)	125	733	11	523	7,864	68,727
Residents per Square Mile	2,092	2,086	1,743	1,910	359	90
Household Size						
Average Household Size	2.26	2.29	2.17	2.38	2.39	2.40
Housing Units Needed						
Est. Additional Residents by 2028	(982)	(6,886)	(219)	(8,526)	(1,946)	30,952
Housing Units Needed	(435)	(3,007)	(101)	(3,582)	(814)	12,897

Source: U.S. Census, ESRI (2023)

The median age of all the geographies is similar and ranges from 39.8 median age in the State to the highest median age, 45.9, in the City. The largest percentage of population by age in each of the geographies is 25 to 64 years of age with 47.7% in the City and 52.1% in the MSA. The smallest percentage of population by age in each of the geographies is 18 to 24 years of age with 7.9% in the City and 8.9% in the State. The percentage of population at 0 through 18 years of age is comparable to the percentage of population 65 years of age and higher in all the geographies. The largest spread between these two age groups is in the City with 25.8% of the population 65 years and older and 18.6% of the population 0 to 18 years of age. The City's percentage of residents 65 years or older, 25.8%, is higher than the percentage for the same age cohort in the other geographies. With an aging population, the City has a higher percentage of existing residents that may be interested in lower maintenance housing options. Depending on the details of rental and ownership agreements that are determined for the housing options that will be included in this Project, these housing options may satisfy this need. Table 2 shows population by age.

Table 2 - Population by Age

Population by Age	Primary Market Area 15-Minute Drive Time Area	Secondary Market Area 30-Minute Drive Time Area	City of Creve Coeur	St. Louis County	St. Louis, MO-IL MSA	Missouri
Median Age	41.5	40.3	45.9	42.1	40.2	39.8
Population by Age Cohort						
Children (0 - 18 Years)	19.9%	20.5%	18.6%	20.6%	21.3%	21.4%
Young Adults (18 - 24 Years)	8.4%	8.8%	7.9%	8.1%	8.3%	8.9%
Adults (25 - 64 Years)	50.7%	51.7%	47.7%	50.6%	52.1%	50.9%
Seniors (65+ Years)	21.0%	19.0%	25.8%	20.7%	18.3%	18.8%

Source: U.S. Census, ESRI (2023)

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The 2023 median home value in the PMA is higher than the other geographies at $294,594, with the exception of the City which is significantly higher at $500,000. The City's median home value is a 70% increase above the PMA and a 113% increase above the MSA. Median home values are expected to increase annually at a rate of approximately 2% in the City over the next five years, 3% in the State, and 4% in the other geographies. Of the geographies, the City has the highest percentage of owner-occupied housing at 68%, with 59% owner-occupied housing in both the PMA and SMA. The renter-occupied housing percentages differ between the PMA and SMA due to a slight difference in the percentage of vacant housing units. Table 3 shows housing trends locally and regionally.

Table 3 – Housing Trends

Housing Trends	Primary Market Area 15-Minute Drive Time Area	Secondary Market Area 30-Minute Drive Time Area	City of Creve Coeur	St. Louis County	St. Louis, MO-IL MSA	Missouri
Occupancy						
Owner-Occupied	59%	59%	68%	65%	65%	61%
Renter-Occupied	33%	31%	25%	28%	26%	28%
Housing Unit Vacancy						
Total Housing Units	123,234	723,242	8,998	446,675	1,272,975	2,832,246
Vacant Housing Units	10,475	71,601	657	34,841	114,568	317,212
Median Housing Value						
2023 Median Home Value	$294,594	$252,300	$500,000	$271,435	$234,986	$218,294
2028 Median Home Value	$355,820	$300,852	$542,099	$329,434	$283,125	$257,565
Annual Increase (Est.) 2023 - 2028	4%	4%	2%	4%	4%	3%
Housing Value by Range						
Less than $100,000	12%	13%	0%	12%	15%	17%
$100,000 to $199,999	19%	23%	4%	22%	26%	28%
$200,000 to $299,999	20%	25%	13%	23%	26%	25%
$300,000 to $399,999	12%	16%	15%	16%	16%	15%
$400,000 to $499,999	10%	9%	18%	11%	8%	7%
$500,000 to $999,999	20%	11%	39%	14%	8%	7%
$1,000,000 or Greater	7%	3%	11%	4%	2%	1%

Source: U.S. Census, ESRI (2023)

The maps on the following pages show population density in 2023 and change in population since 2010 in the PMA and SMA. The densest areas are located within the City of St. Louis near the confluence of Interstates 64, 44, and 55. Though the area south of the Project near the intersection of Interstate 64 and Interstate 270 have lower population densities than the Project area and the City of St. Louis, this same area has seen an increase in population since 2010. Some of the densest areas in the SMA have seen population decline since 2010, while areas immediately surrounding the Project have remained relatively steady or seen growth.

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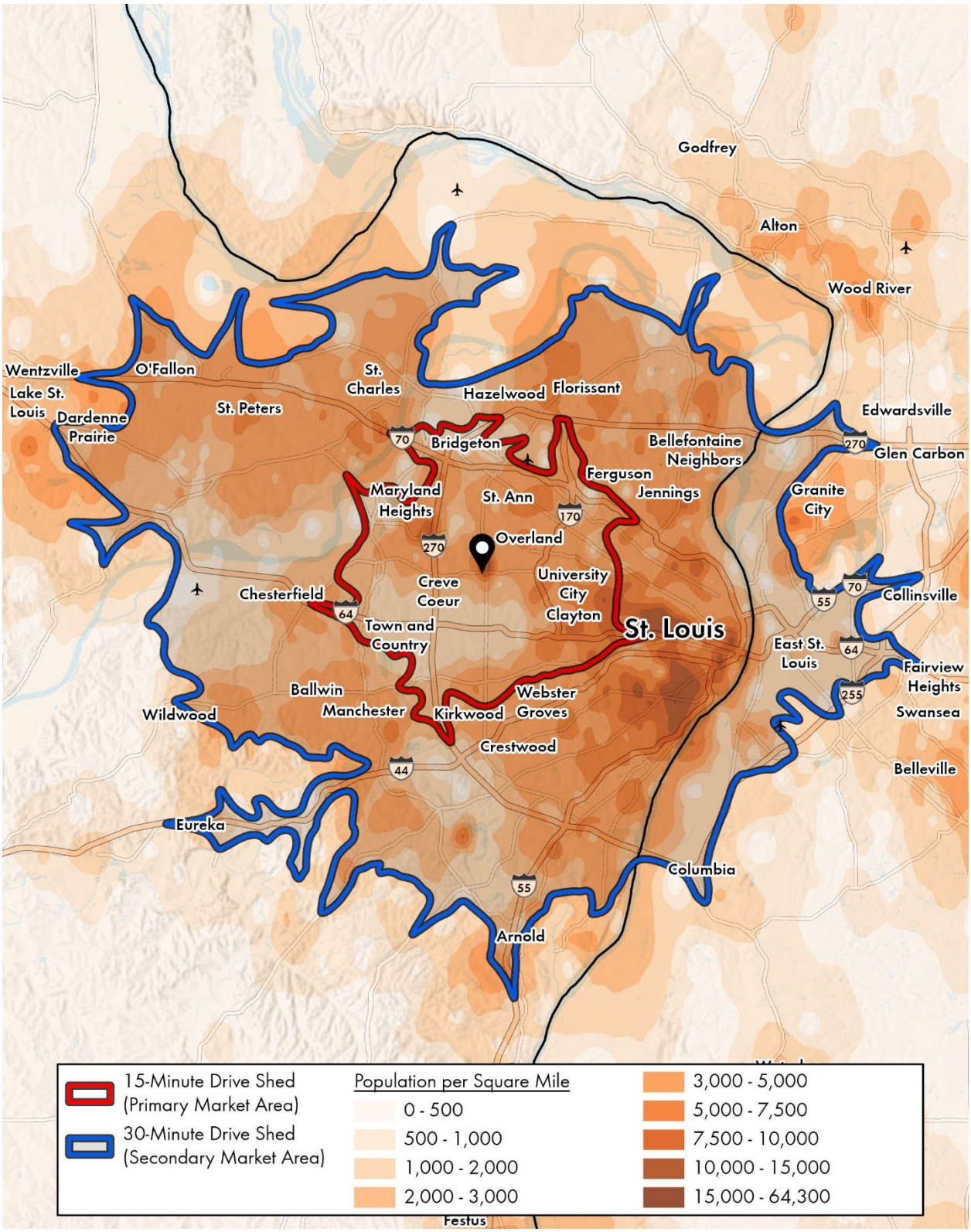
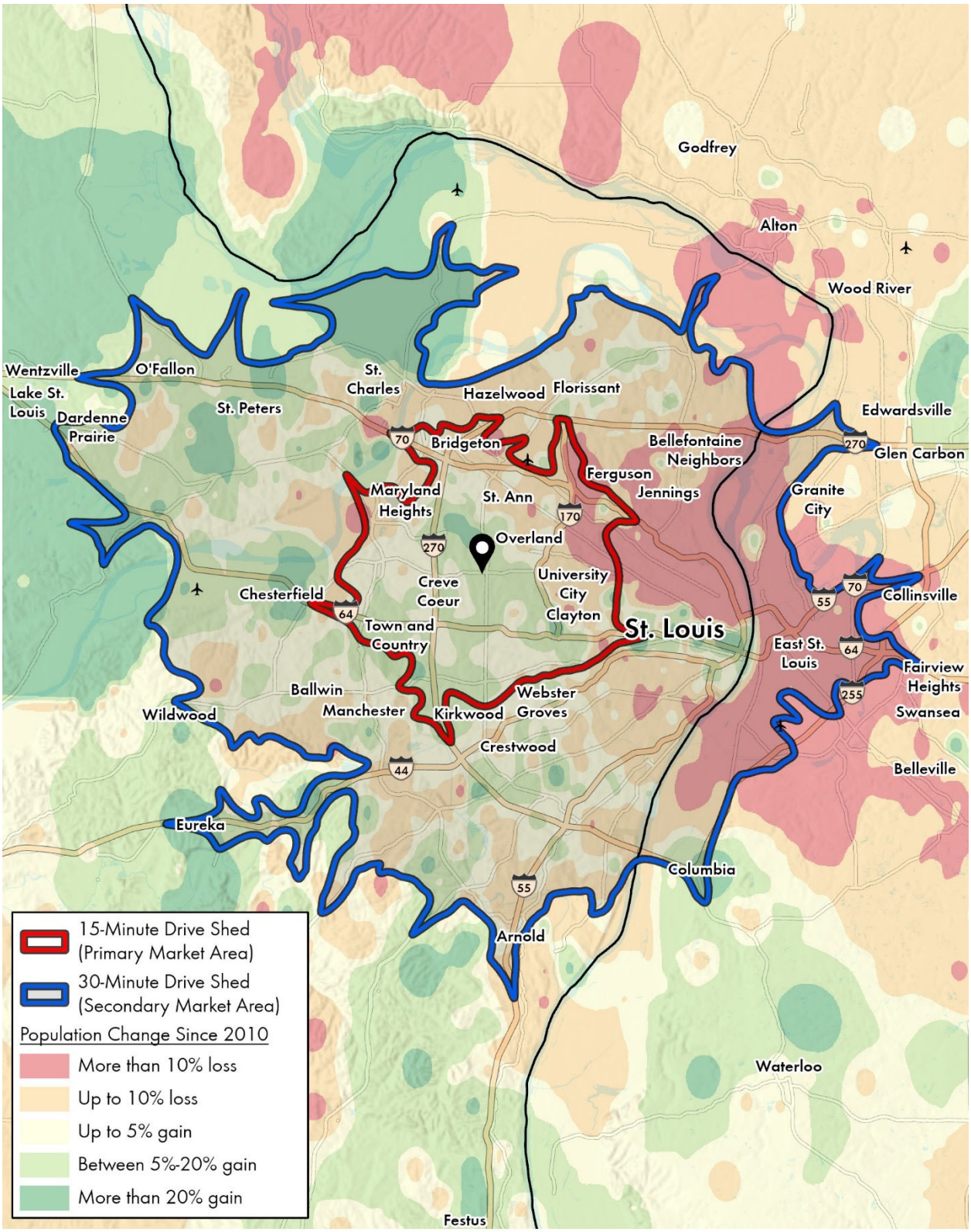


2023 POPULATION DENSITY

Olia Village
Creve Coeur, Missouri



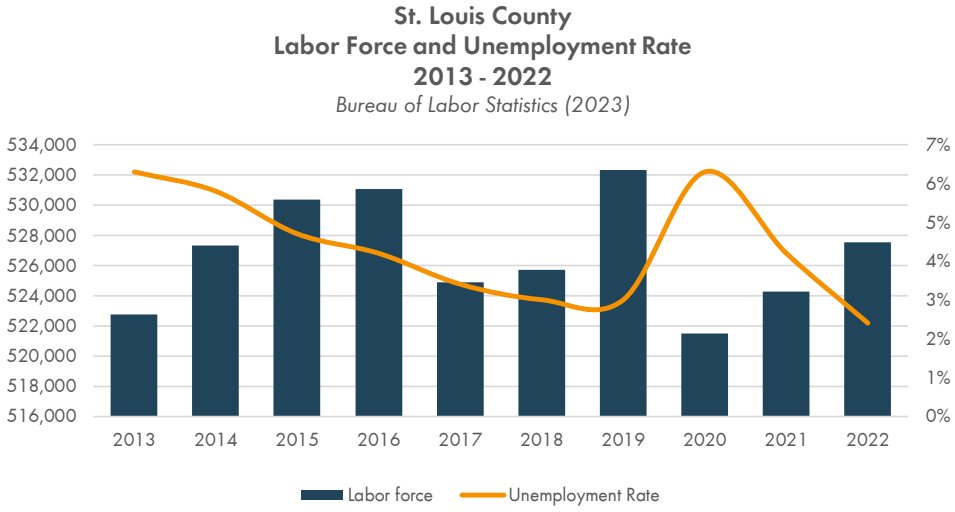
CHANGE IN POPULATION FROM 2010 TO 2023

Olia Village
Creve Coeur, Missouri

Employment

The largest industries in the MSA by number of employees are (1) Trade, Transportation, and Utilities; (2) Education and Health Services; and (3) Professional and Business Services.[2] The Mid County multifamily submarket is home to some of the largest employers in St. Louis, including Centene, Enterprise, Commerce Bank, Washington University, World Wide Technology, and Edward Jones.[4] Table 4 shows the total labor force and unemployment rate since 2013 for the County. The County's labor force increased by approximately 1% during this time while unemployment fell from 6.3% to 2.4%. The labor force year-over-year percentage change dropped in 2020 at the height of the COVID-19 pandemic but has since continued to grow. The unemployment rate rose by 3.3% in 2020 but dropped back down by 2.1% in 2021 and another 1.8% drop in 2022.

Table 4 – Labor Force and Unemployment



A comparison of local, state, and national trends, as shown in Table 5, found that between 2013 and 2022 unemployment in the County is on average 1% lower than the U.S., 0.2% lower than the State, and 0.4% lower than the MSA. The COVID-19 pandemic heightened the gap between the County's unemployment rate and the MSA, State, and U.S. in 2020, and each of the geographies dropped back below 2019 unemployment levels by 2022. Overall, except for the rise in unemployment during the COVID-19 pandemic, the local employment trends are positive.

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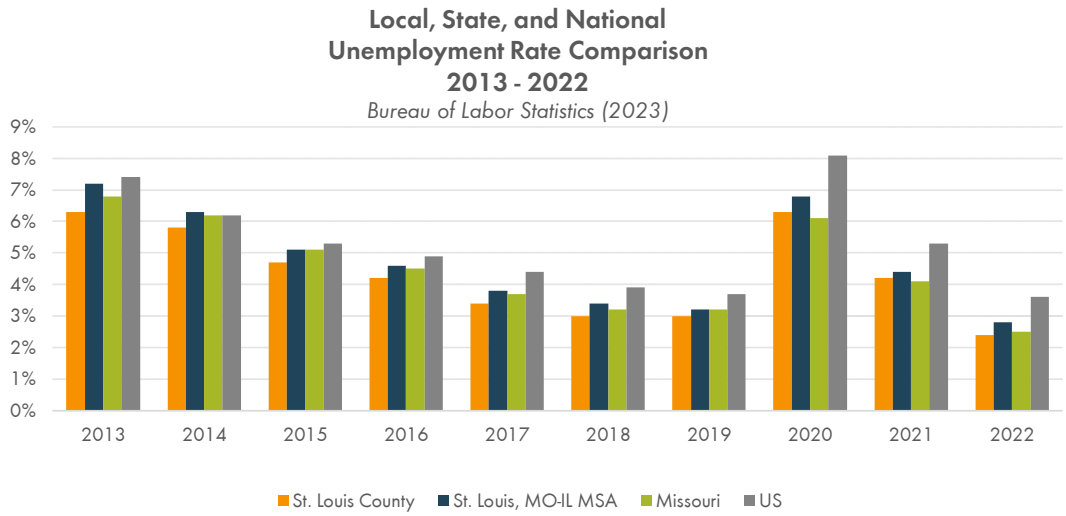
[2] U.S. Bureau of Labor Statistics, 2023.

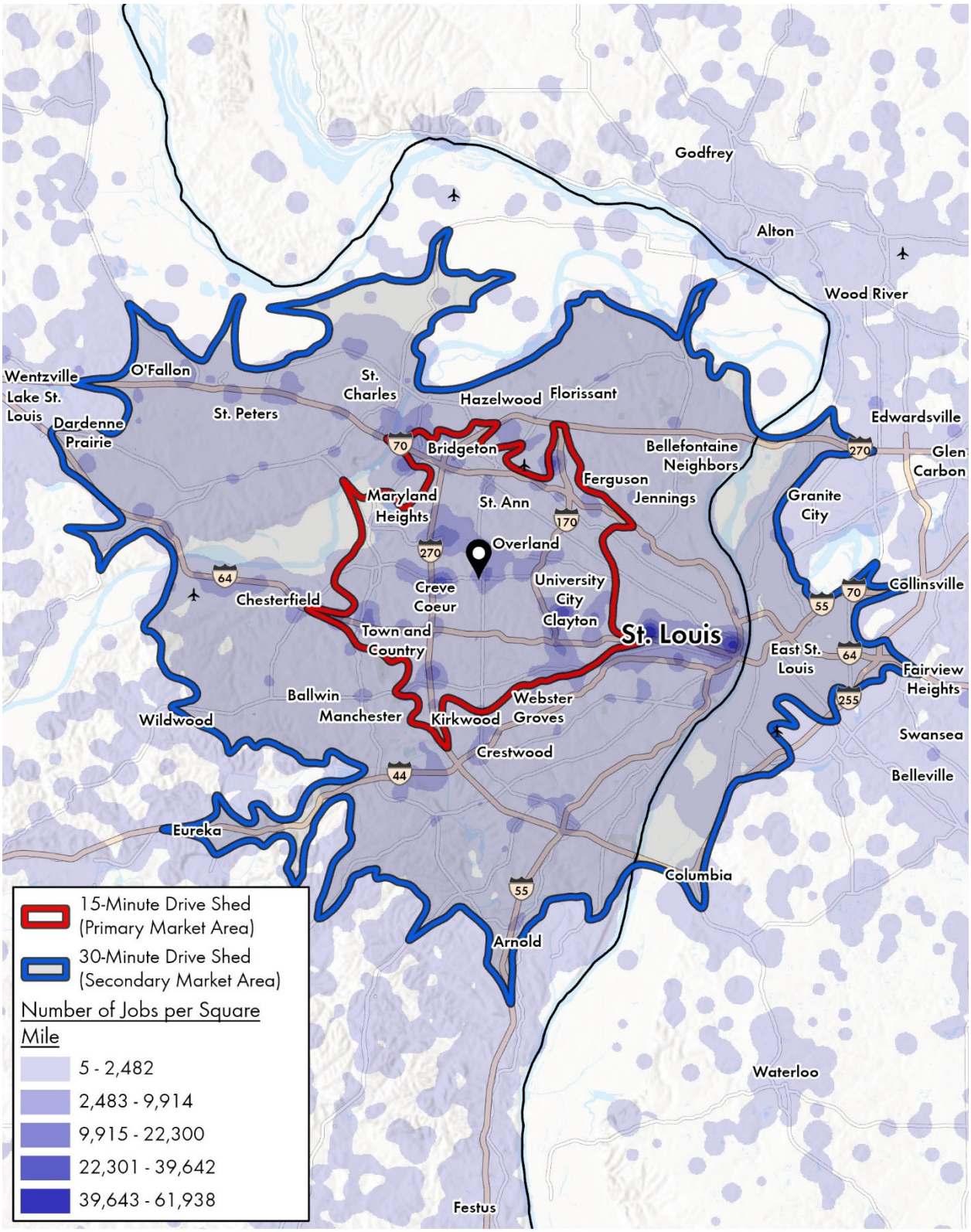
Table 5 – Unemployment Rate Comparison



The 39 North AgTech District, an agri-food tech/plant science employment hub, is located within the City as well as numerous technology, life sciences, and health services businesses. Of the 45,866 employees in the City, only approximately 2% of these employees, 804, live and work in the City.[3] This current data point, and the catalytic potential of 39 North and the Project, presents an opportunity for the City to attract employees currently commuting to the area with new rental or ownership housing options. Approximately 38% of these employees are earning $3,333 per month or less, which equates to a maximum of $1,000 for housing expenses per the industry standard recommendation for housing expenses as 30% of income. Approximately 54% of employees in the City have some college education or degree. Approximately 80% of employees in the City are white, and approximately 57% are between the ages of 30 and 54. The residents who live in the City and work elsewhere make up approximately 88% of City residents. The City is an approximately 25-minute drive from Downtown St. Louis and 15-minute drive from Downtown Clayton, both of which are St. Louis region employment hubs.

The map on the following page displays major employment concentrations in the St. Louis region. The area with the highest concentration of employment is along the Interstate 64 corridor between the Central West End and Downtown St. Louis. Employment concentration is also shown in Clayton and Creve Coeur at the intersection of Interstate 270 and Olive, both approximately equidistant from the Project. The Project's central location in the County and the MSA places any potential residents of the Project in close proximity to numerous employment opportunities.

[3] U.S. Census On the Map, 2020.



REGIONAL EMPLOYMENT LOCATIONS

Olia Village
Creve Coeur, Missouri

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Income

The median household income in the PMA is lower than all other geographies at $69,648, with the exception of the State at $63,390. The City has the highest median household income at $115,414, considerable higher than the other geographies. The City's median household income is a 66% increase above the SMA, and the City's per capita income is an 85% increase above the SMA. Median household incomes are expected to increase annually at a rate of approximately 3% in the City over the next five years and approximately 2.5% in the MSA during the same period. Table 6 shows median household income trends locally and regionally.

Table 6 – Household Income Trends

Household Income	Primary Market Area 15-Minute Drive Time Area	Secondary Market Area 30-Minute Drive Time Area	City of Creve Coeur	St. Louis County	St. Louis, MO-IL MSA	Missouri
Income by Range						
Less than $25,000	14.6%	16.9%	9.0%	14.7%	15.1%	17.6%
$25,000 to $49,999	18.5%	19.3%	12.1%	18.6%	18.8%	21.1%
$50,000 to $74,999	15.8%	16.5%	12.6%	15.7%	17.0%	18.1%
$75,000 to $99,999	11.9%	12.6%	10.1%	12.9%	13.3%	13.5%
$100,000 to $149,999	14.8%	15.9%	15.8%	15.8%	17.4%	15.4%
$150,000 or more	24.4%	18.9%	40.4%	22.3%	18.4%	14.3%
Per Capita and Median Household Income						
Per Capita Income	$56,517	$45,873	$84,884	$49,409	$43,287	$37,703
Median Household Income	$76,889	$69,648	$115,414	$76,495	$73,017	$63,390
Household Income Trends						
2028 Median Household Income (Est.)	$89,339	$80,613	$133,813	$87,797	$82,735	$73,286
Annual Increase (Est.) 2023 - 2028	3.0%	3.0%	3.0%	2.8%	2.5%	2.9%

Source: U.S. Census, ESRI (2023)

The map on the following page shows median household income within the PMA and SMA. The areas with the highest incomes in the PMA are located near the intersection of Interstate 270 and Interstate 64 near Creve Coeur and Town and Country, as well as the City of Clayton. In the SMA, the area with the highest incomes is west of Olive in Chesterfield.

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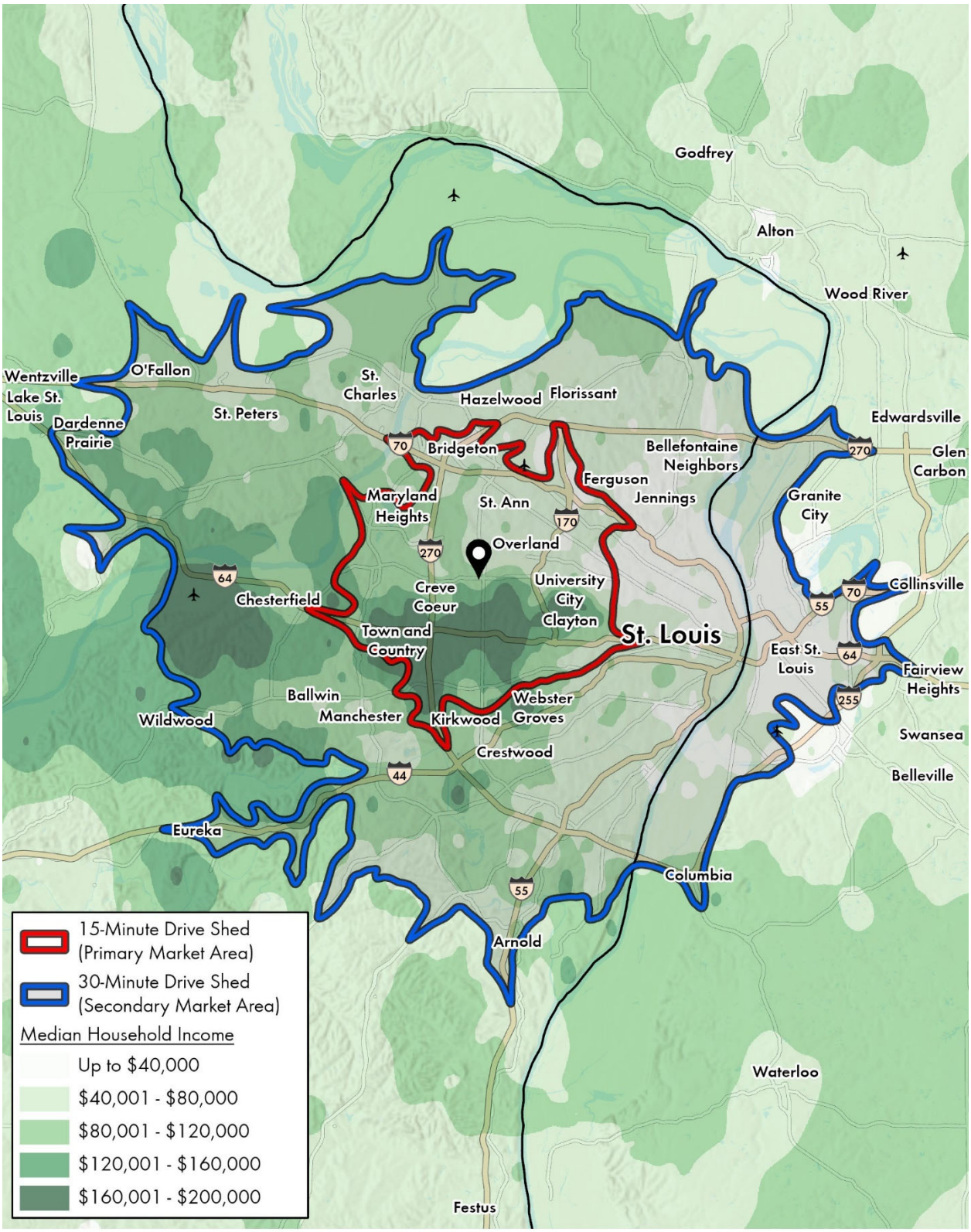

2023 MEDIAN HOUSEHOLD INCOME

Olia Village
Creve Coeur, Missouri

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SECTION III – DEVELOPMENT ANALYSIS

Residential Overview

The residential uses expected to be located throughout the Project include mixed-use, multifamily residential units for rent as well as single family townhomes for sale constructed in a planned district with a town center feel. The uses anticipated throughout the Project that are not residential include commercial, retail, restaurant, hotels, office, research, and parking. The Developer is anticipating one residential building will be the conversion of an existing office building to residential. The other three buildings that include multifamily residential units are new construction. The single family townhomes are new construction and clustered in the southern portion of the site. The Developer is proposing a high end, market rate development that will prioritize top-of-the-line quality construction and utilize premium materials. The Developer is anticipating the apartments will rent for $2.50 to $3.00 per square foot on average, and the townhomes will be for sale on the open market. While the townhomes are not planned to be developed by the Developer, it is estimated the townhomes will sell for $275 to $300 per square foot.

The multifamily components of the Project are proposed to be located in mixed-use buildings between four and eight stories tall. The renderings of "main street" show five to six story residential buildings and three story commercial buildings. The draft attachment B submitted by the Developer suggests a maximum height of eight stories for Category A Main Street (of which is the proposed zoning for the buildings fronting main street) and five stories for Category B Mixed-Use. With this proposed maximum height, there is potential for the buildings fronting main street to be taller than presented in the renderings. Additionally, the site has a significant grade change from north to south, so the height of the building on main street may not be the same as the height on the opposite side of the building. Because of these considerations, the ordinance will need to be fully negotiated; and as the project progresses, additional information will need to be submitted by the developer to the City to confirm acceptable building heights in each location across the site.

The Developer is planning to construct the Project in phases. This phasing has changed in the past few months and may not be final. The current phasing, as it relates to lots with residential land uses, is as follows. Phase I includes lot 4, approximately 290 units. The Developer is expecting Phase I to be complete with construction in 2026. Phase II includes lots 6 and 14, approximately 360 units. The Developer is expecting Phase II to be complete with construction in 2027. Phase III includes lot 7, approximately 220 units and is expected to be complete with construction in 2028. Phase IV includes lot 16, which is the 130 townhomes. The Developer expects these townhomes to be developed by a sub-developer with construction complete in 2029.

As the Project becomes more fully realized and makes its way through each of the necessary approvals, the timing of construction and lease up will be determined with a higher likelihood of accuracy. The timing, and additional analysis, if necessary, will allow the Developer to further define the Project and provide the details to the City in subsequent submissions for review. The Developer will need to

determine the appropriate districtwide management to ensure respectful interaction between and a positive experience for residents, employees, and visitors. The exact residential product (type, size, and amenities) and the differences, or similarities, between the new construction and renovation residential product will determine how the rent levels are spread across the multifamily units. The development approach and ownership structure of the townhome lot as well as the specific types of townhomes will need to be further understood by the Developer, and the Developer will need to continue to analyze construction costs, interest rates, and many other factors.

Defining these factors will assist the Developer in determining the appropriate phasing for the different uses throughout the Project and ensure the number of residential units entering the market at the same time, from this project and others, does not overburden the market. Currently, the Developer is anticipating approximately 870 multifamily units to enter the market between 2026 and 2028, approximately 290 units per year. For reference, with the exception of the current year, inventory increased in the entire Mid County submarket by the largest number of multifamily units per year in 2017 with 871 units.[4] Of these 871 units entering the market, 576 units were 4 and 5 star properties. The vacancy rate for 4 and 5 star properties in 2017 rose to 23.9%. That being said, the cost of spreading out the construction of the residential units across additional phases, and potentially extending construction and financing periods, will need to be weighed by the Developer against the cost of potentially slower absorption or reduced asking rates if a high number of similar units enter the market at the same time.

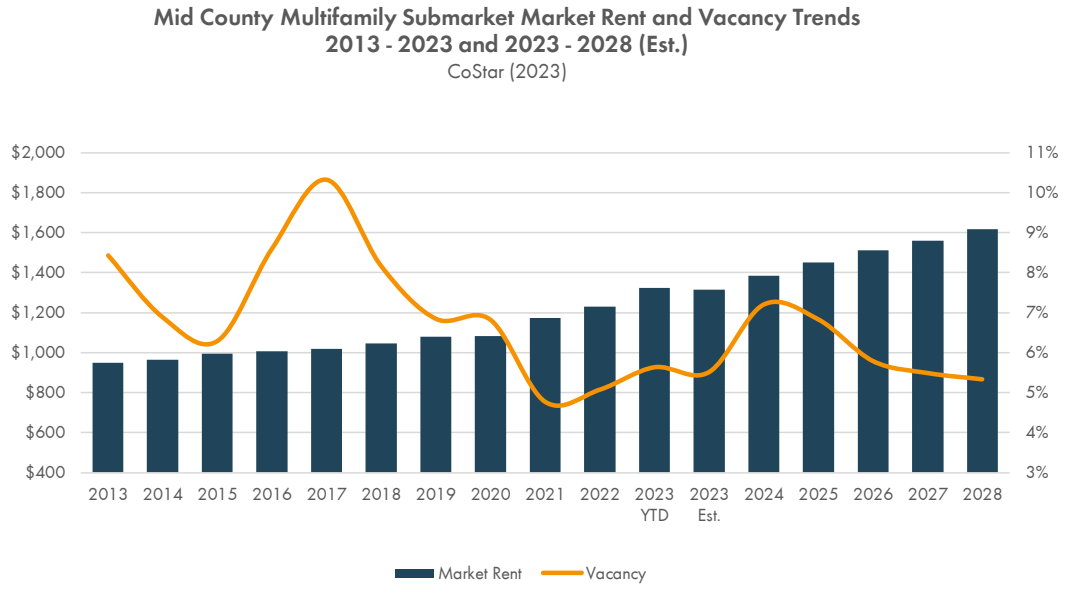
A massive housing shortage exists throughout the U.S., and there is a need for additional housing supply, of all types, to stabilize rent growth and reduce the percentage of income spent on housing costs. From a review of 800 cities and towns, based on data from 2017 through 2019, an index of housing shortages by area was developed by Up for Growth. The two areas with the largest shortage of housing are located in California and Texas with an 11% shortage. The St. Louis MSA falls 150th on the list with a -0.1% shortage, equaling 902 units. Therefore, as of 2019, the MSA as a whole did not have a major housing shortage problem. Since 2019, the economy has changed, the employment environment has changed, and the real estate market has changed. If the MSA can, as a region, continue creating new jobs, working to attract new residents, and retaining current residents, it will need additional quality housing options. The region also needs access to quality housing options for all to attract new jobs.

Multifamily Market

The St. Louis multifamily market is made up of numerous multifamily submarkets, and the Project is located in the Mid County submarket.[4] Mid County is the largest multifamily submarket in St. Louis, however much of the inventory is older with over 80% of all units built prior to 2000. Demand in this submarket has slowed recently, and the vacancy rate has increased to 5.5% with the rent growth rate topping out in 2021 and cooling to 5.2%. That being said, the vacancy rate remains below the historical average of 8.9% and rent growth remains above the historical average of 2%. Table 7 shows market rents per unit and vacancy rates between 2013 and 2023 year-to-date and projected through 2028. Rental rates in Mid County are some of the highest in St. Louis, averaging $1,310 per month and $1.51

per square foot, putting it in the top five of all submarkets. The current average market rent for one bedroom apartments in the Mid County submarket is approximately $1,150 per month. This $1,150, is 115% of $1,000, the maximum industry standard recommendation for housing expenses as 30% of income for 38% of employees that work in the City but live elsewhere. Among property types, demand for 4 and 5 star buildings has continued, leading the way with 100 units of absorption in the past year and an average asking rate of $1,980 per month. Vacancies among 4 and 5 star properties are 5.9%, well below the region's 12.6% vacancy rate.

Table 7 - Rent and Vacancy Trends



With a record number of units set to deliver in 2024, Mid County is projected to see its vacancy rate rise to just over 7% over the next 24 months but remain below the regional level. After the units currently under construction are completed over the next two years, the vacancy rate is projected to drop back down due to absorption exceeding net deliveries. The submarket rent growth is forecasted to return closer to its long-term average, 3.1%, from the second half of 2024 onwards. With 1,200 units under construction, representing 4.3% of inventory, the Mid County submarket has the largest construction pipeline in the region, just ahead of Downtown St. Louis. Construction starts in Mid County reached an all-time high recently, as developers focus on projects near Interstates 170 and 270. The most recent new construction to deliver in Mid County is the 151-unit Oliver in Olivette which opened in 2022, and the projects currently under construction include the 181-unit Clover in Olivette expected to be complete in 2023 and the 234-unit Bemiston Place in Downtown Clayton expected to be complete in 2024.

An analysis of Class A, mid-rise, market rate multifamily buildings within or near the PMA that are between 150 and 310 units and were built after 2015 showed an average market rent per unit of $1,973 and an asking rent of $2.39 per square foot.[4] Asking rents leveled out in 2020 during the pandemic but

have risen considerably since the beginning of 2021. The 12 month absorption was 157 units, and the current vacancy rate is 7.9%. The vacancy rate jumped to 14.1% in quarter 2 of 2022 after seeing a 4.4% vacancy rate in quarter 4 of 2019 prior to the pandemic. The absorption of units dropped dramatically at the beginning of 2020 but has since remained positive when analyzed on an annual basis.

Table 8 and Table 9 show housing permits issued in the City and the County between 2013 and 2022. The number of multifamily permits issued in the County was a larger portion of all permits in 2015 and 2022 than in the other years. Multifamily permits have remained a very small portion of the City's market with the exception of a major uptick in 2014 through 2016. The multifamily construction pipeline boom occurring in the Mid County submarket and reflected in the County permits issued in 2022, as shown in Table 8, is not reflected in the City's multifamily permits issued in 2022, as shown in Table 9.

Table 8 – Housing Permits in the County

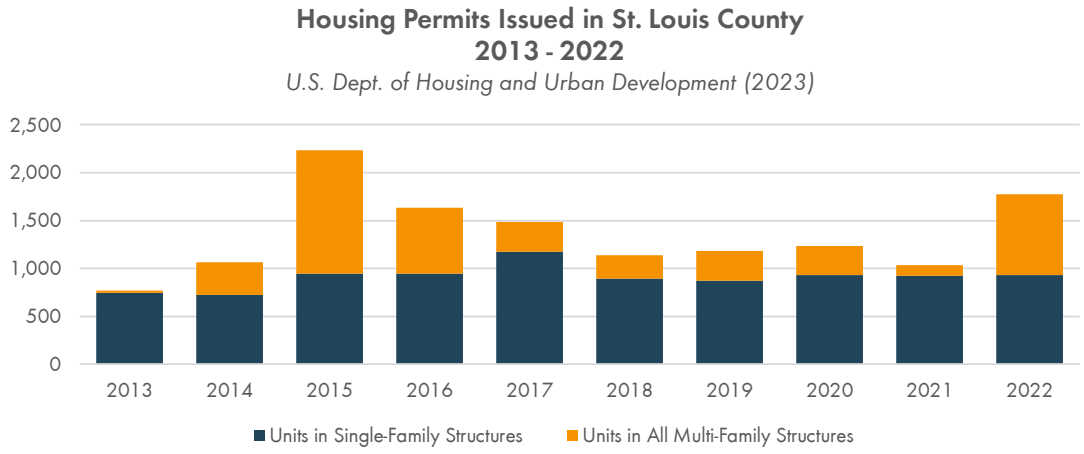


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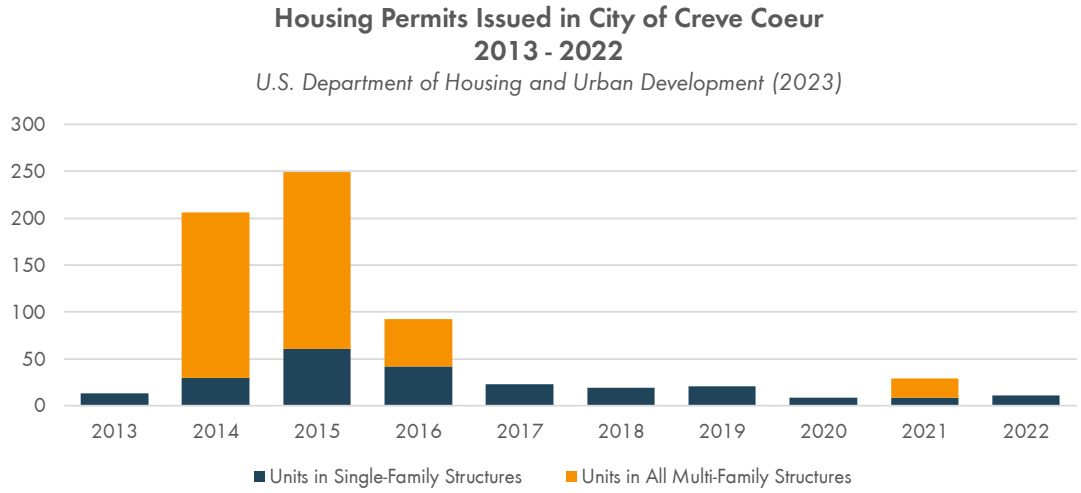
Table 9 – Housing Permits in the City



With the multifamily buildings in the Project proposed to be mixed use, the retail market will also affect the vitality of this proposed development. The St. Louis retail market is made up of numerous retail submarkets, and the Project is located in the Mid County submarket.[4] Mid County has strong demographics and a central location in the St. Louis region providing retailers with a large consumer base and a high buying potential. Among submarkets with more than 5 million square feet of inventory in St. Louis, Mid County has one of the lowest availability rates in the region at 2.8%, below the submarket's 10-year average of 4.4%. In the last year, grocery stores were active with new and backfilled locations, fitness centers grew with new leased locations, and restaurant local operators added new locations. Mid County's average asking rent is $23.00 per square foot, second in the region, behind Chesterfield. This is also well above St. Louis' average asking rate of $16.30 per square foot. Rent growth has been 4.2%, compared to the market's average of 3.7%. The scope of this Study does not encompass an analysis of the retail market. However, as it relates to the residential uses proposed for this Project, the current retail market, and the inclusion of retail in this Project, is a positive attribute and has the potential to enhance the viability of the residential uses.

Multifamily Comparable Properties

A review of comparable multifamily properties in the St. Louis area is shown in Table 10. These properties are of similar size, type, and character to what is planned for the Project. Similar to the Project, many of these properties have commercial space on the ground level and/or are located in a planned district. As the project moves further through predevelopment, the Developer will need to more fully define, and submit to the City for review, the unit mix of each individual multifamily building

[4] CoStar, 2023.

(size, number of bedrooms/bathrooms, and amenities) in order to confirm the property's place in the market. The vacancy rates of the comparable properties in Table 10 vary from 2.4% to 7.9% with an average vacancy rate of 5%. The average unit size of these properties is 865 square feet, which is smaller than the conceptual average square footage of the units in the Project, 1,105 square feet. The properties vary from 74 to 309 units with an average asking rent per square foot of $2.34. Escalating this asking rent per square foot from 2023 to 2026, when the multifamily units in the Project are anticipated to enter the market, at a growth rate of 3%, the long-term average for the Mid County multifamily market, results in an average asking rent per square foot of $2.56. The Developer anticipates the apartments to rent at $2.50 to $3.00 per square foot. Therefore, at the current conceptual level of design, the Developer's projections are at the high end of the market. A map of these comparable properties is shown on the following page.

Table 10 – Multifamily Comparable Properties

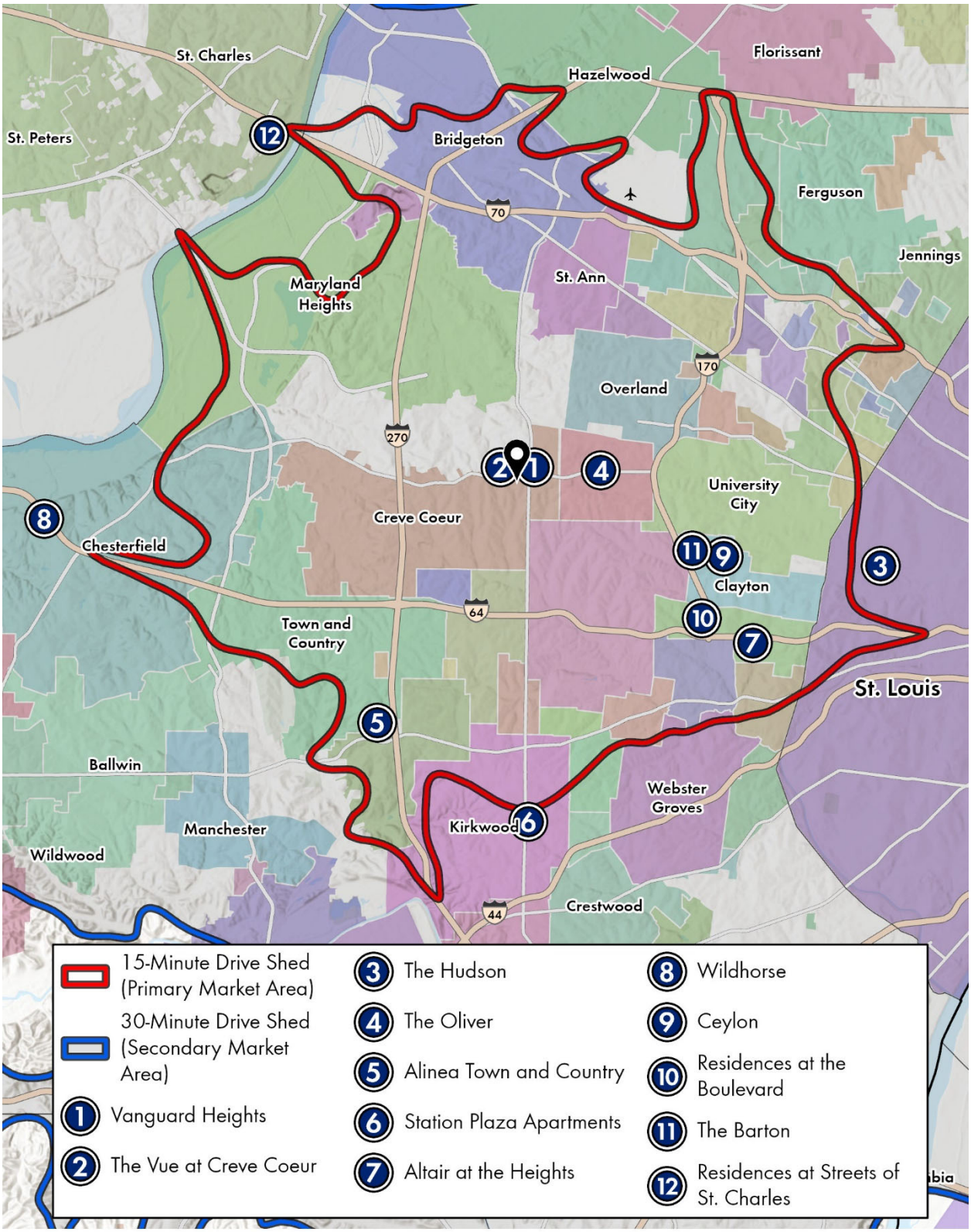
Multifamily Comparable Properties

Subject Development

Property	Location	Type	Year of Completion	Total Units	Average Unit Size (SF)	Average Estimated Rent	Average Estimated Rent PSF	
Phase II - Lot 4 - New Construction	Creve Coeur / St. Louis County	Market Rate - 8 Stories	2026	290			$2.50 to $3.00	
Phase II - Lot 6 - New Construction	Creve Coeur / St. Louis County	Market Rate - 6 to 8 Stories	2026	170			$2.50 to $3.00	
Phase III - Lot 7 - New Construction	Creve Coeur / St. Louis County	Market Rate - 5 Stories	2026	220			$2.50 to $3.00	
Phase II - Lot 14 - Repurposing Existing	Creve Coeur / St. Louis County	Market Rate - 4 to 5 Stories	2026	190			$2.50 to $3.00	

Comparable Developments

Property	Location	Location	Year of Completion	Total Units	Average Unit Size (SF)	Average Rent	Average Rent PSF	Vacancy
Vanguard Heights 10362 Old Olive Street Road	Creve Coeur / St. Louis County	4 Star - Class B - 4 Stories	2016	174	860	$ 1,644	$ 1.91	2.4%
The Vue at Creve Coeur 1001 Old Olive Way	Creve Coeur / St. Louis County	4 Star - Class A - 5 Stories	2017	182	898	$ 2,008	$ 2.24	3.2%
The Hudson 5655 Pershing Avenue	DeBaliviere Place / STL City County	4 Star - Class A - 6 Stories	2021	153	709	$ 2,009	$ 2.83	6.1%
The Oliver 9473 Olive Boulevard	Olivette / St. Louis County	4 Star - Class A - 4 Stories	2022	151	783	$ 1,705	$ 2.18	5.7%
Alinea Town and Country 12831 Daylight Drive	Des Peres / St. Louis County	5 Star - Class A - 4 Stories	2016	254	876	$ 2,124	$ 2.42	7.6%
Station Plaza Apartments 141 East Madison Avenue	Kirkwood / St. Louis County	4 Star - Class A - 4 Stories	2005	159	964	$ 1,885	$ 1.96	7.9%
Altair at the Heights 1325 Boland Place	Clayton / St. Louis County	4 Star - Class B - 5 Stories	2020	187	879	$ 2,202	$ 2.51	2.4%
Wildhorse 16511 Wild Horse Creek Road	Chesterfield / St. Louis County	4 Star - Class B - 4 Stories	2021	188	886	$ 2,125	$ 2.40	2.6%
Ceylon 25-45 North Central Avenue	Clayton / St. Louis County	4 Star - Class A - 6 Stories	2017	120	837	$ 2,660	$ 3.18	6.3%
Residences at the Boulevard 24 The Boulevard Saint Louis	Brentwood / St. Louis County	4 Star - Class A - 4 Stories	2005	74	961	$ 1,656	$ 1.72	3.2%
The Barton 8500 Maryland Avenue	Clayton / St. Louis County	4 Star - Class B - 5 Stories	2018	228	919	$ 2,571	$ 2.80	5.4%
Residences at Streets of St. Charles - 1650 Beale St	St. Charles / St. Charles County	4 Star - Class A - 5 Stories	2013	309	809	$ 1,590	$ 1.97	6.7%



SELECTED MULTIFAMILY PROPERTIES

Olia Village
Creve Coeur, Missouri

0 0.5 1 2 Miles

N

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Townhome Market

The townhome typology is a necessary balance in residential markets between single family housing on individual lots and multiple apartments in a single building. These properties are popular with renters and buyers who may want more indoor and outdoor space than an apartment, and single family housing type amenities like attached garages, but may want less responsibilities than those that come with single family homeownership. Townhomes are also popular near areas with higher density, a variety of uses, increased walkability, and extremely high homes prices. These are areas similar to the Project. With a number of highly rated schools in the PMA, the townhomes in this Project have the opportunity to be housing options for families that need more space than an apartment and a lower maintenance option and/or more attainable housing option than the high cost of single family homes in much of the City. Townhomes can be a flexible housing development option in that they can be for sale or for rent properties and oftentimes include a type of homeowners association to facilitate a well maintained property.

The housing market in the City is currently very competitive. Homes in Creve Coeur receive three offers on average, sell in around six days, and, on average, sell for approximately 103% of the list price.[5] The median sale price per square foot in Creve Coeur is $197, up 7.7% since last year. While townhomes are a different sector of the residential market than single family homes on individual lots, it is important to consider a variety of facets when analyzing the market. Increasing supply in a diverse manner can help calm a competitive market to better enable participation by potential residents in the market. Across St. Louis City and St. Louis County, there are currently 16.9% less townhomes and condos for sale than the same period in 2022.[6] The median sales price of townhomes and condos is $219,000, up 7.9% from 2022, and the average days on the market until sale is 27 days, versus 20 days in 2022.

Townhome Comparable Properties

A review of comparable townhome properties in the St. Louis area is shown in Table 11. The Developer is anticipating this component of the Project will be developed by a sub-developer after the other phases of the project are well into development, and this component of the Project is currently in a very conceptual stage of design with few determined details. Therefore, these properties were compiled with the intent of being a similar size as the subject property and a type and character typical of the region. As shown in the table, many of the properties sold relatively quickly. The comparable properties include a few new construction properties. The older properties that are listed are well maintained and/or renovated.

[5] Redfin, 2023.

[6] Mid America Regional Information Systems, 2023.

At a conceptual level, the Developer anticipates 130 townhomes at 207,000 total square feet. This is an average of 1,592 square feet per unit. The average unit size of these comparable properties is 1,654 square feet which includes 2 and 3 bedroom units. As the project moves further through predevelopment and a sub-developer is identified, the size and attributes of the units based on the targeted residents will need to be further determined in order to confirm the property's place in the market. The Developer anticipates the townhomes to sell at $275 to $300 per square foot. At 1,592 square feet, this results in a sale price for the townhomes of approximately $438,000. With the median home value in 2028 estimated to be $542,000 in the City, the anticipated sale price of the townhomes is 81% of the estimated median home value. The comparable properties listed below saw an average sale price per square foot of $245. Escalating this sale price per square foot from 2023 to 2028, when the townhome units in the Project are anticipated to enter the market, at a growth rate of 2%, per the current estimated annual increase shown in Table 3, results in an average sale price per square foot of $271. Therefore, at the current conceptual level of design, the Developer's projections are at the high end of the market. A map of these comparable properties is shown on the following page.

Table 11 – Townhome Comparable Properties

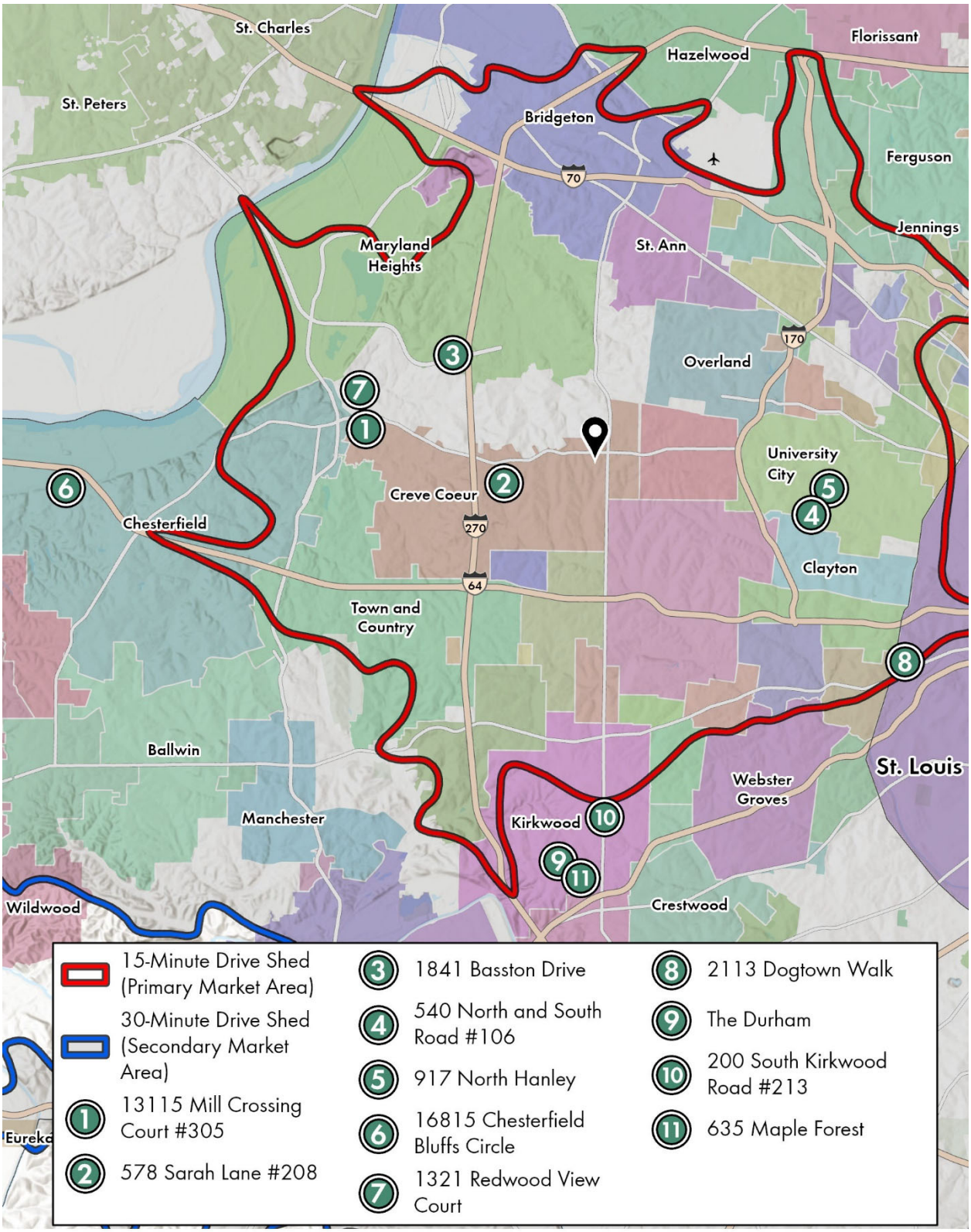
Townhome Comparable Properties

Subject Development

Property	Location	Type	Parking	Year Built	Unit Size (SF)	Estimated Sale Price	Average Estimated Sale Price PSF	
Phase IV - Lot 16 - New Construction	Creve Coeur / St. Louis County			2028			$275 to $300	

Comparable Developments

Property	Location	Type	Parking	Year Built	Unit Size (SF)	Sale Price	Average Rent PSF	Days on Market
13115 Mill Crossing Court #305	Creve Coeur / St. Louis County	2 bed / 2 bath	1 car garage	2000	1,356	$ 365,000	$ 269.17	11
578 Sarah Lane #208	Creve Coeur / St. Louis County	3 bed / 2 bath	2 car garage	1980	2,047	$ 355,000	$ 173.42	30
1841 Basston Drive	Creve Coeur / St. Louis County	2 bed / 2.5 bath	1 car garage	2018	1,434	$ 269,900	$ 188.21	4
540 North and South Road #106	University City / St. Louis County	2 bed / 2 bath	2 car garage	2005	1,793	$ 509,000	$ 283.88	0
917 North Hanley	University City / St. Louis County	2 bed / 2.5 bath	2 car garage	1997	1,624	$ 310,000	$ 190.89	62
16815 Chesterfield Bluffs Circle	Chesterfield / St. Louis County	3 bed / 2 bath	2 car garage	1997	1,494	$ 520,000	$ 348.06	60
1321 Redwood View Court	Unincorporated / St. Louis County	2 bed / 2 bath	2 car garage	1998	1,584	$ 400,000	$ 252.53	45
2113 Dogtown Walk	Franz Park / St. Louis City County	3 bed / 2.5 bath	2 car garage	2005	1,800	$ 400,000	$ 222.22	12
1011 Geyer Grove - The Durham	Kirkwood / St. Louis County	3 bed / 2 bath	2 car garage	2023	1,600	$ 446,638	$ 279.15	75
200 South Kirkwood Road #213	Kirkwood / St. Louis County	2 bed / 2 bath	2 car garage	2005	1,796	$ 407,000	$ 226.61	30
635 Maple Forest	Kirkwood / St. Louis County	3 bed / 2 bath	2 car garage	2023	1,669	$ 435,900	$ 261.17	37



SELECTED TOWNHOME PROPERTIES

Olia Village
Creve Coeur, Missouri

0 0.5 1 2 Miles

N

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Additional Considerations

Another important consideration with mixed-use district development is how the Project will be successful for the residents, visitors, public services, and employees. This Project is located in a premier community with good schools and a multitude of employment opportunities. Additionally, the Project site is centrally located and close to major roadways and public transit making it well-located to attract employees currently commuting to the City, City residents commuting to work elsewhere, and students at nearby universities. A significant portion of employees in the City who live elsewhere are only able to afford a maximum of $1,000 for housing expenses, and the average rent of a one-bedroom apartment in the Mid County submarket is approximately $1,150 per month. The Developer's projected rents and sale prices of the project components are at the high-end of the market, and the Developer is anticipating a large number of residential units. For all these reasons, this Project is poised to leverage the private market and provide quality, attainable housing options for market rate renters and buyers as well as those who need housing options at costs below market rate.

In the St. Louis, MO-IL Metropolitan Statistical Area ("MSA"), 22% of renter households between 51% and 80% of Area Median Income ("AMI") are cost burdened, meaning the renter household is spending more than 30% of their income on housing costs and utilities, and there is a deficit of 21,548 affordable and available rental units at or below 50% AMI.[7] The Housing Affordability Index ("HAI") for the City in 2023 is 89.[8] An HAI less than 100 indicates areas where homes are less affordable and where median income is not high enough to purchase a median valued home.

Inclusionary housing policies have been employed in more than 800 cities since the 1970s, with significant evidence that they've impacted the creation and expansion of attainable housing.[9] Under inclusionary zoning, developers are encouraged or required to set aside a share, oftentimes 10-30%, of the market rate housing they're creating to be sold or rented at below market rates.[10] The below market rate rents can include workforce housing which is typically considered housing for residents at or below 80% AMI and is housing for essential occupations that are integral to the community such as teachers, police officers, and firefighters. Inclusionary zoning leverages the private market to create housing units that are affordable to households with lower incomes while allowing the development projects to

[7] National Low Income Housing Coalition, 2019.

[8] ESRI, 2023.

[9] National League of Cities, 2022.

[10] "Inclusionary Housing in the United States," Lincoln Institute of Land Policy, 2017.

still produce an acceptable return on investment.[11] For this reason, inclusionary zoning is more effective in affluent areas where more development is occurring, such as the City.

The Maplewood City Council recently passed an inclusionary housing ordinance in an effort to increase access to quality attainable housing and ensure that individuals and families across various income levels have the opportunity to live in a safe and vibrant community with a high-quality school district.[12] Maplewood is a St. Louis County municipality 15 minutes southeast of the City. The ordinance mandates that developers who receive tax incentives from the city on residential multifamily developments must set aside 20% of housing units as affordable housing units.

As described in this Study, the Developer's proposed rents are on the high end of a projected market rate rent in 2026 and 2028, when the units are expected to enter the market. From information provided by the Developer to date, the proposed rents do not seem to facilitate occupancy by residents with incomes that require rents below market rate. Housing options with rents or purchase prices lower than market rate are in much higher demand than market rate housing options, with households that make less than 30% of the area median income, such as childcare workers, having the largest unmet demand for affordable housing[13].

With the large number of units in this Project, most if not all of which will be at unrestricted market rate rents and sale prices, the net operating income and return on investment flowing to the Developer (or sub-developer) may allow for a percentage of these units to be restricted to rent levels and/or sale prices below market. This consideration expands the market for potential residents and provides for an inclusive district that reflects the employee and residential community. Requirements related to inclusionary housing could be included in a development agreement for this Project specifically and would not necessarily need to be a requirement throughout the City. Affordable, quality, and safe housing is key to thriving communities, and the City should consider whether inclusionary housing requirements are a factor for this Project when negotiating a development agreement and/or incentives for the Project.

[11] Local Housing Solutions, 2023.

[12] City of Maplewood, 2023.

[13] St. Louis Affordable Housing Report Card, 2021.

SECTION IV – CONCLUSION

Conditions and Assumptions

This Study is based on estimates, assumptions, and information provided by the Developer, the City, and various other sources current as of the date of this Study. Information provided by others is assumed to be reliable, but PGAV neither verified nor audited the information that was provided by others and assumes no responsibility for its accuracy or certainty. The analysis is based, in part, on assumptions and conditions provided by these various sources. PGAV believes that the assumptions used in this analysis constitute a reasonable basis for its preparation. A negative change in the conditions that form the basis of the assumptions could adversely affect the projected outcomes.

Conclusion

It is very rare that a consolidated parcel of this scale becomes available for a full revisioning without any displacement. The potential of this Project is the definition of one door closing and another opening. With that said, the scale of this project requires increased scrutiny to best ensure the viability of this development for decades to come. The real estate market is not the most stable of markets, and often as one use finds itself floundering another use finds itself thriving. We see this over the last couple years with the office market and the multifamily market. It is imperative that cities and think regionally and integrate a diversity of income streams when it comes to creating and/or maintaining a thriving community.

This Project includes a district approach to development in which the City will need to be an integral part of the process and develop an ongoing working partnership with the development team. Partnering with a developer will allow for public risk to be spread to the private sector and a balance of responsibilities to work toward a common goal. A district with a mix of complimentary uses, pleasant walkability and natural surroundings, and cohesive connections beyond its boundaries will create an environment where the variety of uses benefit each other during different times of day. With the appropriate amount of oversight and flexibility by both the City and the Developer, thoughtful phasing, and continued analysis of the markets as timing becomes clearer, the proposed residential typologies in the Project have the potential to be absorbed by the market and are needed in order to balance the real estate demand and maintain a vibrant community.

Olia Village Development

Traffic Impact Study Report

September 2023

Prepared for:

Missouri Department of Transportation

105 W. Capitol Avenue

Jefferson City, MO 65102

Prepared by:

Crawford, Murphy & Tilly, Inc.

One Memorial Drive, Suite 500

St. Louis, MO 63102

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1 Executive Summary

The Olia Village development is a planned mixed-use development in Creve Coeur, Missouri, southwest of the Olive Boulevard (Route 340) and Lindbergh Boulevard (Route 67) interchange, on what was previously part of the Bayer headquarters campus. The development is expected to significantly impact traffic in the surrounding area, particularly at development access points. Access to the planned development will be on Olive Boulevard at Old Olive Street Road West and Pavillion Drive and on Lindbergh Boulevard at the Monsanto Drive interchange.

Using data provided by MoDOT, past data, and recently collected traffic data, operational analyses for peak hour delay, LOS, and queue length were performed for study intersections in the existing year (2022), construction year (2028), and design year (2048). An additional analysis was performed on Lindbergh Boulevard to verify ramp operations would not be significantly affected. For no-build scenarios, traffic forecasts were developed using a 0.5% annual growth rate. For build scenarios, traffic forecasts were found by adding background traffic to newly generated trips, estimated using the Institute of Transportation Engineers' Trip Generation Report.

Based on the intersection analyses, the Olia Village development will result in increases to delay on the existing roadway network, but the network still generally works efficiently with the newly generated and diverted traffic. Without the development traffic, except for Lindbergh and Old Olive Street which will be improved as part of the 39 North Development, all study intersections operate at LOS C or better, and all approaches at LOS D or better. With the development traffic, with signal timing improvements, most intersections remain at LOS C or better and approaches D or better. Olive Boulevard and Old Olive Street (West) is the exception, operating at LOS D during the 2048 PM peak hour, in part because of a heavy southbound right turn movement unrelated to the development. The addition of a southbound right turn lane greatly improves this delay.

Based on the freeway analysis for Lindbergh Boulevard, the ramp operations will not be significantly affected. Both with and without the development traffic, all ramp segments operate at LOS C or better. Most increases in density and reductions in speed are negligible.

To accommodate the growth in background traffic and the new traffic generated by the Olia Village development, in addition to signal timing improvements, improvements to the existing roadway network will be necessary. The most significant improvements will be at the Olive Boulevard and Pavillion Drive intersection, where the northbound leg should be modified into a three-lane approach with separate left/through/right lanes in accordance with the site plan, the southbound right turn lane should be modified into a shared through/right lane, and a left turn lane with approximately 500 feet of storage should be added to the westbound leg. The Olive Boulevard and Old Olive Street (West) intersection does not need major improvements, but site access should be about 100 feet further south to align with the front of the existing Schnucks to allow for proper operations of the intersection. In the future, a southbound right turn lane at this intersection may be necessary because of the heavy southbound right turn movement. Lastly, the Lindbergh Boulevard and Monsanto Drive interchange has ample capacity and will not need improvements following the proposed site plan, assuming all-way stop-control.

2 Introduction

The purpose of this Traffic Impact Study (TIS) is to determine the impacts of the proposed Olia Village development on various roadways in Creve Coeur, Missouri, as a result of the newly generated and diverted traffic to and from the development. The proposed development is located on part of the former Monsanto property southwest of the Olive Boulevard (Route 340) and Lindbergh Boulevard (Route 67) interchange, as shown in **Figure 1**. The previous land use for the site was primarily office land use, and the existing roadway network provided the necessary capacity for this large office development with two access points from Olive Boulevard and an interchange with Lindbergh Boulevard. This TIS will first determine the design hourly traffic volumes for the new land uses on Olive Boulevard from Spoede Road to Old Olive Street Road East and on Lindbergh Boulevard from Old Olive Street Road to the Monsanto Drive Interchange. Then, the TIS will estimate the traffic impacts of the proposed development on the existing roadway network.

Figure 1 - Site Location

In order to forecast traffic volumes within the study area, trip ends produced by the proposed development will be studied. Additional traffic growth in the area will be accounted for through projected background growth. The resulting design hourly traffic volumes will be used for

determining the recommended geometrics and traffic control at the study intersections along Olive Boulevard and Lindbergh Boulevard.

2.1 Study Objectives

The objectives for the analysis contained in this TIS consist of the following:

1. Forecast the number of trips that will be generated by the development in the study area during the morning and evening weekday peak hours.
2. Distribute the generated traffic onto the public roadway system based on historic traffic volumes, population distributions, and existing and forecasted traffic volumes.
3. Assign the traffic volumes to the entrances and roadways that will serve as access points to the development.
4. Provide an operational analysis for the design traffic.
5. Provide design recommendations based on the operational analysis.

3 Proposed Development

This section describes the proposed Olia Village development and the study area for the TIS.

3.1 Study Area

The influence area and area of significant impacts of the proposed development are located in Creve Coeur, Missouri, in the area surrounding the Olive Boulevard and Lindbergh interchange. Trips are expected to be generated from the surrounding residential and commercial areas and to primarily use Olive Boulevard and Lindbergh Road for access to the development. The intersections with significant impacts to traffic consist of the intersections on Olive Boulevard from Spoede Road to Old Olive Street Road East and on Lindbergh Boulevard from Old Olive Street Road to the Monsanto Drive Interchange. A map of the study area with study intersections and the approximate location of the development is provided in **Figure 2**. A list of each study intersection is given below. Further detail on each existing study intersection is provided in section 4.1.

1. Missouri Route 340 (Olive Blvd) and Spoede Road
2. Missouri Route 340 (Olive Blvd) and Old Olive Street Road (West)
3. Missouri Route 340 (Olive Blvd) and Pavillion Drive
4. Missouri Route 340 (Olive Blvd) and US Route 67 Southbound Ramps
5. Missouri Route 340 (Olive Blvd) and US Route 67 Northbound Ramps
6. Missouri Route 340 (Olive Blvd) and Old Olive Street Road (East)
7. US Route 67 (Lindbergh Blvd) and Monsanto Drive
8. US Route 67 (Lindbergh Blvd) and Old Olive Street Boulevard

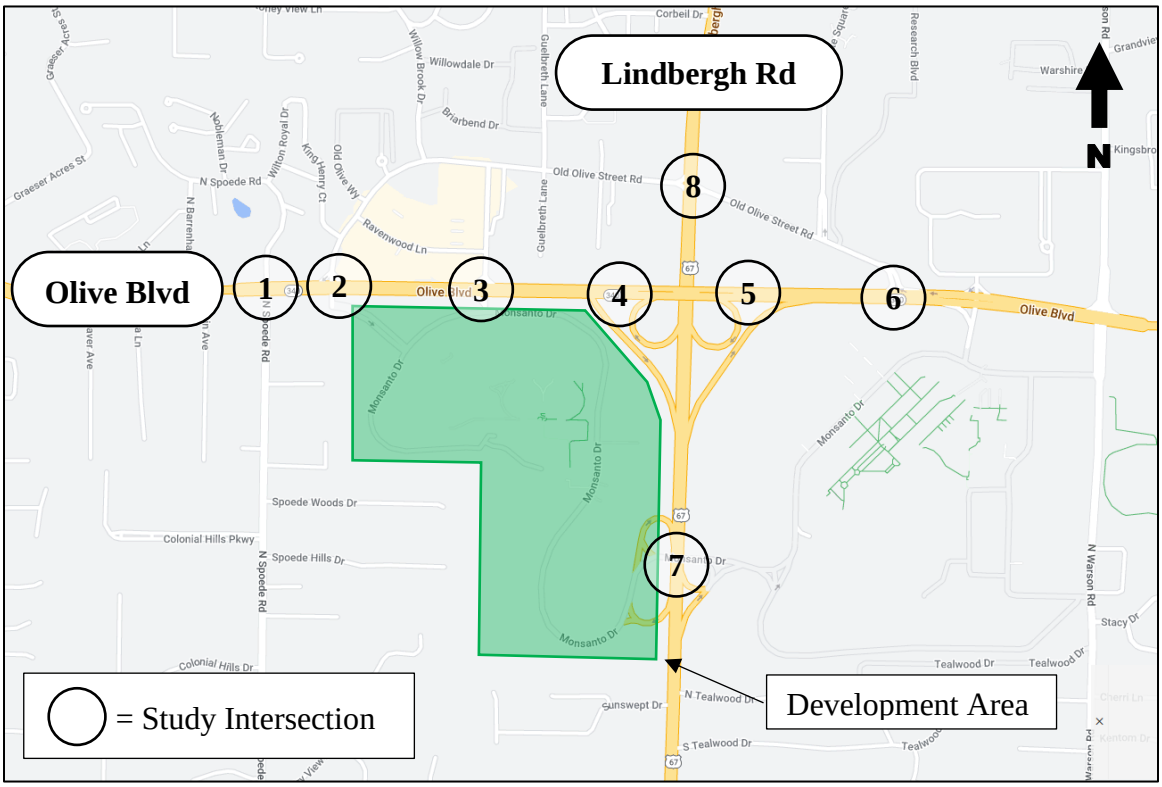


Figure 2 - Study Area

3.2 On-Site Development

The proposed Olia Village development is a mixed-use development consisting mostly of retail, commercial, office, and residential land uses. A small amount of industrial and recreational land use is also anticipated with a data center and amenity building. The development is to redevelop what was formerly Bayer's western campus into a large mixed-use town center for Creve Coeur. **Figure 3** shows the proposed site plan and anticipated land use of the development. Refer to **Exhibit 1** for the enlarged site plan shown in **Figure 3**. This updated site plan includes the relocation of the western access point near Old Olive further south to align with the front of the existing Schnucks, and the center-to-center distance between the two intersections is increased from roughly 120 feet to 220 feet.

Figure 3 – Anticipated Development Land Use (Site Plan)

3.3 Off-Site Land Uses

The existing land use within the development is currently vacant, and the existing land use surrounding the proposed development is composed of residential, retail, and office development. North and northeast of the proposed development, across Olive Boulevard, is a mix of retail and office developments including restaurants, car dealerships, a movie theater, and medical offices. East of the proposed development, across Lindbergh Boulevard, is Bayer's Crop Science Headquarters office campus. South, west, and further away from the development, the existing land use is almost entirely suburban residential. **Figure 4** shows a map of the study area with the primary land use of each area labeled.

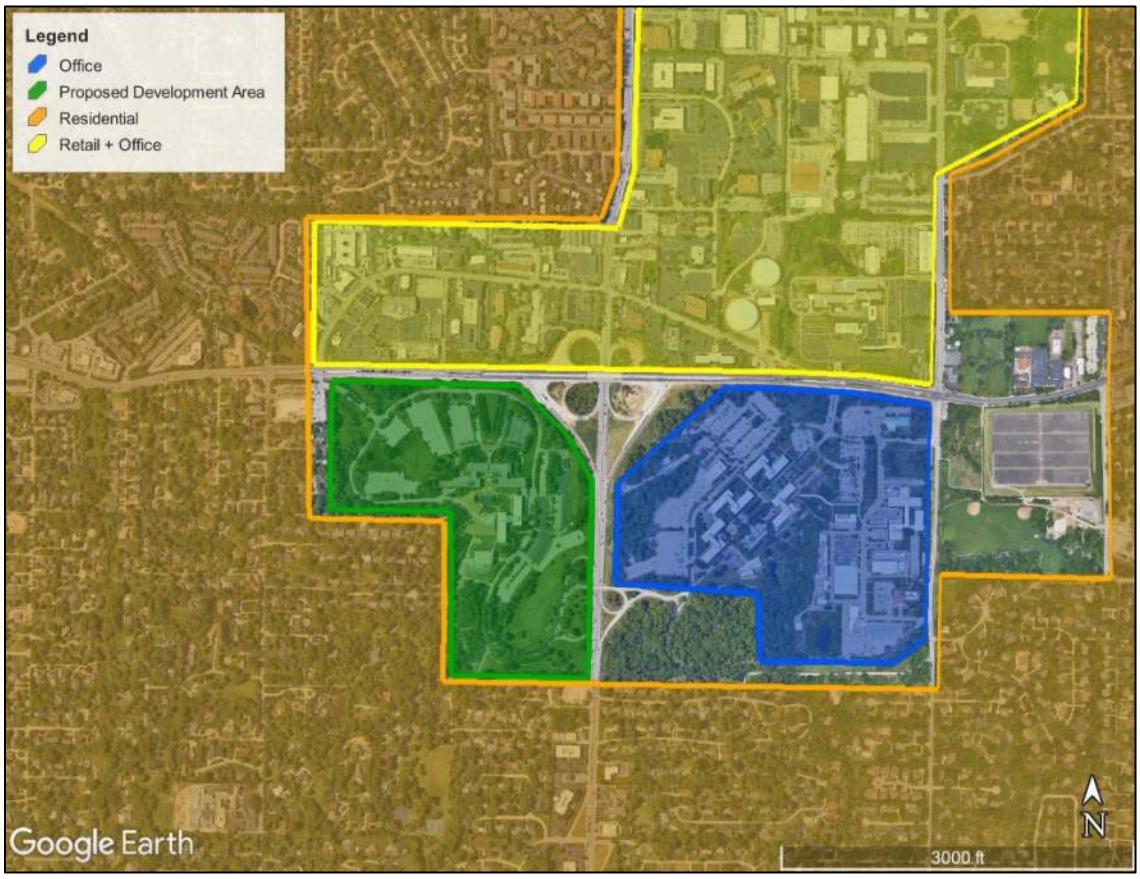


Figure 4 – Existing Off-Site Land Uses

3.4 Site Accessibility

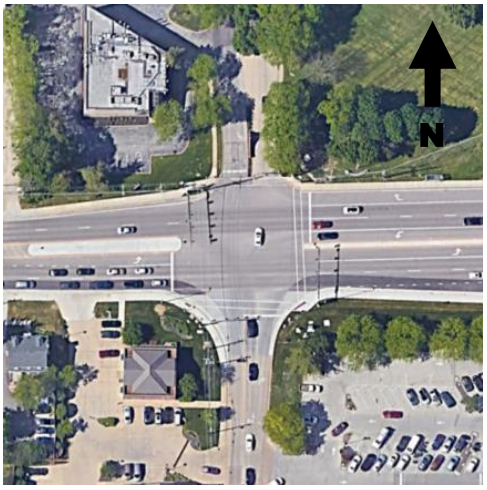
Access to the proposed development is located along Olive Boulevard at Old Olive Street Road West and Pavillion Drive and along Lindbergh Boulevard at the Monsanto Drive interchange. These access points are study intersections 2, 3, and 7, respectively, as labeled in **Figure 2**. The Olive Boulevard and Old Olive Street Road West intersection is a signalized intersection that currently also provides access to a Schnucks grocery store directly south of the intersection. The Olive Boulevard and Pavillion Drive intersection is also a signalized intersection, but this existing intersection only provides right-in and through/right-out movements for the proposed development; this will be modified to provide full access with the construction of the proposed development. The Lindbergh Road and Monsanto Drive interchange is an unsignalized interchange with stop-control. The new intersection at this intersection providing development access will be constructed according to the site plan. Further detail on each intersection within the study area is given in section 4.1.

4 Existing Conditions

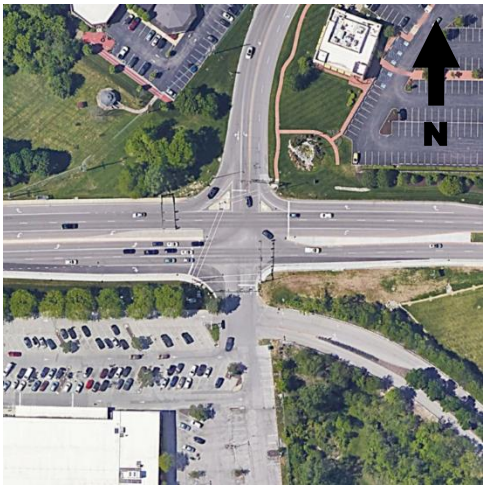
This section describes the existing conditions of the study area with an overview of study intersection configurations and existing traffic conditions.

4.1 Physical Characteristics

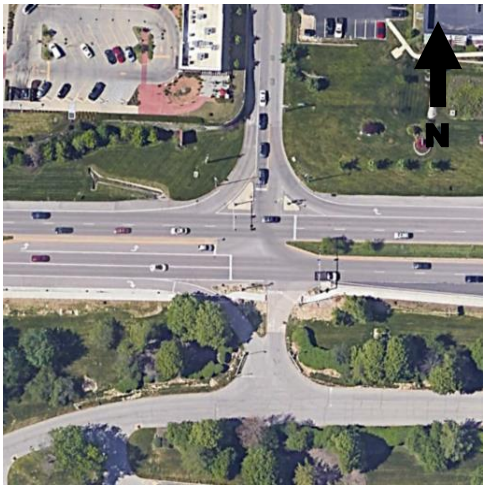
Existing conditions for the study area intersections are described below. Refer to Figure 1 in Section 3.1 for each intersection's location in the overall study area.



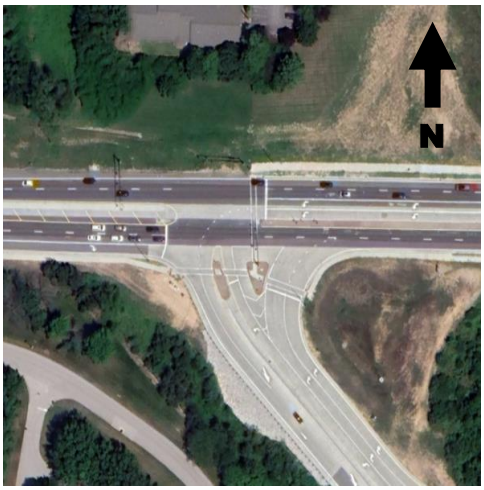
1. Missouri Route 340 (Olive Blvd) and Spoede Road – A four-legged signalized intersection. The northbound leg consists of a right turn lane and a shared through / left turn lane. The southbound leg consists of a left turn lane and a shared through / right turn lane. The eastbound leg consists of a left turn lane, a through lane, and a shared through / right turn lane. The westbound leg consists of a right turn lane, a left turn lane, and two through lanes.



2. Missouri Route 340 (Olive Blvd) and Old Olive Street Road (West) – A four-legged signalized intersection. The northbound and southbound legs consist of a left turn lane and shared through / right turn lane. The eastbound and westbound approaches have a left turn lane, a right turn lane, and two through lanes. A second intersection providing access into the Schnucks parking lot and into the proposed development itself is located approximately 120 feet south of this intersection.



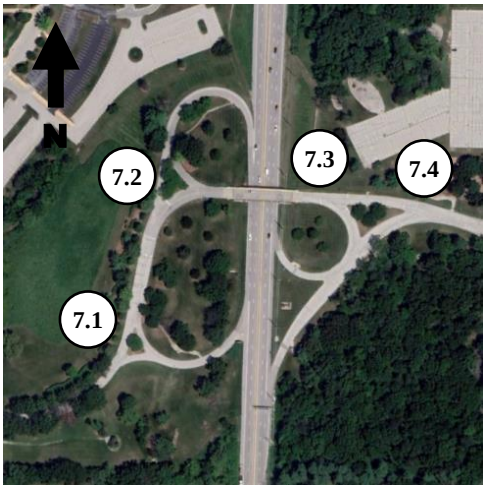
3. Missouri Route 340 (Olive Blvd) and Pavillion Drive – A four-legged signalized intersection between MO 340 and Pavillion Drive, a private road. The northbound leg consists of a shared through / right turn lane. The southbound leg consists of a right turn lane and a left turn lane. The eastbound leg consists of a right turn lane, a left turn lane, and two through lanes. The westbound leg consists of a right turn lane and two through lanes.



4. Missouri Route 340 (Olive Blvd) and US Route 67 Southbound Ramps – This signalized, three-legged ramp terminal is approximately 800 feet east of MO 340 / Pavilion Drive intersection and 1100 feet west of the northbound ramp terminal. The northbound leg (the SB US 67 ramp) consists of two right turn lanes and a single left turn lane. The eastbound leg consists of two through lanes and a right turn lane. The westbound leg consists of two through lanes and two left turn lanes.

5. Missouri Route 340 (Olive Blvd) and US Route 67 Northbound Ramps – This signalized, three-legged ramp terminal is approximately 1100 feet east of the southbound ramp terminal. The northbound leg (the NB US 67 ramp) consists of a right turn lane and two left turn lanes. The eastbound leg consists of two through lanes and a right turn lane. The westbound leg consists of two through lanes and two left turn lanes.

6. Missouri Route 340 (Olive Blvd) and Old Olive Street Road (East) – A three-legged signalized intersection. The southbound leg consists of a left turn lane and a right turn lane. The eastbound approach consists of two through lanes and a left turn lane. The westbound approach consists of two through lanes and a right turn lane.



7. US Route 67 (Lindbergh Blvd) and Monsanto Drive – This interchange between US 67 and Monsanto Drive consists of an unconventional cloverleaf design. The design can be separated into four different intersections. These intersections are described as follows, according to the numbering in the image shown to the left.

7.1. This is a three-legged, stop-controlled intersection, in which only the westbound left turn movement is stop-controlled. The northbound and southbound legs consist of a single through lane. The westbound leg consists of a right turn lane and a left turn lane.

7.2. This is a three-legged, stop-controlled intersection, in which the northbound and southbound legs are stop-controlled. The northbound leg consists of a through lane and a right turn lane. The southbound leg consists of a single through lane. The westbound leg consists of a right turn lane and a left turn lane. As part of the proposed development, another three-leg intersection will be added approximately 100 feet further north of this intersection with an eastbound leg.

7.3. This is a three-legged, stop-controlled intersection with all approaches being stop-controlled. The northbound leg consists of a single left turn lane. The eastbound leg consists of a shared through / right turn lane. The westbound leg consists of a single through lane.

7.4. This is a three-legged, stop-controlled intersection with northbound and eastbound approaches being stop-controlled. The northbound leg consists of a single right turn lane. The eastbound leg consists of a single through lane. The westbound leg consists of a shared through / left turn lane.

8. US Route 67 (Lindbergh Blvd) and Old Olive Street Boulevard – This intersection will be improved as part of the 39 North project and the proposed configuration from the 39 North project will be utilized in this study.

4.2 Data Sources

Traffic data used in this study included both data obtained from MoDOT, past study data, and data collected within the past year specifically for this study. Historic Average Annual Daily Traffic (AADT) from 2013 to 2022 was obtained from MoDOT. Existing signal timings at all signalized intersections along Olive Boulevard were also obtained from Synchro files provided by MoDOT. Peak Hour turning movement counts were initially collected in December 2022; however, due to inaccuracies in the data collection, some study intersections were recounted in February 2023. The intersections recounted in February are listed below.

- Missouri Route 340 (Olive Blvd) and Old Olive Street Road (West)
- Missouri Route 340 (Olive Blvd) and Pavillion Drive
- Missouri Route 340 (Olive Blvd) and US Route 67 Northbound Ramps
- Missouri Route 340 (Olive Blvd) and Old Olive Street Road (East)

Traffic on mainline Lindbergh Avenue and associated ramps were developed using collected ramp traffic counts and past data from the 39 North project.

4.3 Traffic Volumes

AADT volumes as reported by MoDOT for 2013 through 2022 are shown in **Table 1. Figure 5** graphically displays these volumes. Traffic volumes along MO 340 and US 67 averaged a 1.5 percent annual decrease over the ten-year period. In the last five years, from 2018 to 2022, traffic volumes averaged a 4.2 percent annual decrease.

Table 1 – Creve Coeur Historic Average Annual Daily Traffic

Location	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
MO 340 e/o US 67	28800	27634	28629	28800	29232	25939	26017	23337	25391	23740
MO 340 w/o US 67	28760	29993	28588	28760	29192	30812	30905	27722	28201	22498
US 67 n/o MO 340	27892	27166	27726	27892	28311	28595	28680	25726	27990	23557
US 67 s/o MO 340	26393	25710	26236	26393	26789	27055	27136	24341	26483	22284
Old Olive Street Rd	7048	6878	6842	7048	7260	6673	6740	6403	6743	6743

The AADT volumes reported by MoDOT show a significant decrease in traffic in recent years. To demonstrate that future traffic projections can be reasonably assumed to be an increase from past years, 2022 AADT was estimated by multiplying collected peak hour volumes by 1/K, where:

$$Design\ Hourly\ Volume = K * AADT$$

PM peak hour volume counts were used as the DHV, and K was estimated using past peak hour volumes and AADTs reported by MoDOT. The resulting AADTs are shown in **Table 2** and in **Figure 5**, denoted by the "X" for each corresponding segment.

Table 2 – 2022 AADT Estimate

Location	1 / K	DHV	2022 AADT (CMT)
MO 340 e/o US 67	10	2951	29510
MO 340 w/o US 67	11	3039	33429
US 67 n/o MO 340	9	3335	30015
US 67 s/o MO 340	10	3235	32350
Old Olive Street Rd	10	614	6140

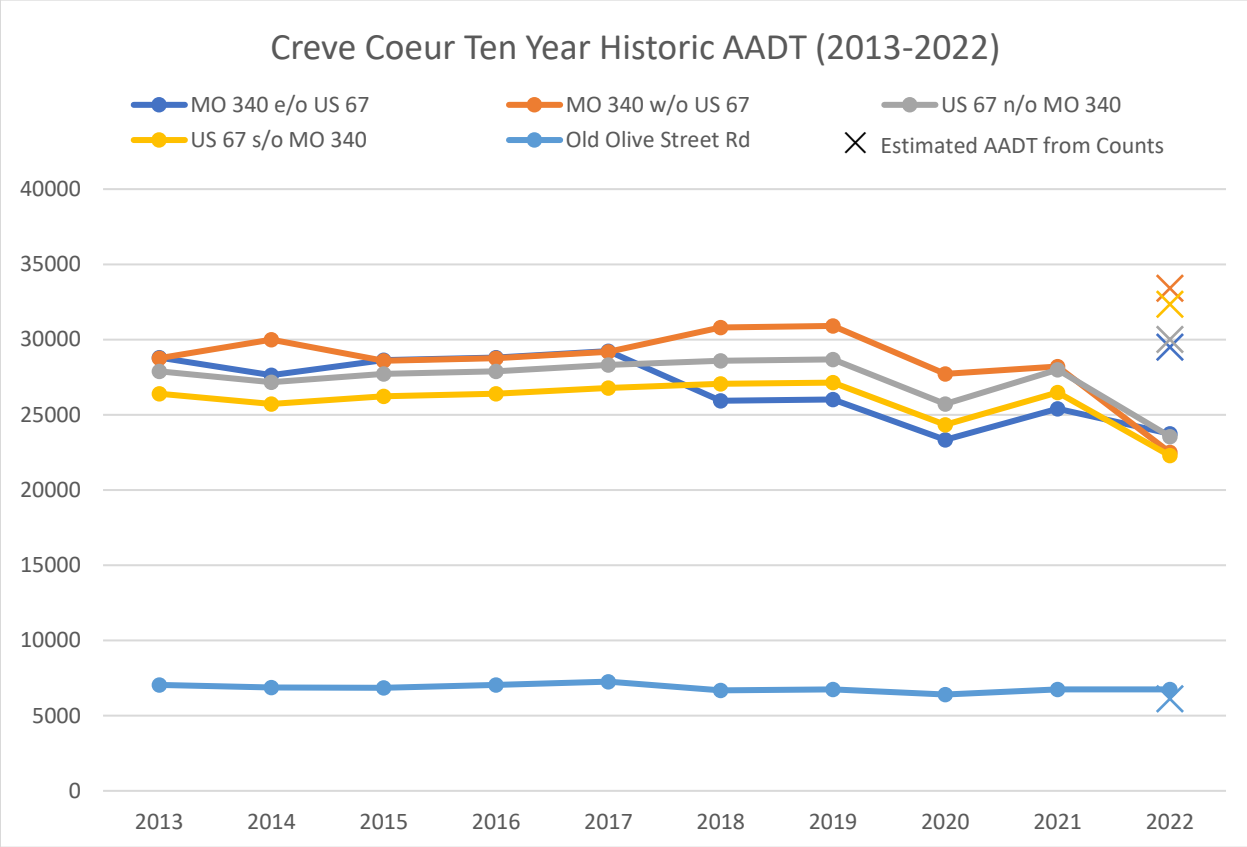


Figure 5 - Creve Coeur Historic Average Annual Daily Traffic

Based on the AADTs estimated using the peak hour volume counts conducted for this study, it is reasonable to assume that the existing peak hour volumes used are a conservative representation of traffic conditions and future traffic volumes will exhibit a positive trend. Further information

on the projected traffic is given in Section 5 of this TIS. Existing 2022 peak hour turning volumes are shown in **Exhibit 2**. Volumes were balanced across the study area prior to analysis.

4.4 Level of Service

The operational analysis for delay and LOS of the existing study intersections was performed using the macroscopic program Synchro. The primary performance measure used in the Synchro model to provide a LOS for signalized intersections is control delay, measured in seconds per vehicle. The LOS rating system describes the operational characteristics of an intersection and ranges from A (free flow, minimal delay) to F (extreme congestion, unacceptable delay). For this project, the target LOS for intersection operations is LOS D. The ranges of control delay used to define LOS are shown in **Table 3.**

Table 3 – Intersection LOS Criteria

LOS	Signalized Intersection Control Delay (sec)	Unsignalized Intersection Control Delay (sec)
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Existing scenarios included AM and PM peak conditions using the volumes depicted in **Exhibit 2**. SIDRA intersection was used for the eastern-most unsignalized intersection in the Monsanto / Lindbergh interchange due to its unique configuration. For unsignalized intersections, HCM6 results produced by Synchro are given. **Table 4** shows the intersection analysis results for 2022 existing AM and PM peak hours.

Table 4 – 2022 Existing Intersection Operational Analysis

Intersection	App.	Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM
Olive & Spoede	EB	19.7 (B)	30.1 (C)	462	628
	WB	3.3 (A)	3.8 (A)	112	114
	NB	32.3 (C)	34.8 (C)	102	148
	SB	44.8 (D)	45.0 (D)	34	36
	ALL	**13.1 (B)**	**17.7 (B)**		
Olive & Old Olive W	EB	6.9 (A)	16.4 (B)	219	225
	WB	0.7 (A)	7.9 (A)	6	543
	NB	27.5 (C)	32.7 (C)	30	85
	SB	29.3 (C)	37.6 (D)	138	205
	ALL	**8.0 (A)**	**16.0 (B)**		
Olive & Pavillion	EB	4.3 (A)	2.8 (A)	137	68
	WB	2.9 (A)	9.9 (B)	68	228
	NB	0.0 (A)	0.0 (A)	0	0
	SB	41.9 (D)	34.8 (C)	83	138
	ALL	**4.7 (A)**	**8.6 (A)**		
Olive & SB Lindbergh	EB	4.5 (A)	5.5 (A)	219	203
	WB	15.5 (B)	13.2 (B)	386	372
	NB	28.8 (C)	18.3 (B)	118	48
	ALL	**11.6 (B)**	**10.4 (A)**		
Olive & NB Lindbergh	EB	5.7 (A)	2.5 (A)	263	90
	WB	5.6 (A)	10.2 (B)	251	517
	NB	41.8 (D)	39.1 (D)	106	117
	ALL	**9.9 (A)**	**10.4 (B)**		
Olive & Old Olive E	EB	5.4 (A)	7.4 (A)	499	392
	WB	8.4 (A)	9.6 (A)	252	419
	SB	33.1 (C)	35.0 (C)	67	163
	ALL	**7.5 (A)**	**11.0 (A)**		
Lindbergh & Old Olive*	EB	31.1 (D)	21.9 (C)	55	38
	WB	20.5 (C)	86.3 (F)	53	343
Lindbergh / Monsanto Interchange (1)*	WB	0.0 (A)	8.4 (A)	0	0
Lindbergh / Monsanto Interchange (2)*	WB	6.7 (A)	6.5 (A)	3	3
	NB	6.8 (A)	6.7 (A)	3	3
Lindbergh / Monsanto Interchange (3)*	EB	7.2 (A)	7.1 (A)	3	3
	WB	0.0 (A)	7.1 (A)	0	0
	NB	7.4 (A)	7.4 (A)	5	3
Lindbergh / Monsanto Interchange (4)*	EB	7.2 (A)	7.3 (A)	2	1
	NB	7.0 (A)	7.0 (A)	4	1

* Unsignalized intersection, HCM6 delay/LOS/queue reported for stopped approach only.

In addition to the analysis of the study intersections, an additional analysis was performed on Lindbergh Boulevard ramps to determine if the development traffic would have a significant impact on the ramp operations. This analysis was performed using HCS2023 Freeways. Unlike in Synchro, LOS criteria given by HCS for freeway segments are based on density and driver perception of operating conditions. The LOS criteria for freeway segments are given below in **Table 5**. Individual segments have slightly different LOS criteria depending on segment type.

Table 5 – Freeway Facility LOS Criteria

LOS	Freeway Facility Density (pc/mi/ln)	
	Urban	Rural
A	≤11	≤6
B	>11-18	>6-14
C	>18-26	>14-22
D	>26-35	>22-29
E	>35-45	>29-39
F	>45 or any segment $v_d/c > 1$	>39 or any segment $v_d/c > 1$

Table 6 shows the ramp analysis results on Lindbergh Boulevard for 2022 existing AM and PM peak hours.

Table 6 – 2022 Existing Lindbergh Operational Analysis

		Segment		Type	LOS		Speed (mph)		Density (pc/mi/ln)	
		From	To		AM	PM	AM	PM	AM	PM
2022	NB	Monsanto Off		Diverge	B	B	43.5	43.5	20.7	18.6
		Monsanto On	Olive Off	Weaving	B	B	39.7	39.6	14.5	13.5
		Olive On		Merge	B	B	44.0	44.0	16.5	15.4
	SB	Olive Off		Diverge	B	B	43.0	43.1	24.6	20.8
		Olive On		Merge	B	B	44.0	44.0	23.6	22.6
		Monsanto On	Monsanto Off	Weaving	B	B	41.1	41.4	17.1	16.3

5 Projected Traffic

The following section details the projected background traffic and the estimated traffic produced by the proposed development.

5.1 Background (Future No-Build) Forecasting

Background traffic forecasts were made for the years 2028 and 2048 based on the historic traffic data presented in Section 4.3 and on population census data. **Table 7** shows census data for Creve Coeur and St. Louis County between 2000 and 2020. Despite the general decrease in traffic volumes in Creve Coeur as shown in Section 4.3, the population of Creve Coeur has steadily increased.

Table 7 – Creve Coeur and St. Louis County Growth

	2000 Population	*2010 Population*	*2020 Population*
Creve Coeur	16,500	17,833 (8% increase)	18,834 (6% increase)
St. Louis County	1,016,178	998,954 (2% decrease)	1,004,125 (1% increase)

For this study, a growth rate of 0.5% will be used to project background growth within the study area that is not included by explicitly studied developments. This 0.5% annual growth rate was discussed and agreed to at the initial scoping meeting with MoDOT for the project. Forecasted AM and PM no-build peak hour turning volumes for 2028 and 2048 are shown in **Exhibit 3** and **Exhibit 4**, respectively.

5.2 Existing Build Forecasting

Evaluation of the traffic on the transportation network assuming the proposed development is completed involves a process of trip generation, distribution, and assignment. These steps are outlined in the following subsections.

5.2.1 Trip Generation

The number of trips generated by the proposed developments is a function of land use and development size. The Institute of Transportation Engineers (ITE) publishes the Trip Generation Report, an established compilation of trip data for various land uses in studies performed across the United States[1]. This enables the analyst to forecast traffic based on generation rates comparable to previously constructed sites with similar characteristics when local or established trip generation data is not available.

The current Bayer office campus is unused and is therefore unoccupied. This analysis assumes that additional trips will be produced by the new development reaching full occupancy. The current redevelopment plan includes a small data center, over 1300 living units of residential and lodging space, approximately 260,000 SF of office buildings, and over 220,000 SF of retail and commercial businesses. Based on the proposed site location characteristics, a Dense Multi-Use Urban setting/location was used when sufficient data was available.

Table 8 lists the ITE Land Use Codes (LUC) used for each site shown in the site plan. Refer to **Exhibit 1** for specific site locations. LUCs used for the sites listed as sidewalk commercial on the site plan were based on recommendations from the developer. Since information on the exact usage of some individual developments was not available, office, retail, and restaurant square footage that was not clearly defined was divided into plausible land uses as follows:

[1] Trip Generation, Institute of Transportation Engineers, 11th Edition, 2021.

- Office area (sites MU3, MOB, and OB1) was split 50/50 into LUC 715 Single Tenant Office Building and LUC 760 Research and Development Center.

- A portion of sidewalk commercial (sites MU2E, MU2F, MU2G, MU2H, and MU2J) was split 50/50 into LUC 876 Apparel Store and 930 Fast Casual Restaurant.

- Dining (sites R3B, R4, MU3A, and MU3B) was split evenly between LUC 930 Fast Casual Restaurant, 931 Fine Dining Restaurant, and 932 High-Turnover Restaurant without Drive-Through Window.

Table 8 – Olia Village Development Site ITE Land Use Codes

ITE Code	Land Use	Site(s)
151	Mini-Warehouse	CC1, CC2
160	Data Center	DC1
220	Multifamily Housing (Low-Rise)	TH
221	Multifamily Housing (Mid-Rise)	MU2, MU4, MU5, MF1, MF2
310	Hotel	H1, H2
492	Health/Fitness Club	A1
715	Single Tenant Office Building	50% of (MU3, MOB, OB-1)
760	Research and Development Center	50% of (MU3, MOB, OB-1)
814	Variety Store	MU2A
822	Strip Retail Plaza (<40k)	R3A, MU4C
850	Supermarket	R1
861	Sporting Goods Superstore	R2
876	Apparel Store	MU1B, MU2B, MU2D, MU4A, MU5A, MU5B + 50% of (MU2E, MU2F, MU2G, MU2H, MU2J)
879	Arts and Crafts Store	MU2C, MU5A
920	Copy, Print, and Express Ship Store	MU1C
930	Fast Casual Restaurant	33% of (R3B, R4, MU3A, MU3B) + 50% of (MU2E, MU2F, MU2G, MU2H, MU2J)
931	Fine Dining Restaurant	MU4B, MU5E + 33% of (R3B, R4, MU3A, MU3B)
932	High-Turnover (Sit-Down) Restaurant	33% of (R3B, R4, MU3A, MU3B)
933	Fast-Food Restaurant without Drive-Through	MU5D
936	Coffee/Donut Shop without Drive-Through	MU1D
937	Coffee/Donut Shop with Drive-Through	MU1A

Table 9 summarizes the amount of additional traffic that would be generated by full occupancy of Olia Village Development, estimated using data given by the ITE's Trip Generation Report. The complete set of trip generation reports and graphs created using the ITETripGen web app can be seen in **Appendix A**. ITE Code 151 Mini Warehouse sites were not included in the analysis as

they will only service the new apartments. The buildings labeled "GREENHOUSES" on the site plan are in support of the operations of business located elsewhere within the development and are not anticipated to generate any additional trips.

Table 9 – Olia Village Development Trip Generation

ITE Code	Land Use	Units	Value	AM Enter	AM Exit	PM Enter	PM Exit
160	Data Center	SF	36,476	2	2	1	2
220	Multifamily Housing (Low-Rise)	Dwellings	130	4	37	31	3
221	Multifamily Housing (Mid-Rise)	Dwellings	986	35	217	207	73
310	Hotel	Rooms	251	30	48	23	30
492	Health/Fitness Club	SF	55,549	37	36	96	73
715	Single Tenant Office Building	SF	129,613	211	26	35	196
760	Research and Development Center	SF	129,613	115	25	21	113
814	Variety Store	SF	3,351	3	2	5	5
822 (1)	Strip Retail Plaza (<40k)	SF	7,068	14	9	30	31
822 (2)	Strip Retail Plaza (<40k)	SF	34,928	39	27	95	94
850	Supermarket	SF	67,238	183	149	313	314
861	Sporting Goods Superstore	SF	50,000	14	2	33	35
876	Apparel Store	SF	55,892	13	8	26	37
879	Arts and Crafts Store	SF	6,741	12	10	19	23
920	Copy, Print, and Express Ship Store	SF	3,654	8	2	12	15
930	Fast Casual Restaurant	SF	33,656	24	24	324	265
931	Fine Dining Restaurant	SF	24,031	9	9	126	61
932	High-Turnover (Sit-Down) Restaurant	SF	13,445	71	58	83	49
933	Fast-Food Restaurant without Drive-Through	SF	3,032	76	55	22	21
936	Coffee/Donut Shop without Drive-Through	SF	3,600	171	164	58	58
937	Coffee/Donut Shop with Drive-Through	SF	2,435	219	180	108	95
Subtotal – All Trips				1290	1090	1668	1593
Internal Capture (20%/49%)				249	249	801	801
Total External Trip Generation				**1041**	**841**	**867**	**792**
Pass-By Trips				*(293)*	*(243)*	*(495)*	*(426)*

*Sites belonging to LUC 822 were analyzed separately because of a nonlinear fitted curve for trip generation.

5.2.2 Adjustments to Trip Generation Rates

Trip generation rates were adjusted for internal capture and pass-by trips as outlined below.

Internal Capture Trips
This development contains various development classifications and will have a significant amount of internal capture. Calculations for the internal capture rates reported in **Table 9** are based on the estimated internal capture rates reported by NCHRP 684 and the ITE Trip Generation Handbook[2].

Pass-By Trips
According to the ITE Trip Generation Handbook, pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. They are attracted from traffic passing the proposed site on an adjacent street that offers access to the development. As such, pass-by trips are not added to traffic directly generated by the site in question, as they would be on the road network if the site did not exist. Pass-by trips were diverted from Olive Boulevard and Lindbergh Boulevard through the Monsanto interchange and the Olive Boulevard intersections at Old Olive Street Road and Pavillion Drive. Calculations were based on estimated pass-by rates given by the Trip Generation Handbook. In cases where a pass-by rate was not available, the rate was estimated using similar land use cases. **Table 10** is a summary of the pass-by trips for the development.

[2] ITE Trip Generation Handbook, Institute of Transportation Engineers, Third Edition 2017.

Table 10 – Olia Village Development Pass-by Trips

ITE Code	Land Use	AM Pass-By Rate %	PM Pass-By Rate %	AM Enter	AM Exit	PM Enter	PM Exit
160	Data Center	0%	0%	0	0	0	0
220	Multifamily Housing (Low-Rise)	0%	0%	0	0	0	0
221	Multifamily Housing (Mid-Rise)	0%	0%	0	0	0	0
310	Hotel	5%	5%	2	2	1	2
492	Health/Fitness Club	5%	5%	2	2	5	4
715	Single Tenant Office Building	0%	0%	0	0	0	0
760	Research and Development Center	0%	0%	0	0	0	0
814	Variety Store	22%	34%	1	0	2	2
822 (1)	Strip Retail Plaza (<40k)	25%	40%	4	2	12	12
822 (2)	Strip Retail Plaza (<40k)	25%	40%	10	7	38	38
850	Supermarket	18%	24%	33	27	75	75
861	Sporting Goods Superstore	25%	40%	4	1	13	14
876	Apparel Store	25%	40%	3	2	10	15
879	Arts and Crafts Store	25%	40%	3	3	8	9
920	Copy, Print, and Express Ship Store	25%	40%	2	1	5	6
930	Fast Casual Restaurant	22%	43%	5	5	139	114
931	Fine Dining Restaurant	20%	44%	2	2	55	27
932	High-Turnover (Sit-Down) Restaurant	22%	43%	16	13	36	21
933	Fast-Food Restaurant without Drive-Through	40%	45%	30	22	10	9
936	Coffee/Donut Shop without Drive-Through	40%	45%	68	66	26	26
937	Coffee/Donut Shop with Drive-Through	50%	55%	110	90	59	52
Total Pass-By Trips				**293**	**243**	**495**	**426**

5.2.3 Trip Distribution

Trip distribution involves taking the trips generated by the development in this study and determining which direction vehicles will arrive from and depart to in order to reach their final destinations. Trips generated by the proposed mixed-use development are estimated to primarily come from Olive Boulevard and Lindbergh Boulevard.

The trip distribution of traffic was estimated based upon existing developments and the existing traffic patterns on Olive Boulevard and Lindbergh Boulevard. A summary of the external traffic distribution (not including pass-by trips) from this estimation is as follows:

- To/From the north on Lindbergh Boulevard: **22%**
- To/From the south on Lindbergh Boulevard: **22%**
- To/From the west on Olive Boulevard: **22%**
- To/From the east on Olive Boulevard: **22%**
- To/From the east on Monsanto Drive: **4%**
- To/From the north on Old Olive Street W: **4%**
- To/From the north on Pavillion Drive: **4%**

Pass-by trips are assumed to be generated primarily by Olive Boulevard and Lindbergh Boulevard and are estimated to have the following distribution:

- To/From the north on Lindbergh Boulevard: **25%**
- To/From the south on Lindbergh Boulevard: **25%**
- To/From the west on Olive Boulevard: **25%**
- To/From the east on Olive Boulevard: **25%**

These trip distribution assumptions were based upon ADT volumes and existing turning volumes for the study area.

5.2.4 Trip Assignment

Trip assignment involves assigning the distribution traffic to each individual intersection in the study area, both existing and proposed. This includes both entering and exiting trips in the morning and evening peak hours. The trip assignment assumptions were based on logic, assumed travel patterns, development layout and anticipated traffic delays. **Table 11** shows the resulting traffic assignment between the access points to the planned development. These assignments are based upon small differences in the delays between each intersection. Slight modifications to these assignments may occur if delays are lower at adjacent intersections as travelers attempt to minimize their delay entering or exiting the development.

Table 11 – Proposed Development Traffic Assignment

	External (Excludes Pass-By)			Pass-By		
	Old Olive W	Pavilion	Monsanto	Old Olive W	Pavilion	Monsanto
To/From north on US 67	0%	40%	60%	0%	40%	60%
To/From south on US 67	0%	30%	70%	0%	30%	70%
To/From west on MO 340	30%	60%	10%	30%	60%	10%
To/From east on MO 340	0%	85%	15%	0%	85%	15%
To/From east Monsanto	0%	0%	100%			
To/From north Olive W	90%	10%	0%			
To/From north Pavilion	0%	100%	0%			

Exhibit 5 shows the total change to traffic patterns in the study area from the trips generated by the site using the outlined trip generation, distribution, and assignment.

5.3 Future Build Forecasting

Using the estimated trip generation, assuming the proposed development has been constructed, traffic projections were produced by adding the development trips to the background volumes. Projections were made for the construction year (2028) and design year (2048). These volumes are shown in **Exhibit 6**, and **Exhibit 7**, respectively.

6 Analysis of Traffic and Improvements

The following section presents the results of the analysis of traffic for the proposed development, along with recommendations for alternative improvements.

6.1 Site Access Performance

As stated in Section 3.4, access to the proposed development is located along Olive Boulevard at Old Olive Street Road West and Pavillion Drive and along Lindbergh Boulevard at the Monsanto Drive interchange. Analysis results for the development access points are given below in Section 6.2 alongside results for the other study intersections.

6.2 Capacity and Level of Service Analysis

This subsection evaluates the delays and LOS of the study intersections with and without the forecasted traffic volumes of the proposed development.

6.2.1 Background (Future No-Build)

Future No-Build intersection analysis scenarios included AM and PM peak hours for 2028 and 2048. Forecasted volumes are shown in **Exhibit 3** and **Exhibit 4**. **Table 12** shows the intersection analysis results for the Future No-Build scenarios. **Table 13** shows the ramp analysis results for Lindbergh Boulevard. These results provide a baseline for comparison with the build scenarios.

Table 12 – No-Build Intersection Operational Analysis

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Spoede	EB	20.2 (C)	31.4 (C)	485	662	22.4 (C)	38.4 (D)	576	810
	WB	3.4 (A)	3.9 (B)	115	119	4.4 (A)	5.0 (A)	127	132
	NB	33.8 (C)	35.5 (C)	105	151	37.2 (D)	37.5 (D)	126	165
	SB	44.8 (D)	45.3 (D)	34	36	45.3 (D)	45.4 (D)	37	37
	ALL	**13.5 (B)**	**18.4 (B)**			**15.1 (B)**	**22.0 (C)**		
Olive & Old Olive W	EB	8.9 (A)	18.1 (B)	240	237	11.3 (B)	20.9 (C)	314	252
	WB	0.7 (A)	8.9 (B)	6	591	1.3 (A)	15.4 (B)	17	871
	NB	27.0 (C)	32.1 (C)	31	87	26.3 (C)	32.4 (C)	33	97
	SB	29.2 (C)	39.6 (C)	142	223	32.1 (C)	46.1 (D)	152	333
	ALL	**9.0 (A)**	**17.4 (B)**			**10.8 (B)**	**22.3 (C)**		
Olive & Pavillion	EB	3.5 (A)	2.8 (A)	65	71	3.8 (A)	3.1 (A)	71	78
	WB	2.9 (A)	10.9 (B)	68	250	2.8 (A)	14.7 (B)	67	323
	NB	0.0 (A)	0.0 (A)	0	0	0.0 (A)	0.0 (A)	0	0
	SB	42.2 (D)	35.1 (D)	86	141	41.8 (D)	35.9 (D)	91	156
	ALL	**4.3 (A)**	**9.1 (A)**			**4.4 (A)**	**11.3 (B)**		
Olive & SB Lindbergh	EB	4.7 (A)	5.8 (A)	256	221	5.3 (A)	6.9 (A)	288	283
	WB	15.8 (B)	13.3 (B)	411	374	16.6 (B)	13.8 (B)	501	383
	NB	30.4 (C)	20.6 (C)	126	51	35.2 (D)	26.4 (C)	153	69
	ALL	**11.9 (B)**	**10.6 (B)**			**13.0 (B)**	**11.7 (B)**		
Olive & NB Lindbergh	EB	5.8 (A)	2.5 (A)	272	88	7.0 (A)	3.1 (A)	296	103
	WB	6.1 (A)	10.8 (B)	281	530	8.6 (A)	13.4 (B)	395	642
	NB	42.8 (D)	39.1 (D)	108	120	45.6 (D)	39.1 (D)	138	130
	ALL	**10.3 (B)**	**10.7 (B)**			**12.2 (B)**	**12.2 (B)**		
Olive & Old Olive E	EB	5.3 (A)	6.9 (A)	534	389	7.2 (A)	7.5 (A)	800	488
	WB	8.5 (A)	9.6 (A)	264	419	9.1 (A)	11.1 (B)	307	533
	SB	32.9 (C)	35.0 (C)	68	163	32.8 (C)	41.3 (D)	73	184
	ALL	**7.5 (A)**	**10.8 (B)**			**8.8 (A)**	**12.4 (B)**		
Lindbergh & Old Olive*	EB	34.0 (D)	23.2 (C)	63	40	50.5 (F)	29.3 (D)	95	58
	WB	21.7 (C)	107.9 (F)	58	393	27.6 (D)	206.4 (F)	83	593
Lindbergh / Monsanto Interchange (1)*	WB	0.0 (A)	0.0 (A)	0	0	0.0 (A)	0.0 (A)	0	0
Lindbergh / Monsanto Interchange (2)*	WB	6.7 (A)	6.5 (A)	5	3	6.7 (A)	6.5 (A)	5	3
	NB	6.8 (A)	6.7 (A)	3	3	6.8 (A)	6.7 (A)	3	3
Lindbergh / Monsanto Interchange (3)*	EB	7.2 (A)	7.1 (A)	3	3	7.2 (A)	7.1 (A)	3	3
	WB	0.0 (A)	7.1 (A)	0	0	0.0 (A)	7.1 (A)	0	0
	NB	7.5 (A)	7.4 (A)	5	3	7.5 (A)	7.4 (A)	5	3
Lindbergh / Monsanto Interchange (4)*	EB	7.2 (A)	7.3 (A)	2	1	7.2 (A)	7.3 (A)	3	2
	NB	7.0 (A)	7.0 (A)	4	1	7.1 (A)	7.0 (A)	5	1

* Unsignalized intersection, HCM6 delay/LOS/queue reported for stopped approach only.

Based upon the intersection analysis, the existing roadway network works efficiently with all intersections at LOS C or better and all approaches at LOS D or better, with the exception of the intersection of Lindbergh and Old Olive Street. The intersection of Lindbergh and Old Olive Street will be improved as part of the 39 North Development, which is included in the build analysis.

Table 13 – No-Build Lindbergh Operational Analysis

		Segment		Type	LOS		Speed (mph)		Density (pc/mi/ln)	
		From	To		AM	PM	AM	PM	AM	PM
2028	NB	Monsanto Off		Diverge	B	B	43.5	43.5	21.3	19.1
		Monsanto On	Olive Off	Weaving	B	B	39.5	39.4	15.0	14.0
		Olive On		Merge	B	B	44.0	44.0	17.0	15.9
	SB	Olive Off		Diverge	B	B	43.0	43.1	25.3	21.4
		Olive On		Merge	B	B	44.0	44.0	24.3	23.3
		Monsanto On	Monsanto Off	Weaving	B	B	41.0	41.3	17.7	16.8
2048	NB	Monsanto Off		Diverge	B	B	43.5	43.5	23.6	21.1
		Monsanto On	Olive Off	Weaving	B	B	38.9	38.9	16.8	15.7
		Olive On		Merge	B	B	44.0	44.0	18.8	17.5
	SB	Olive Off		Diverge	B	B	43.0	43.1	28.0	23.7
		Olive On		Merge	C	C	44.0	44.0	26.8	25.8
		Monsanto On	Monsanto Off	Weaving	B	B	40.6	41.0	19.8	18.7

Based on the ramp analysis, the existing ramps on Lindbergh Boulevard also work efficiently with all segments operating at LOS B or better, except for the southbound on-ramp from Olive Boulevard which falls to LOS C in 2048. This is due to a slight increase in traffic density of approximately 2.5 pc/mi/ln from 2028. The density increase has a negligible effect on travel speed.

6.2.2 Future Build

With the addition of the Olia Village Development the entrance located at Olive Boulevard and Pavillion Drive will require modifications to provide access. This includes the addition of a westbound left turn lane within the existing median and the modification of the southbound approach to a left turn lane and a shared through/right turn lane. The additional intersection on the west side of the Lindbergh-Monsanto interchange was also analyzed, assuming stop control for all approaches. The new intersection and existing intersection directly south are referred to as (2.2) and (2.1), as shown in the image below.

Future Build analysis scenarios included AM and PM peak hours for 2028 and 2048. Forecasted volumes are shown in **Exhibit 6** and **Exhibit 7**. **Table 14** shows the intersection analysis results for the Future Build scenarios. **Table 15** shows the ramp analysis results for Lindbergh Boulevard.

Table 14 – Build Intersection Operational Analysis

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Spoede	EB	11.6 (B)	27.8 (C)	482	666	14.5 (B)	33.4 (C)	588	802
	WB	3.3 (A)	8.8 (A)	134	166	4.5 (A)	14.9 (B)	143	167
	NB	52.9 (D)	28.7 (C)	134	135	52.6 (D)	29.9 (C)	146	147
	SB	50.4 (D)	36.0 (D)	35	32	50.2 (D)	36.0 (D)	38	33
	ALL	**10.7 (B)**	**18.7 (B)**			**12.5 (B)**	**24.2 (C)**		
Olive & Old Olive W	EB	11.3 (B)	14.6 (B)	227	318	12.5 (B)	18.7 (B)	280	320
	WB	15.4 (B)	26.9 (C)	377	551	17.7 (B)	53.5 (D)	548	893
	NB	43.5 (D)	47.9 (D)	85	121	43.0 (D)	49.0 (D)	85	130
	SB	31.2 (C)	38.0 (D)	207	340	34.3 (C)	54.2 (D)	243	439
	ALL	**16.5 (B)**	**24.5 (C)**			**18.2 (B)**	**39.8 (D)**		
Olive & Pavillion	EB	14.8 (B)	14.7 (B)	257	393	19.3 (B)	19.0 (B)	596	524
	WB	19.7 (B)	14.2 (B)	465	377	19.8 (B)	16.3 (B)	468	380
	NB	40.8 (D)	30.1 (C)	204	170	40.8 (D)	29.5 (C)	204	170
	SB	53.7 (D)	40.6 (D)	84	136	53.5 (D)	41.6 (D)	89	151
	ALL	**21.1 (C)**	**17.5 (B)**			**23.0 (C)**	**20.0 (B)**		
Olive & SB Lindbergh	EB	6.8 (A)	12.2 (B)	148	303	7.1 (A)	14.2 (B)	151	368
	WB	10.9 (B)	16.1 (B)	216	406	11.5 (B)	16.5 (B)	225	436
	NB	43.7 (D)	39.6 (D)	154	154	46.0 (D)	42.6 (D)	163	155
	ALL	**12.5 (B)**	**16.2 (B)**			**13.0 (B)**	**17.4 (B)**		
Olive & NB Lindbergh	EB	4.1 (A)	5.2 (A)	175	151	5.2 (A)	5.7 (A)	197	164
	WB	6.6 (A)	10.7 (B)	283	531	8.1 (A)	13.3 (B)	394	613
	NB	47.3 (D)	42.9 (D)	155	165	49.8 (D)	46.1 (D)	174	177
	ALL	**11.0 (B)**	**12.7 (B)**			**12.4 (B)**	**14.5 (B)**		
Olive & Old Olive E	EB	3.5 (A)	6.7 (A)	251	456	5.0 (A)	8.8 (A)	120	556
	WB	6.0 (A)	9.8 (A)	277	520	6.5 (A)	11.5 (B)	321	627
	SB	41.8 (D)	48.2 (D)	72	163	41.9 (D)	53.1 (D)	77	179
	ALL	**5.6 (A)**	**11.8 (B)**			**6.7 (A)**	**14.0 (B)**		
Lindbergh & Old Olive	EB	36.6 (D)	21.1 (C)	100	83	40.4 (D)	23.1 (C)	118	98
	WB	36.3 (D)	58.1 (E)	121	487	46.3 (D)	67.6 (E)	156	593
	NB	8.5 (A)	16.4 (B)	353	486	9.9 (A)	19.1 (B)	417	570
	SB	10.0 (A)	20.8 (C)	681	735	13.5 (B)	28.2 (C)	909	930
	ALL	**11.3 (B)**	**23.8 (C)**			**14.4 (B)**	**28.5 (C)**		
Lindbergh / Monsanto Interchange (1)*	WB	9.1 (A)	9.0 (A)	3	3	9.1 (A)	9.0 (A)	3	3
Lindbergh / Monsanto Interchange (2.1)*	WB	9.8 (A)	9.1 (A)	38	30	9.9 (A)	9.1 (A)	40	30
	NB	9.6 (A)	9.0 (A)	30	23	9.6 (A)	9.0 (A)	30	23
	SB	9.9 (A)	9.5 (A)	23	20	9.9 (A)	9.5 (A)	23	20
Lindbergh / Monsanto Interchange (2.2)*	EB	10.6 (B)	10.1 (B)	48	40	10.8 (B)	10.1 (B)	48	40
	NB	13.7 (B)	11.7 (B)	88	60	13.8 (B)	11.7 (B)	90	60
Lindbergh / Monsanto Interchange (3)*	EB	8.7 (A)	8.7 (A)	28	25	8.7 (A)	8.8 (A)	28	28
	WB	8.0 (A)	8.2 (A)	3	3	8.1 (A)	8.2 (A)	3	3
	NB	9.9 (A)	10.7 (B)	35	48	10.0 (B)	10.8 (B)	35	48
Lindbergh / Monsanto Interchange (4)*	EB	7.3 (A)	7.4 (A)	5	3	7.3 (A)	7.4 (A)	5	3
	NB	7.2 (A)	7.1 (A)	4	1	7.2 (A)	7.1 (A)	5	1

* Unsignalized intersection, HCM6 delay/LOS/queue reported for stopped approach only.

Based upon the intersection analysis of the build scenario the existing roadway network generally works efficiently with most intersections at LOS C or better and all approaches at LOS D or better. The intersection Lindbergh and Old Olive Street works better with the proposed signalization, including significant reduction in delay for the eastbound and westbound approaches.

The only intersection that does not operate at a LOS C or better is the intersection of Olive Boulevard and Old Olive Street (West), which operates at LOS D during the 2048 PM peak hour. The delay at this intersection during the PM peak hour is driven in part by a heavy southbound right turn movement, driven by background growth and unrelated to the proposed development. A future improvement to address this intersection is reviewed in Section 6.3.

Table 15 – Build Lindbergh Operational Analysis

		Segment		Type	LOS		Speed (mph)		Density (pc/mi/ln)	
		From	To		AM	PM	AM	PM	AM	PM
2028	NB	Monsanto Off		Diverge	B	B	43.4	43.5	23.5	20.2
		Monsanto On	Olive Off	Weaving	B	B	37.6	37.7	17.3	15.6
		Olive On		Merge	B	B	44.0	44.0	18.5	16.7
	SB	Olive Off		Diverge	C	B	43.0	43.1	27.5	22.5
		Olive On		Merge	C	C	44.0	44.0	26.6	24.7
		Monsanto On	Monsanto Off	Weaving	B	B	37.7	38.4	22.4	20.4
2048	NB	Monsanto Off		Diverge	C	B	43.4	43.5	25.7	22.2
		Monsanto On	Olive Off	Weaving	B	B	37.0	37.3	19.3	17.3
		Olive On		Merge	B	B	44.0	44.0	20.3	18.3
	SB	Olive Off		Diverge	C	B	43.0	43.0	30.2	24.8
		Olive On		Merge	C	C	43.9	44.0	29.3	27.1
		Monsanto On	Monsanto Off	Weaving	C	B	37.3	38.1	24.7	22.4

Based on the ramp analysis of the build scenario, the Lindbergh Boulevard ramps continue to operate efficiently with all segments at LOS C or better. Compared to the no-build scenario, there are slight increases in density and reductions in travel speed, with the largest difference on the weaving segments. The largest increase in density, 4.9 pc/mi/ln, occurs on the southbound weaving segment. Speed decreases at most 3.3 mph, also on the southbound weaving segment. Changes in speed on the merge and diverge segments are negligible.

6.3 Proposed Improvements

With the existing heavy evening southbound to westbound right turn movement at the Old Olive Street intersection, the addition of a separate right turn lane, as shown below in **Figure 6**, was analyzed to determine if improved operations would result for the overall intersection.

Figure 6 – Southbound Old Olive Street (West) Right Turn Lane

6.3.1 Future Build with Improvements

Table 16 shows the impact that the additional southbound right turn lane on Old Olive Street has on the overall intersection operations with Future Build scenario.

Table 16 – Build Operational Analysis with Old Olive Street Improvement

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Old Olive W (with SB RT Lane)	EB	11.3 (B)	14.6 (B)	227	318	12.5 (B)	18.7 (B)	280	320
	WB	15.4 (B)	26.9 (C)	377	551	17.7 (B)	53.2 (D)	548	893
	NB	40.3 (D)	39.6 (D)	85	121	39.8 (D)	40.5 (D)	85	130
	SB	23.3 (C)	28.5 (C)	124	210	24.0 (C)	36.1 (D)	135	318
	ALL	**15.4 (B)**	**22.8 (C)**			**16.7 (B)**	**36.8 (D)**		

Without the additional southbound right turn lane, the southbound approach at the Olive & Old Olive intersection first experiences excessive delays on some movements (greater than 55 seconds,

or LOS E) at around the year 2048. While not initially necessary, this lane addition keeps delays within reasonable limits and, while LOS does not change, provides an improvement in the 2048 scenario of almost 20 seconds of delay on the southbound approach. The additional turn lane does not have a big impact on the 2028 scenario and is not required until later.

7 Additional Considerations

7.1 Adjacent Development

An additional adjacent development is proposed by Atlus in Creve Coeur at the northeast corner of Olive and Old Olive Road. The proposed development consists of a mixed-use building with 229 apartment units and 4,700 square feet of ground floor commercial space. This development would replace a vacant restaurant and an active California Pizza Kitchen.

Figure 7 – Adjacent Altus Development

Trips Generated by the adjacent Atlus development are shown in Table 17, which accounts for the removal of the existing restaurant and associated trips and the mixed used nature of this new development and the adjacent Creve Coeur Pavilion development.

Table 17 – Altus Development Trip Generation

ITE Code	Land Use	Units	Value	AM Enter	AM Exit	PM Enter	PM Exit
221	Multifamily Housing (Mid-Rise)	Dwellings	229	21	68	55	35
822	Strip Retail Plaza (<40k)	SF	4,700	10	7	23	23
932	High-Turnover (Sit-Down) Restaurant	SF	5,700	0	0	(31)	(21)
Subtotal – All Trips				31	75	47	37
Internal Capture (20%/49%)				(6)	(15)	(23)	(18)
Total External Trip Generation				**25**	**60**	**24**	**19**

The resulting trips were added to the study roadway network with an assumed even trip distribution of thirds going west on Olive Blvd, east on Olive Blvd, and north on Old Olive Road. The additional trips were added to the development intersections and the resulting delays are shown in Table 18. As shown in the table the additional trips have a small impact on average delays at these intersections, but they still operate effectively.

Table 18 – Build Operational Analysis with Additional Development Trips

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Old Olive W (with SB RT Lane)	EB	11.5 (B)	15.9 (B)	232	334	13.0 (B)	20.4 (C)	281	337
	WB	15.5 (B)	26.8 (C)	380	546	18.0 (B)	53.1 (D)	548	894
	NB	40.3 (D)	39.6 (D)	85	121	39.8 (D)	40.5 (D)	85	130
	SB	24.2 (C)	29.6 (C)	144	211	27.1 (C)	37.5 (D)	155	330
	ALL	**15.7 (B)**	**23.5 (C)**			**17.6 (B)**	**37.6 (D)**		
Olive & Pavilion	EB	15.6 (B)	14.9 (B)	288	400	20.4 (C)	19.3 (B)	721	534
	WB	19.8 (B)	14.4 (B)	467	385	19.8 (B)	16.5 (B)	468	323
	NB	40.8 (D)	30.0 (C)	204	170	40.8 (D)	29.5 (C)	204	170
	SB	53.7 (D)	40.6 (D)	84	136	53.5 (D)	41.6 (D)	89	151
	ALL	**21.5 (C)**	**17.7 (B)**			**23.4 (C)**	**20.2 (C)**		

7.2 Pedestrian Accommodations

Pedestrian connectivity between Olia Village and the north side of Olive Boulevard could be provided through crosswalks at Pavilion Drive. The additional of crosswalks at this signalized intersection would include push buttons that would call a pedestrian phase across Olive Boulevard that would extend the northbound and southbound through phases to allow time for the pedestrian intervals to serve any pedestrian demands. The pedestrian phase is estimated to be 24 seconds which includes a walk indication and the required pedestrian clearance time.

Table 19 summarizes the operations of the Olive Blvd and Pavilion Drive intersection when the pedestrian interval is called, and the signal timing is adjusted. The adjusted signal timing has a minor impact on the average delays at the intersection and it remains operating efficiently.

Table 19 – Build Operational Analysis with Pedestrian Phases

Intersection	App.	2028				2048			
		Delay, s (LOS)		95th% Queue, ft		Delay, s (LOS)		95th% Queue, ft	
		AM	PM	AM	PM	AM	PM	AM	PM
Olive & Pavilion	EB	15.4 (B)	14.7 (B)	284	393	20.0 (C)	20.4 (C)	721	544
	WB	19.8 (B)	14.4 (B)	469	377	19.8 (B)	17.5 (B)	470	349
	NB	40.3 (D)	27.2 (C)	201	170	40.3 (D)	26.1 (C)	201	167
	SB	53.4 (D)	39.8 (D)	83	136	53.2 (D)	39.8 (D)	88	149
	ALL	**21.4 (C)**	**17.3 (B)**			**23.2 (C)**	**20.6 (C)**		

8 Recommendations and Conclusion

Based upon the analysis of the traffic impacts of the Olia Village Development, there are some improvements along the existing roadway network that will be required to adequately accommodate the anticipated traffic demands. The improvements to the Lindbergh and Old Olive Street intersection are not included in this section as they were taken from the 39 North project.

Olive Boulevard & Pavillion Drive
The future south leg of this intersection will provide one of the main entrances into the development. The proposed site plan includes a three lane northbound approach that includes separate left turn, through, and right turn lanes. Modifications to the westbound leg includes the addition of the left turn lane, through the removal of the existing median, and upgrades to signal equipment. This left turn lane is recommended to be 500 feet long to accommodate the anticipated left turn queue. The southbound approach is recommended to be modified through the conversion of the existing right turn lane to a shared through / right turn lane. This will require the removal of a portion of the existing channelizing island to allow for the through movement. Relocation of the drainage structure and pull box will also be necessary. With this intersection becoming a four-legged intersection, the north and south approaches are recommended to have protected/permissive left turn phasing, including flashing yellow arrows. Sight distances for the new permissive left turns are not expected to be a concern but should be reviewed during plan development for these improvements.

Olive Boulevard & Old Olive Street (West)
The Olive Boulevard & Old Olive Street (West) intersection will provide a secondary entrance into the development. There are no additional lanes initially required at this intersection. The connection to the site should be moved further south about 100 feet to align with the front of the Schnucks to allow for better operations of the intersection. Signal phasing modifications are recommended, consisting of implementing protected/permissive left turn phasing on the north and south approaches, including flashing yellow arrows. In the future, increased traffic volumes may

necessitate the addition of a separate southbound right turn lane to accommodate this heavy evening peak hour movement, but this improvement is not required upon completion of the development.

Lindbergh Boulevard and Monsanto Drive Interchange

The existing Monsanto interchange with Lindbergh Boulevard has ample capacity to accommodate the traffic demands that are expected to utilize this access point to the development. Aside from the additional intersection providing access to the development, no additional improvements are recommended here.

SITE TABULATIONS

R1	1-STORY GROCERY	67,238 SF	269 SPACES	
R2	2-STORY RETAIL	50,000 SF	200 SPACES	
R3A	1-STORY RETAIL	7,068 SF	29 SPACES	
R3B	1-STORY DINING W/ PATIO	11,225 SF	111 SPACES	
R4	DINING WITH PATIO	7,542 SF	75 SPACES	
SUB:		143,073 SF	684 SPACES	
MU1A	SW COM W/ DRIVE-THRU	2,435 SF	10 SPACES	
MU1B	SIDEWALK COMMERCIAL	4,245 SF	17 SPACES	
MU1C	SIDEWALK COMMERCIAL	3,654 SF	15 SPACES	
MU1D	SIDEWALK COMMERCIAL	3,600 SF	14 SPACES	
SUB:		14,722 SF	59 SPACES	
MU2	4-STORY APARTMENTS	303,633 SF	452 SPACES	276 APT UNITS
MU2A	SIDEWALK COMMERCIAL	3,351 SF	14 SPACES	
MU2B	SIDEWALK COMMERCIAL	7,204 SF	29 SPACES	
MU2C	SIDEWALK COMMERCIAL	3,560 SF	15 SPACES	
MU2D	SIDEWALK COMMERCIAL	2,569 SF	11 SPACES	
MU2E	SIDEWALK COMMERCIAL	2,898 SF	12 SPACES	
MU2F	SIDEWALK COMMERCIAL	21,637 SF	87 SPACES	
MU2G	SIDEWALK COMMERCIAL	3,068 SF	13 SPACES	
MU2H	SIDEWALK COMMERCIAL	6,562 SF	27 SPACES	
MU2J	SIDEWALK COMMERCIAL	6,228 SF	25 SPACES	
SUB:		360,780 SF	685 SPACES	
MU3	2-STORY OFFICE	49,108 SF	162 SPACES	
MU3A	DINING WITH PATIO	10,226 SF	103 SPACES	
MU3B	DINING WITH PATIO	11,341 SF	113 SPACES	
SUB:		70,675 SF	378 SPACES	
MU4	4-STORY APARTMENTS	184,179 SF	288 SPACES	167 APT UNITS
MU4A	SIDEWALK COMMERCIAL	3,002 SF	12 SPACES	
MU4B	SIDEWALK COMMERCIAL	5,825 SF	24 SPACES	
MU4C	2-STORY RETAIL	34,928 SF	190 SPACES	(+ 100 CARS)
SUB:		227,934 SF	514 SPACES	
MU5	4-STORY APARTMENTS	241,416 SF	367 SPACES	219 APT UNITS
MU5A	SIDEWALK COMMERCIAL	3,161 SF	13 SPACES	
MU5B	SIDEWALK COMMERCIAL	3,544 SF	14 SPACES	
MU5C	SIDEWALK COMMERCIAL	15,096 SF	61 SPACES	
MU5D	SIDEWALK COMMERCIAL	3,032 SF	12 SPACES	
MU5E	SIDEWALK COMMERCIAL	4,761 SF	19 SPACES	
SUB:		270,010 SF	486 SPACES	
CC1	CLIMATE CONTROL STOR	90,849 SF	0 SPACES	
MF1	3.5-STORY APARTMENTS	216,761 SF	334 SPACES	197 APT UNITS
MF2	3.5-STORY APARTMENTS	139,618 SF	205 SPACES	127 APT UNITS
CC2	CLIMATE CONTROL STOR	23,431 SF	0 SPACES	
SUB:		470,659 SF	539 SPACES	
A1	AMENITY BUILDING	55,549 SF	222 SPACES	
DC1	2-STORY DATA CENTER	36,476 SF	21 SPACES	
OB1	OFFICE BUILDING	145,500 SF		
H1	5-STORY HOTEL	81,470 SF	123 SPACES	123 KEYS
H2	6-STORY HOTEL	66,510 SF	128 SPACES	128 KEYS
SUB:		148,250 SF	251 SPACES	251 KEYS
MOB	2-STORY OFFICE	64,618 SF	214 SPACES	
G1	4-STORY GARAGE	94,340 SF		278 SPACES
G2	5-STORY GARAGE	289,345 SF		870 SPACES
G3	5-STORY GARAGE	128,675 SF		390 SPACES
G4	5-STORY GARAGE	128,675 SF		390 SPACES
G5	4-STORY GARAGE	125,548 SF		400 SPACES
G6	5-STORY GARAGE	128,675 SF		390 SPACES
G7	3-STORY GARAGE	61,480 SF		196 SPACES
G8	2-STORY GARAGE	60,338 SF		140 SPACES
SUB:		1,017,076 SF		3,054 SPACES
TH	TOWNHOMES			130 UNITS
	GREENHOUSES	21,250 SF		

OLIA VILLAGE

THE HEART OF CREVE COEUR

OLIA VILLAGE

10300 Olive Boulevard, Creve Coeur, MO

MASTER PLAN | 22478.00 | 05.17.2023

JACK MATTHEWS DEVELOPMENT | FIRESIDE FINANCIAL | gray

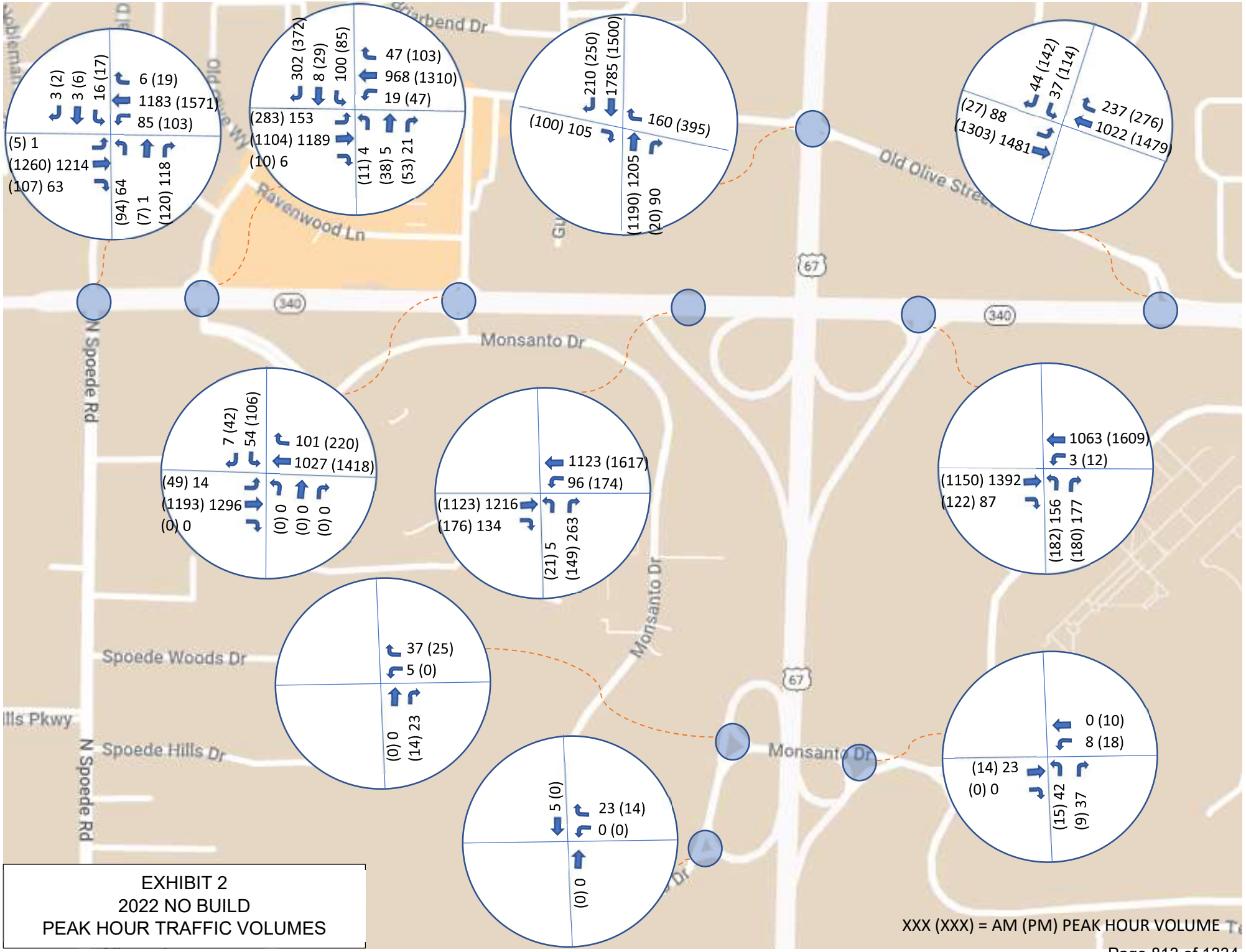


EXHIBIT 2
2022 NO BUILD
PEAK HOUR TRAFFIC VOLUMES

XXX (XXX) = AM (PM) PEAK HOUR VOLUME

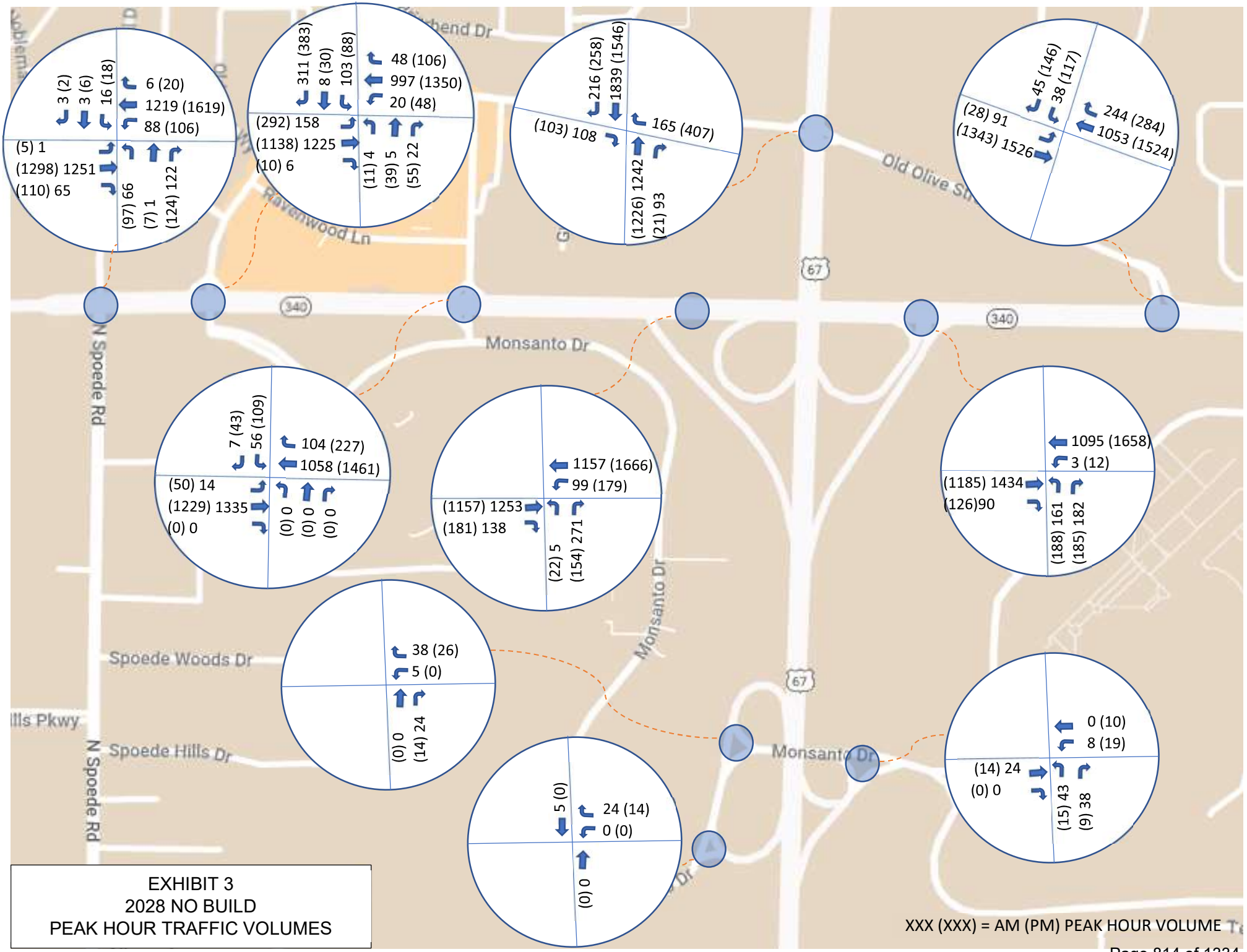


EXHIBIT 3
2028 NO BUILD
PEAK HOUR TRAFFIC VOLUMES

XXX (XXX) = AM (PM) PEAK HOUR VOLUME

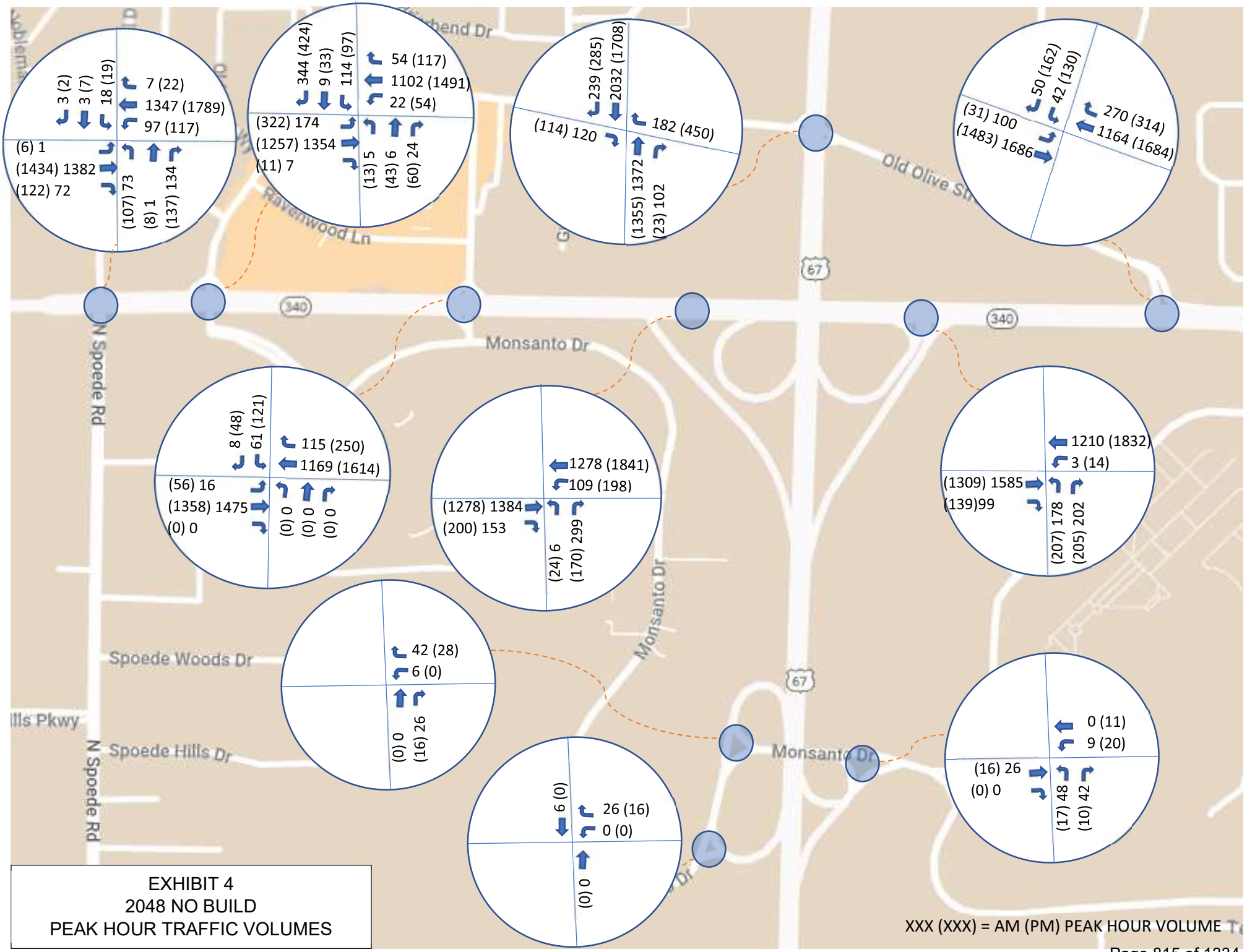


EXHIBIT 4
2048 NO BUILD
PEAK HOUR TRAFFIC VOLUMES

XXX (XXX) = AM (PM) PEAK HOUR VOLUME

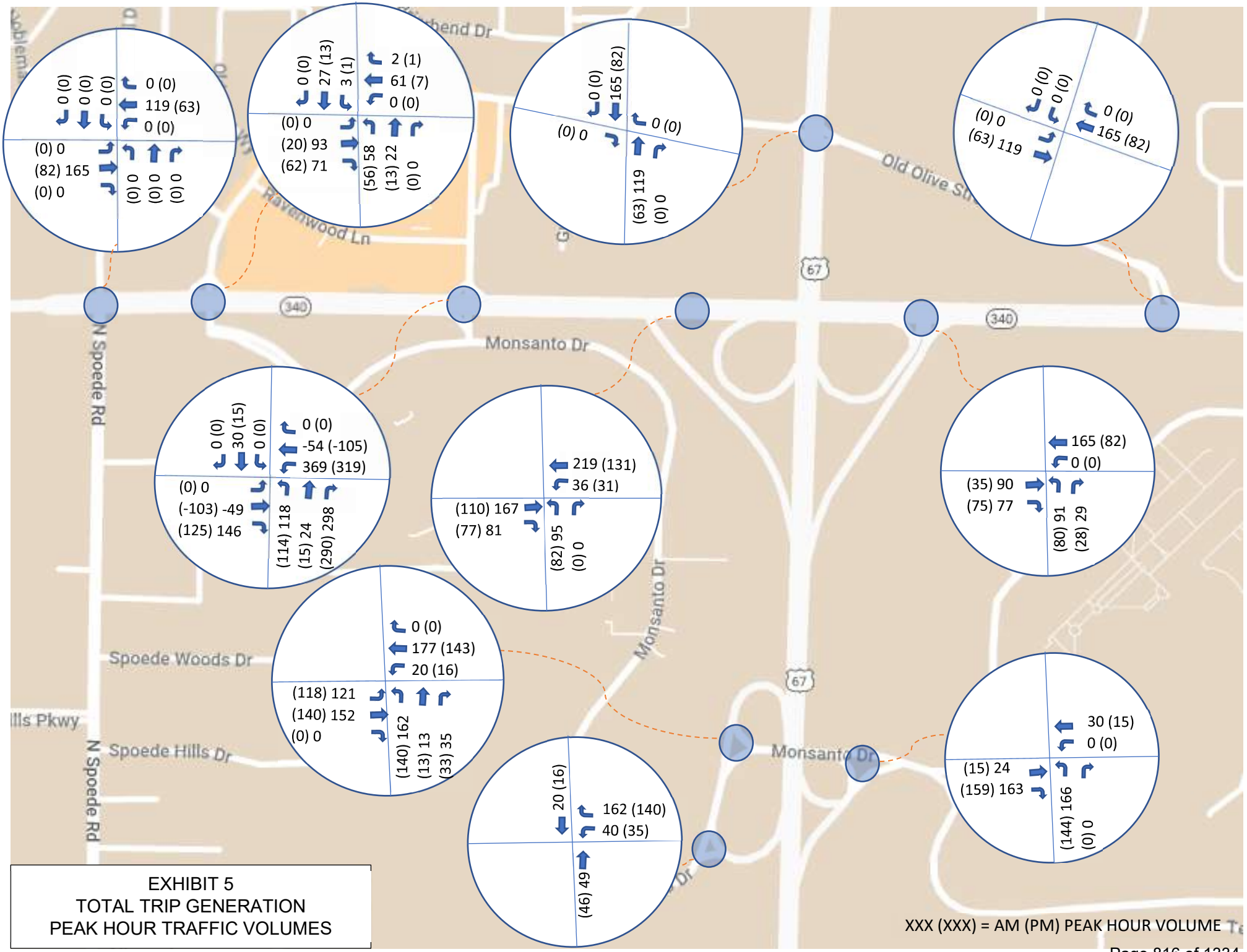


EXHIBIT 5
TOTAL TRIP GENERATION
PEAK HOUR TRAFFIC VOLUMES

XXX (XXX) = AM (PM) PEAK HOUR VOLUME

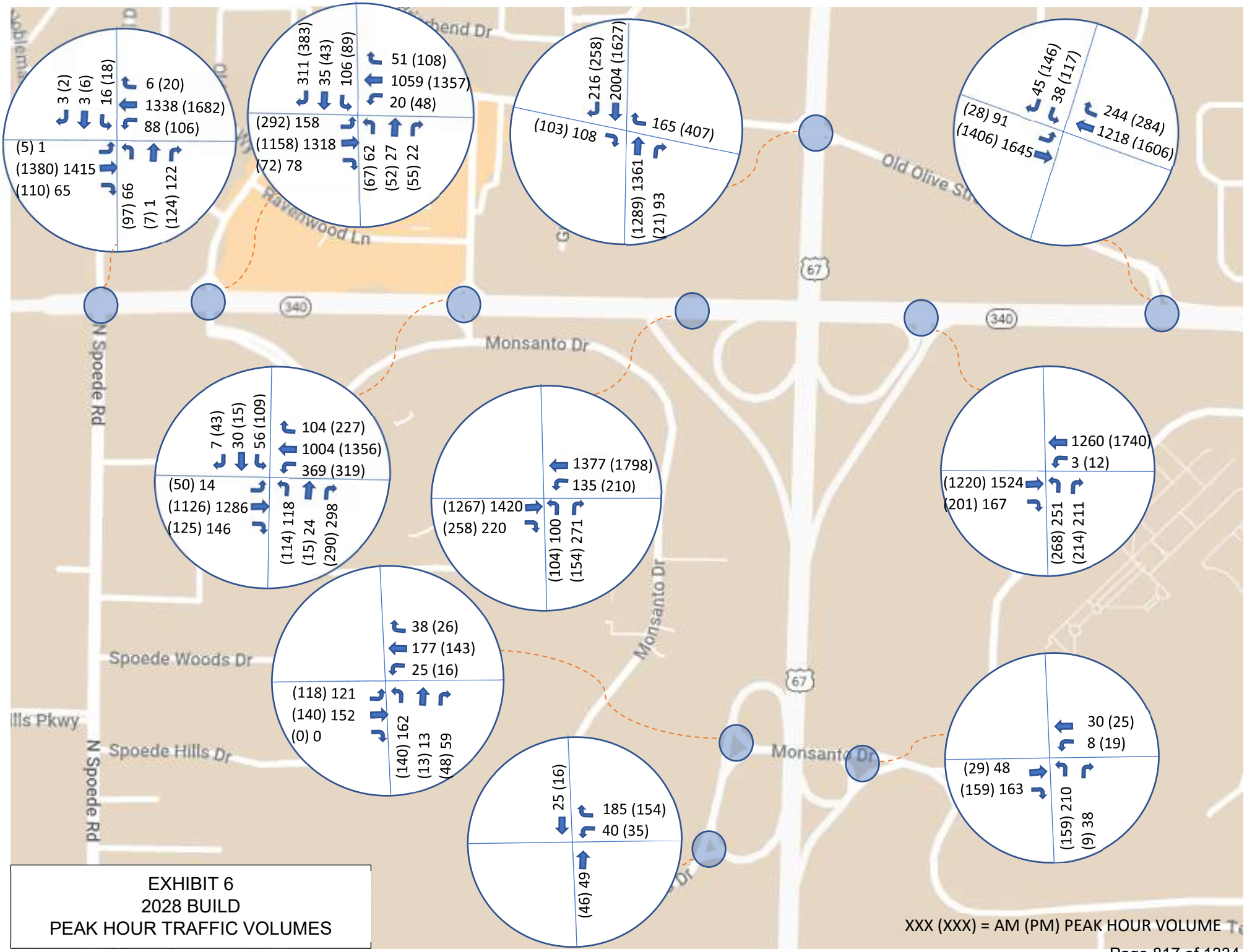


EXHIBIT 6
2028 BUILD
PEAK HOUR TRAFFIC VOLUMES

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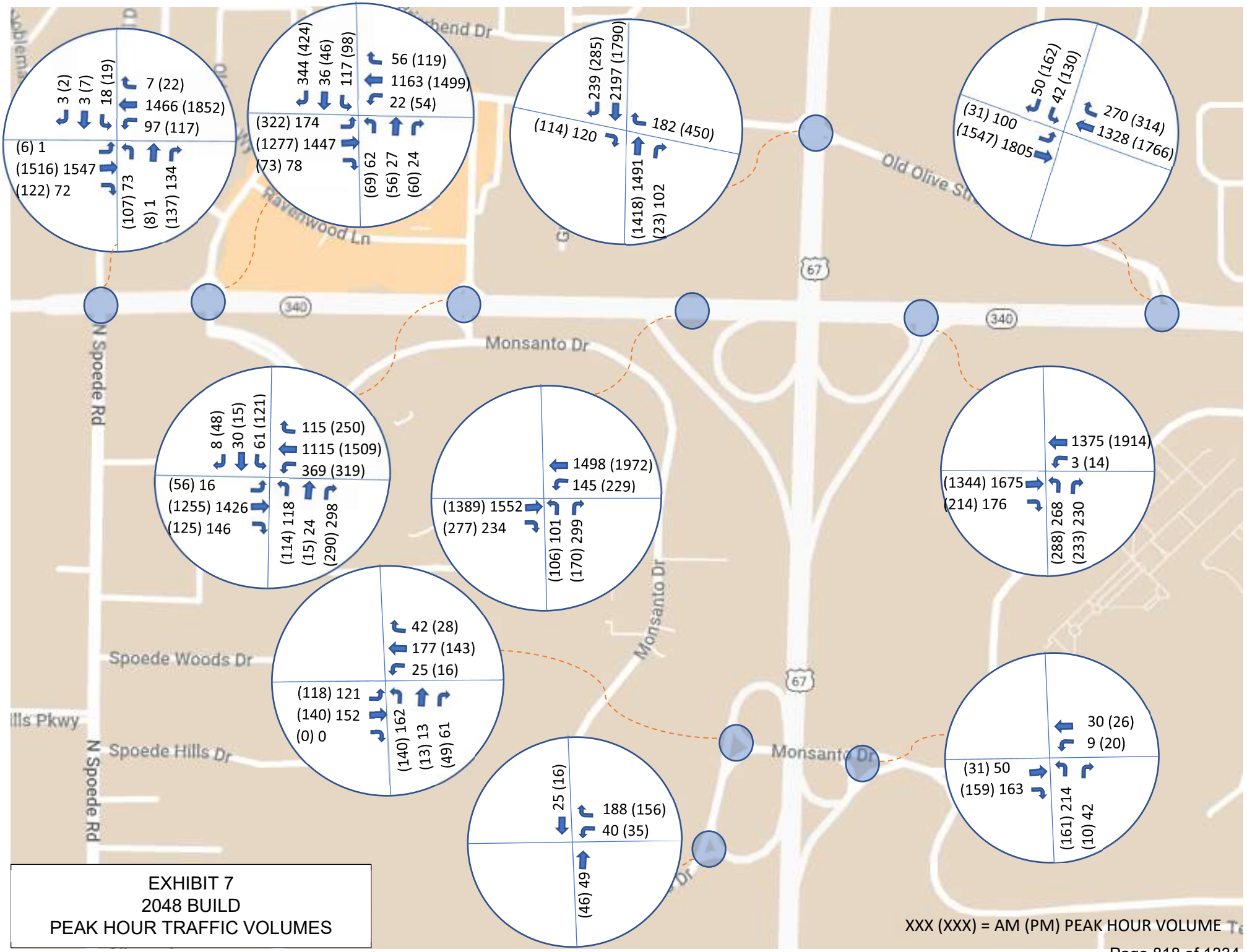


EXHIBIT 7
2048 BUILD
PEAK HOUR TRAFFIC VOLUMES

XXX (XXX) = AM (PM) PEAK HOUR VOLUME

Appendix A

Trip Generation Reports and Graphs

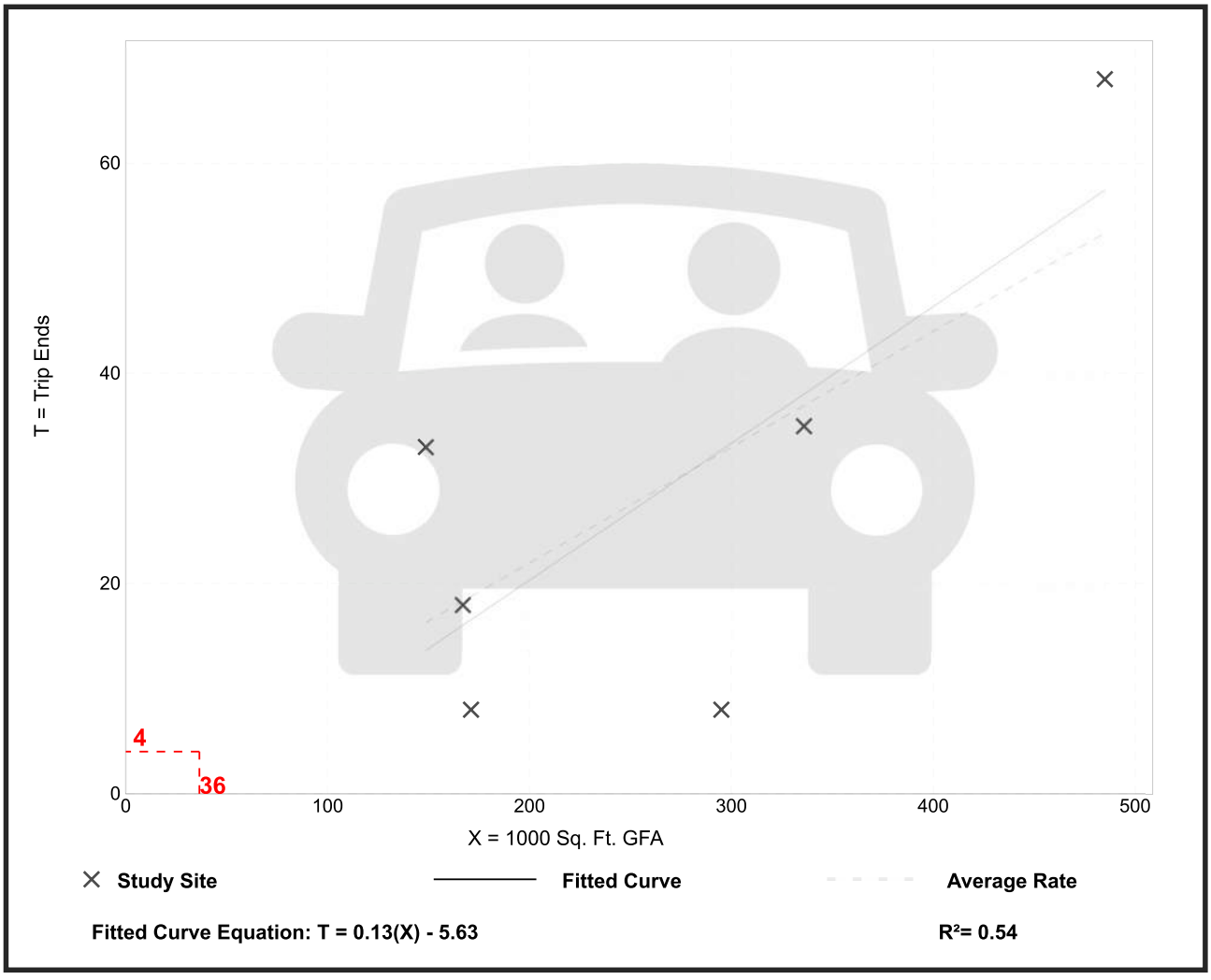
Data Center
(160)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	6
Avg. 1000 Sq. Ft. GFA:	267
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.11	0.03 - 0.22	0.06

Data Plot and Equation



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Data Center
(160)

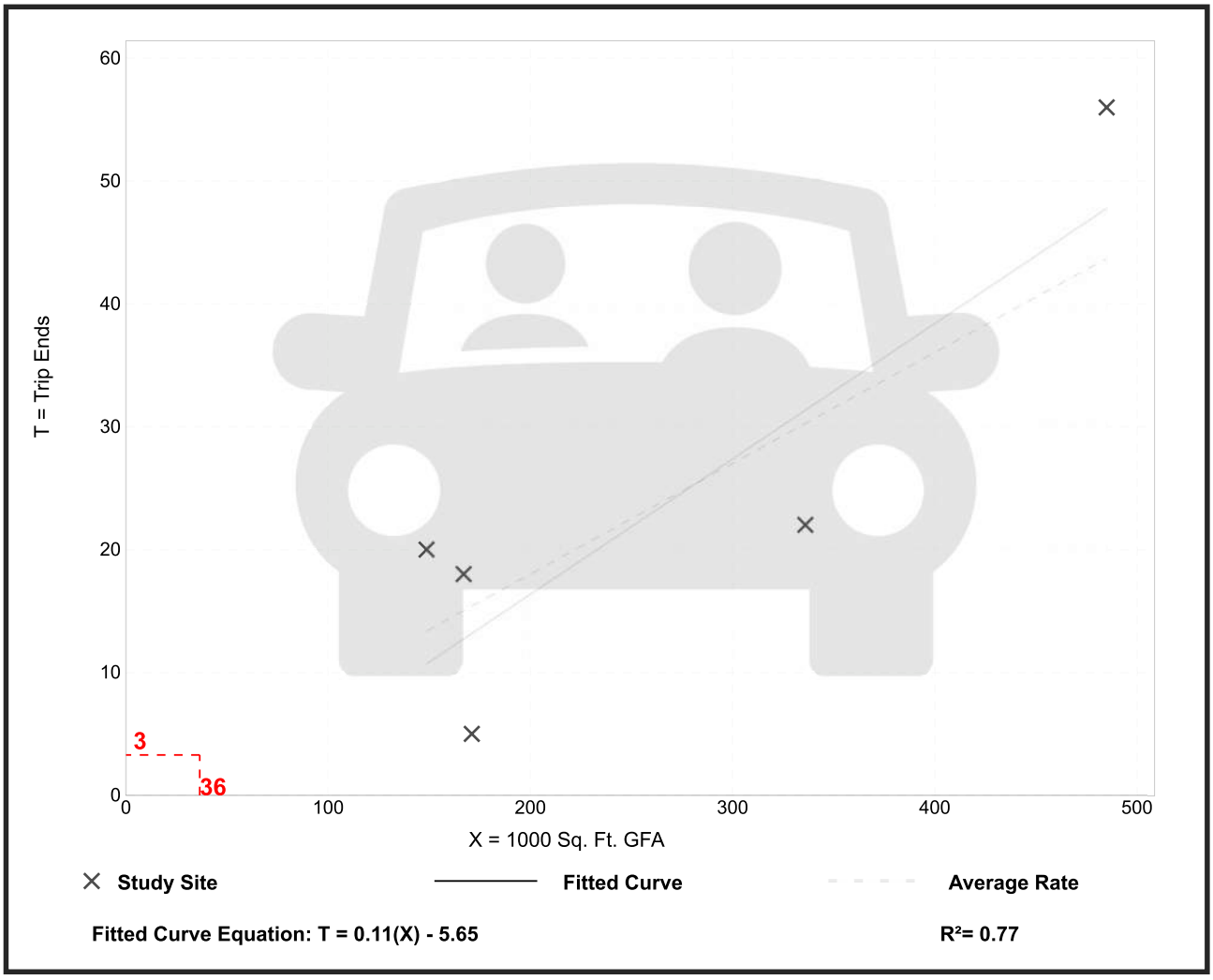
Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	5
Avg. 1000 Sq. Ft. GFA:	262
Directional Distribution:	30% entering, 70% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.09	0.03 - 0.13	0.04

Data Plot and Equation

Caution – Small Sample Size



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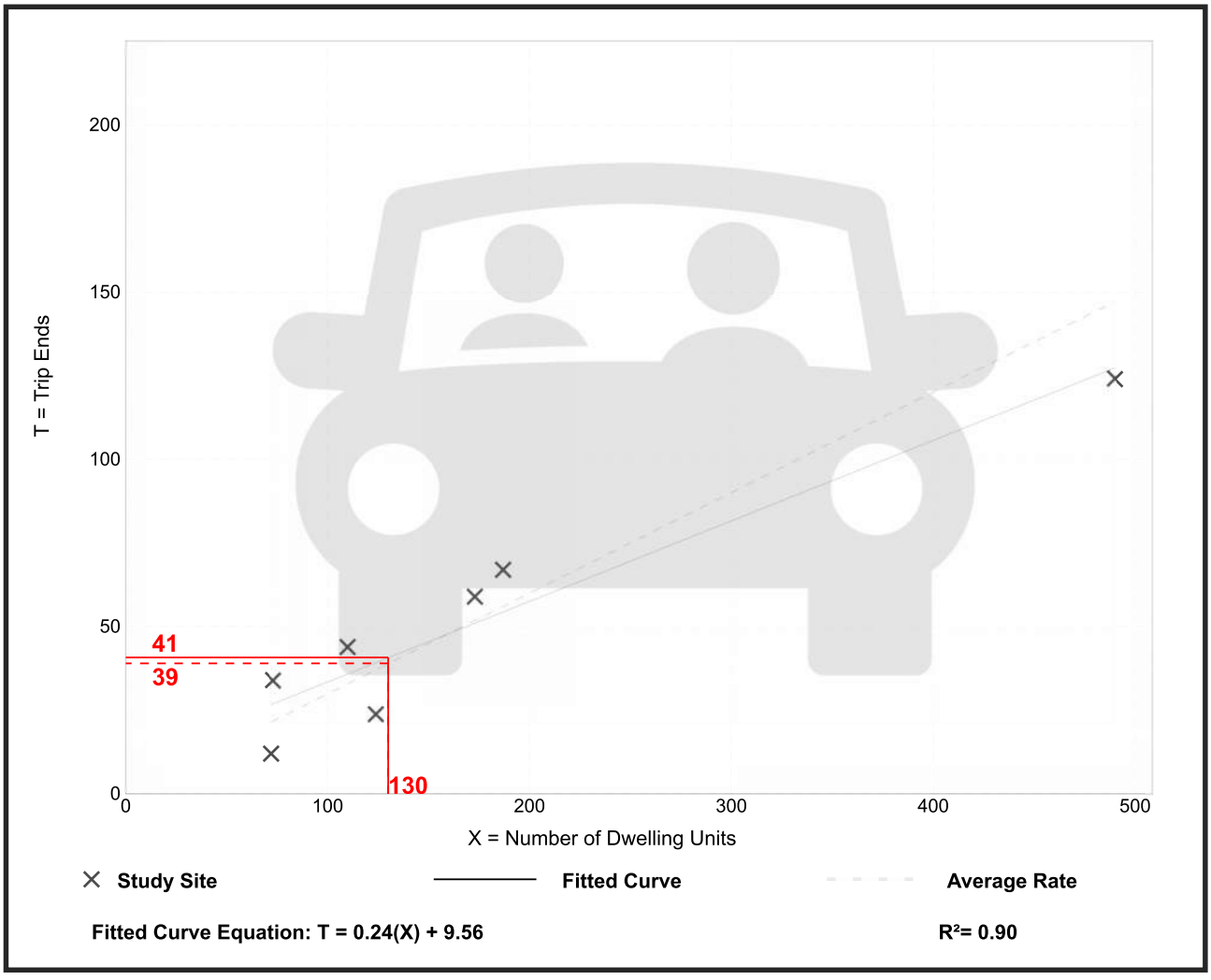
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 7
Avg. Num. of Dwelling Units: 176
Directional Distribution: 10% entering, 90% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.30	0.17 - 0.47	0.09

Data Plot and Equation



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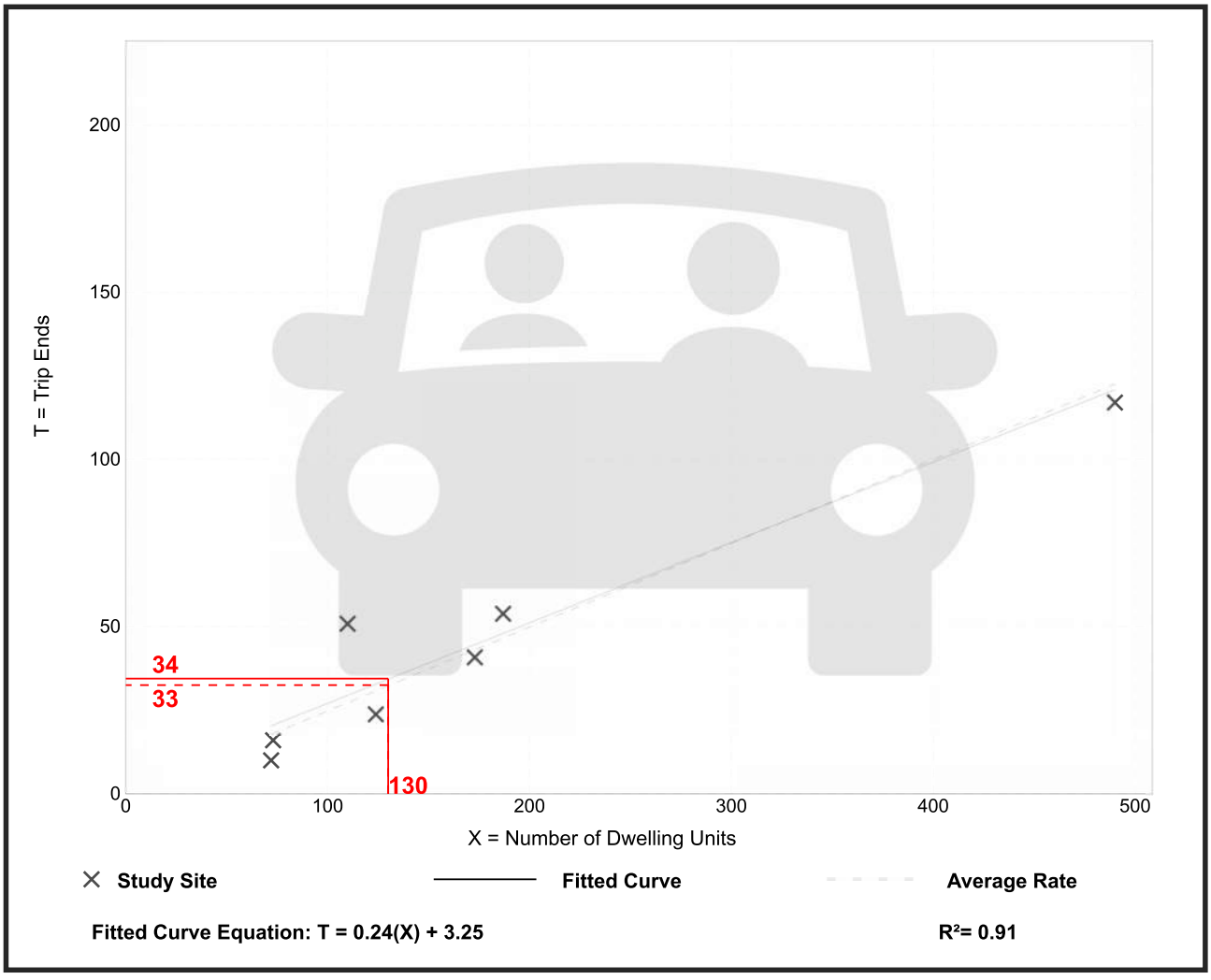
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 7
Avg. Num. of Dwelling Units: 176
Directional Distribution: 90% entering, 10% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.25	0.14 - 0.46	0.08

Data Plot and Equation



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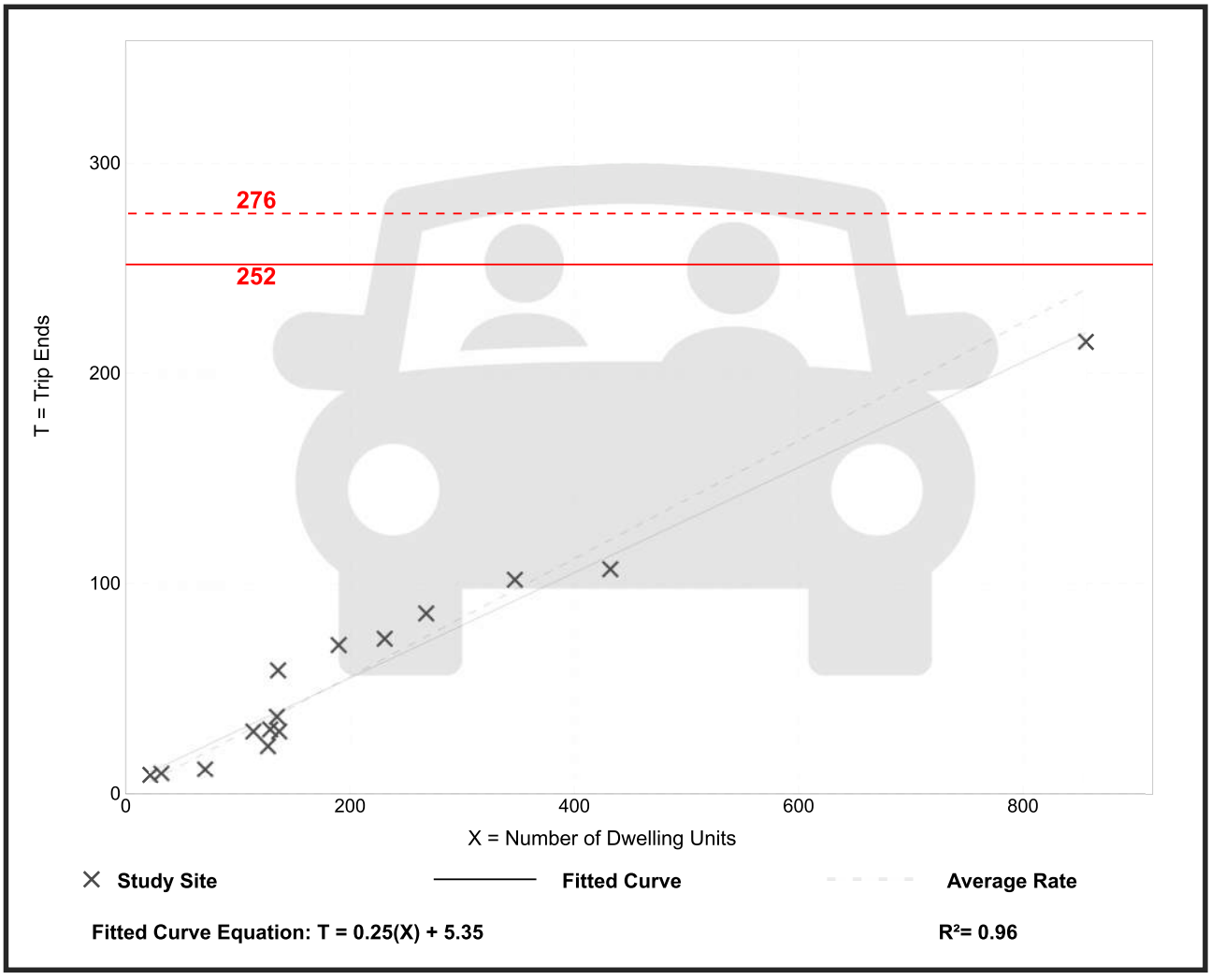
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 15
Avg. Num. of Dwelling Units: 215
Directional Distribution: 14% entering, 86% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.28	0.17 - 0.43	0.06

Data Plot and Equation



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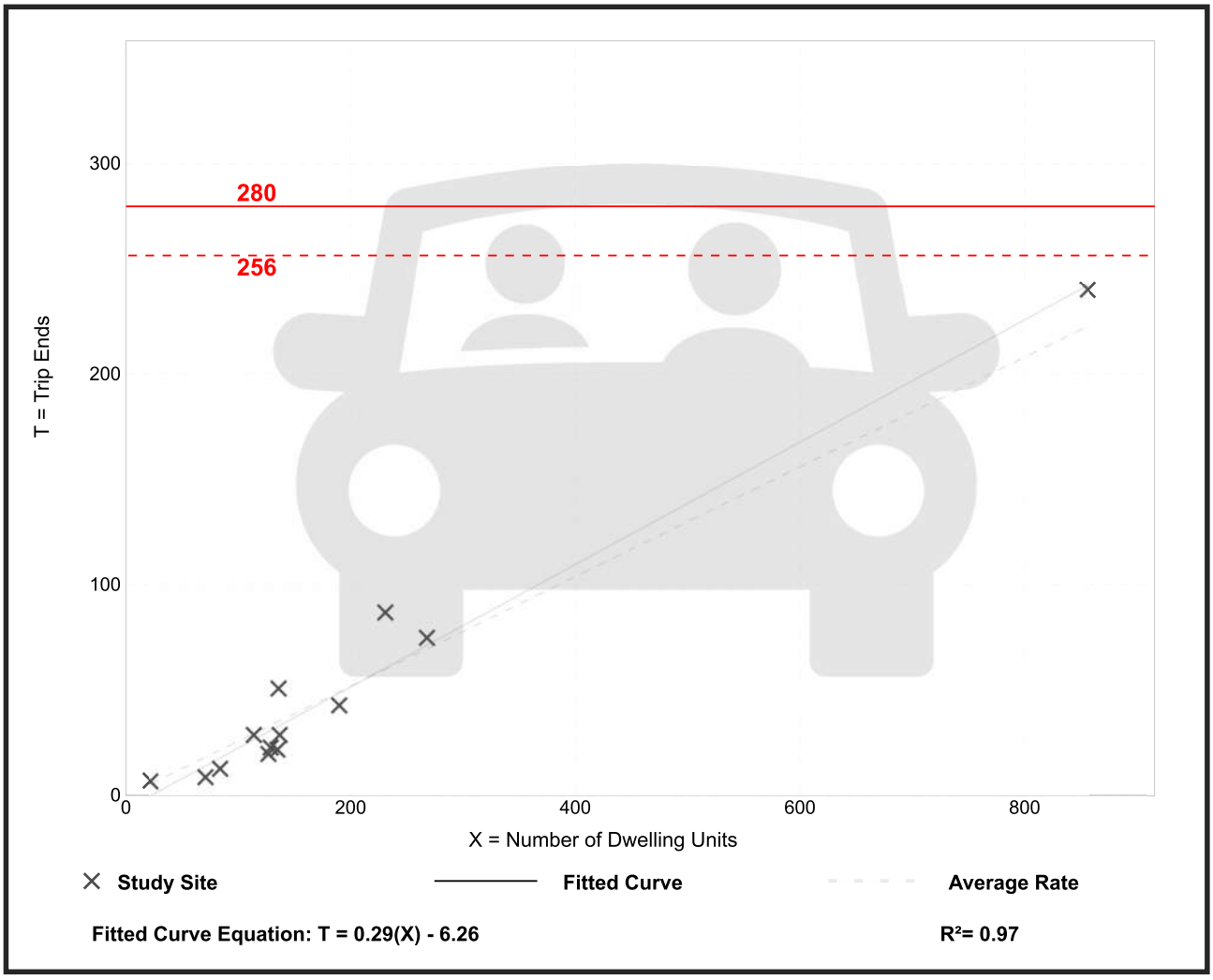
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 13
Avg. Num. of Dwelling Units: 192
Directional Distribution: 74% entering, 26% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.26	0.13 - 0.38	0.07

Data Plot and Equation



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Hotel
(310)

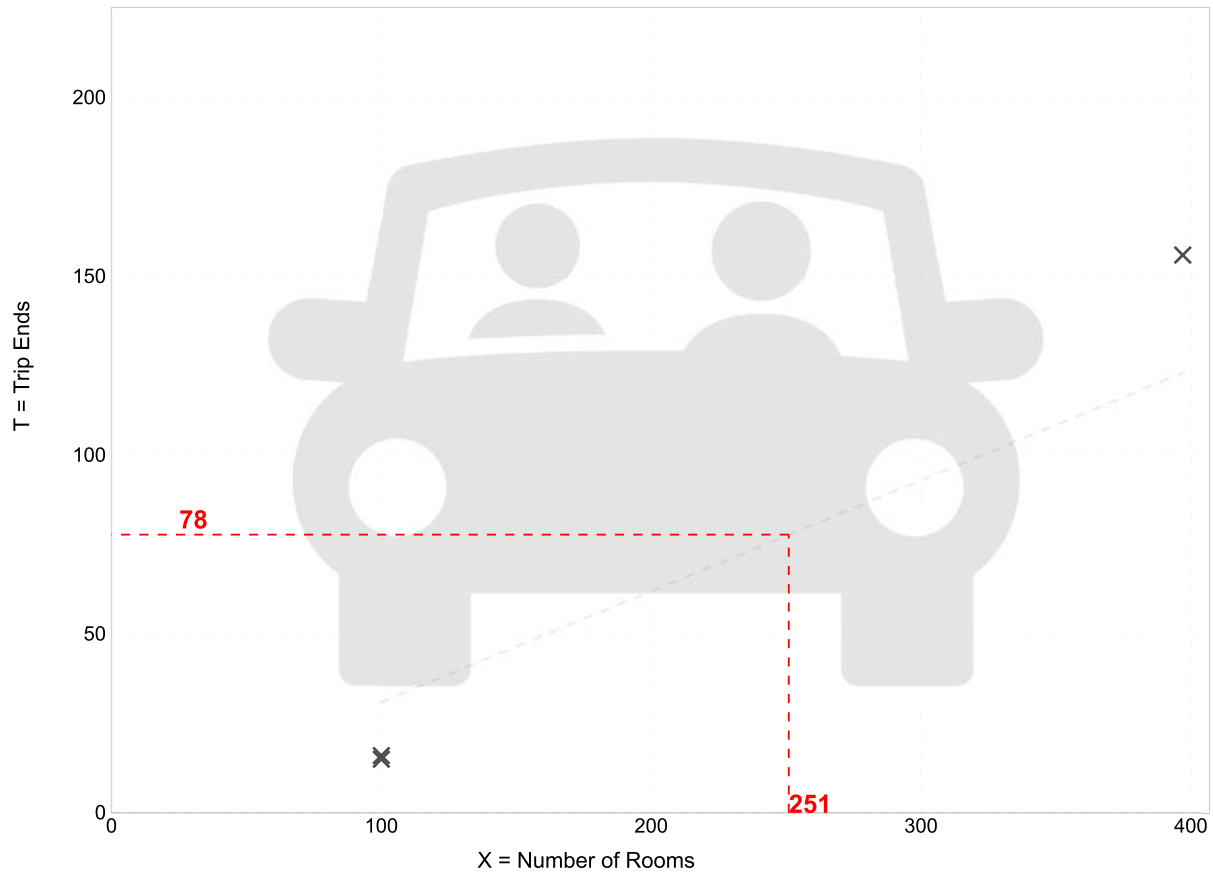
Vehicle Trip Ends vs:	**Rooms**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**Dense Multi-Use Urban**
Number of Studies:	3
Avg. Num. of Rooms:	199
Directional Distribution:	39% entering, 61% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.31	0.15 - 0.39	0.14

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ****

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Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 4 and 6 p.m.**
Setting/Location:	**Dense Multi-Use Urban**
Number of Studies:	2
Avg. Num. of Rooms:	100
Directional Distribution:	44% entering, 56% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.21	0.18 - 0.23	*

Data Plot and Equation

Caution – Small Sample Size

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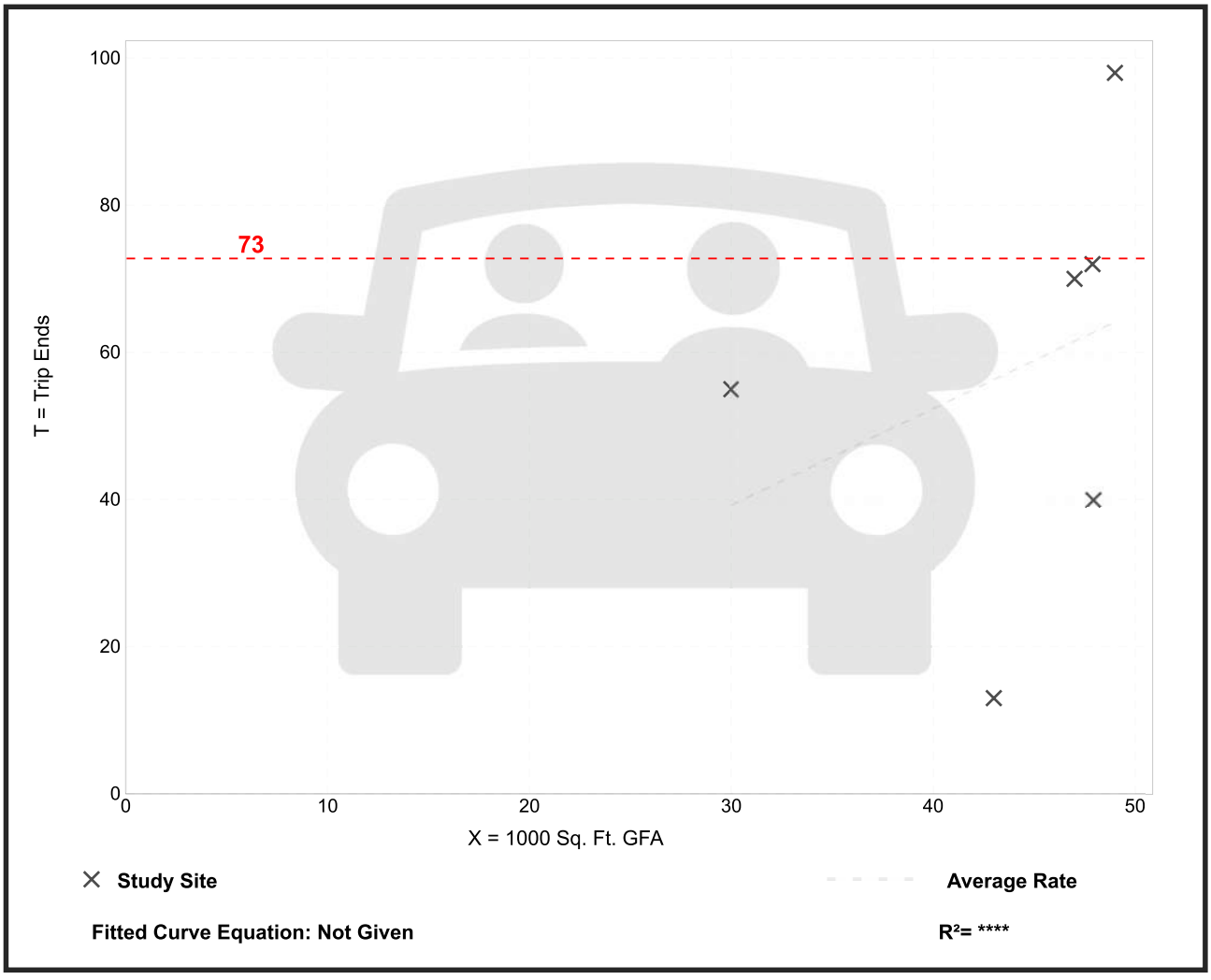
Health/Fitness Club
(492)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 44
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



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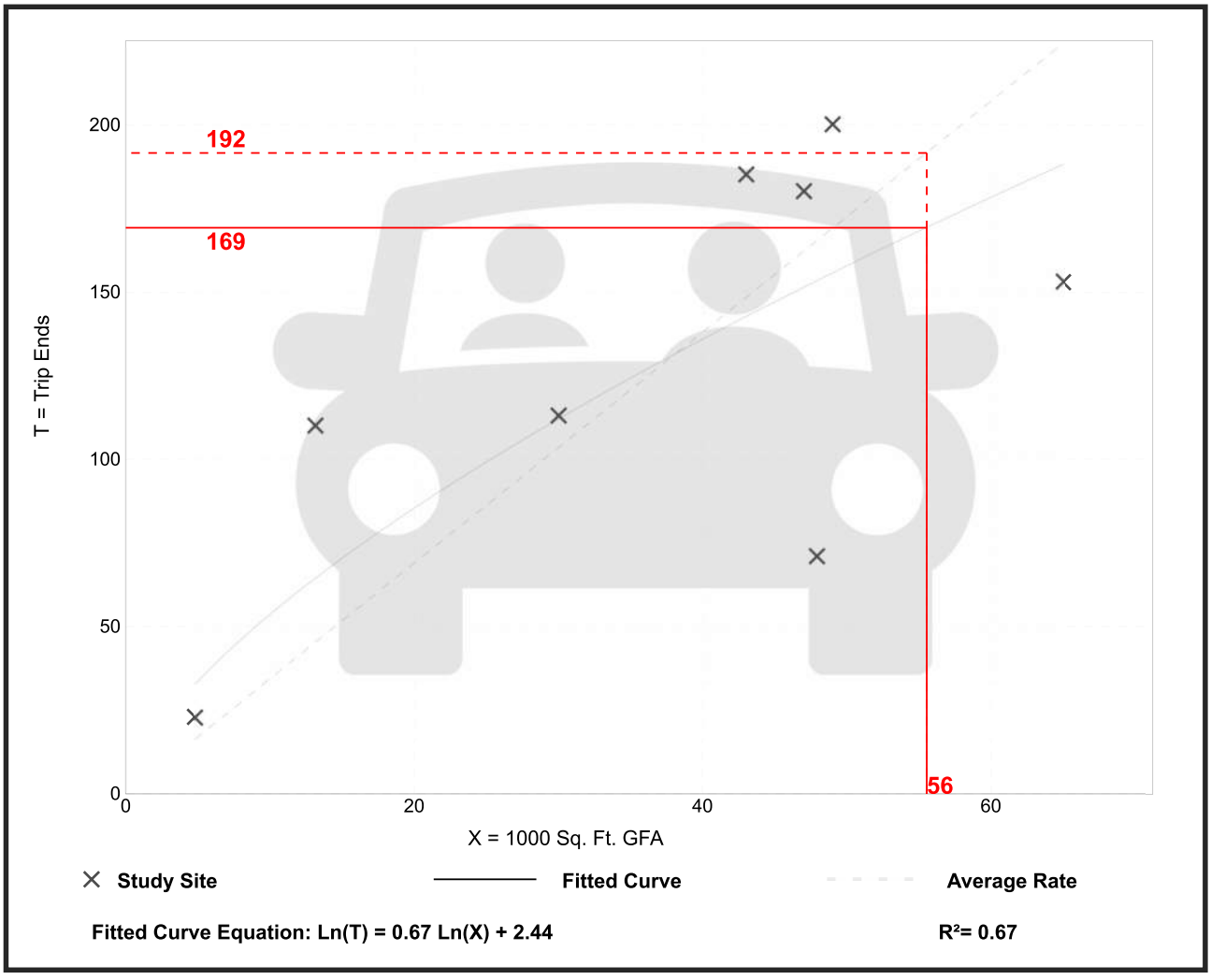
Health/Fitness Club
(492)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	8
Avg. 1000 Sq. Ft. GFA:	37
Directional Distribution:	57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



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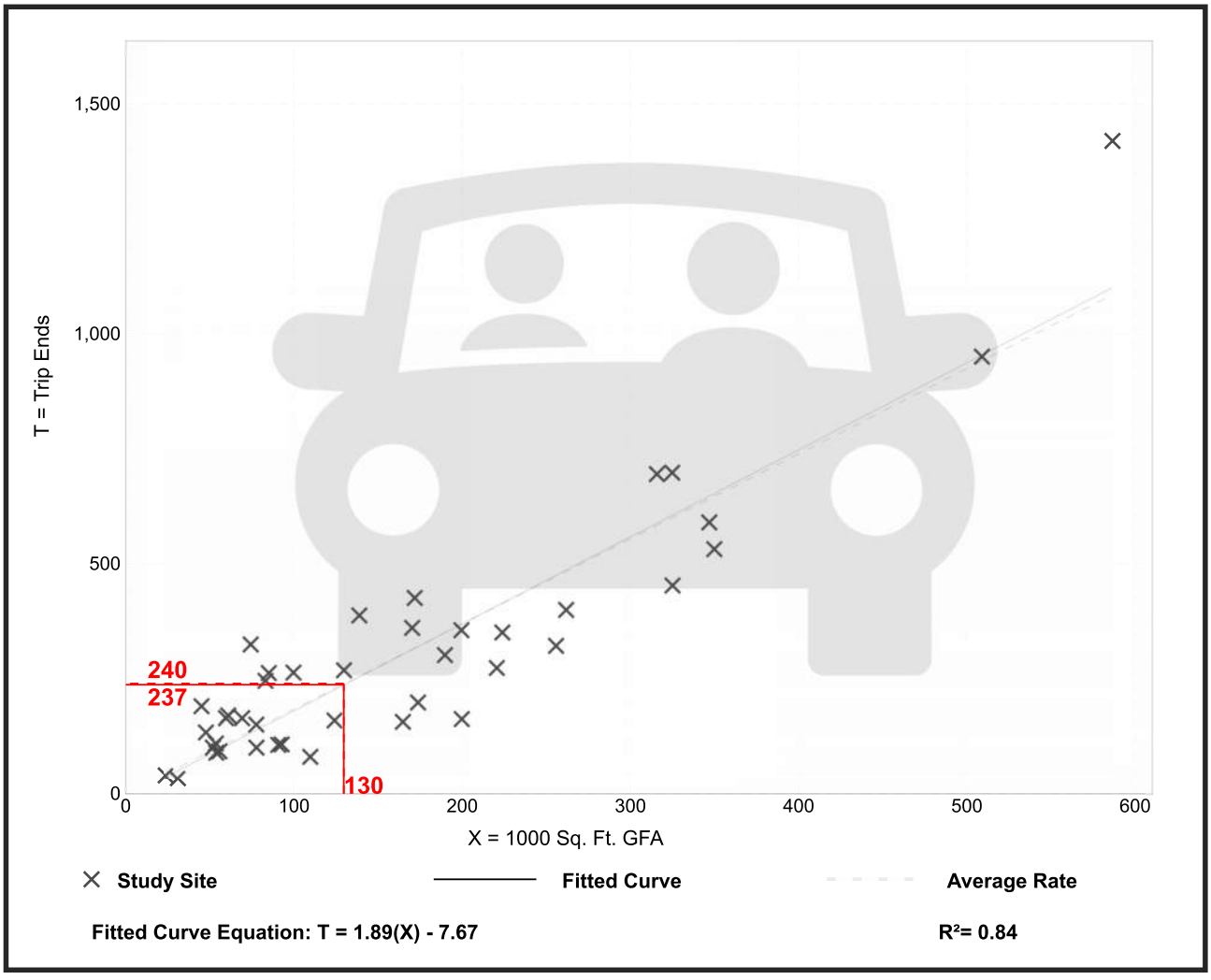
Single Tenant Office Building
(715)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 41
Avg. 1000 Sq. Ft. GFA: 164
Directional Distribution: 89% entering, 11% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.85	0.75 - 4.37	0.65

Data Plot and Equation



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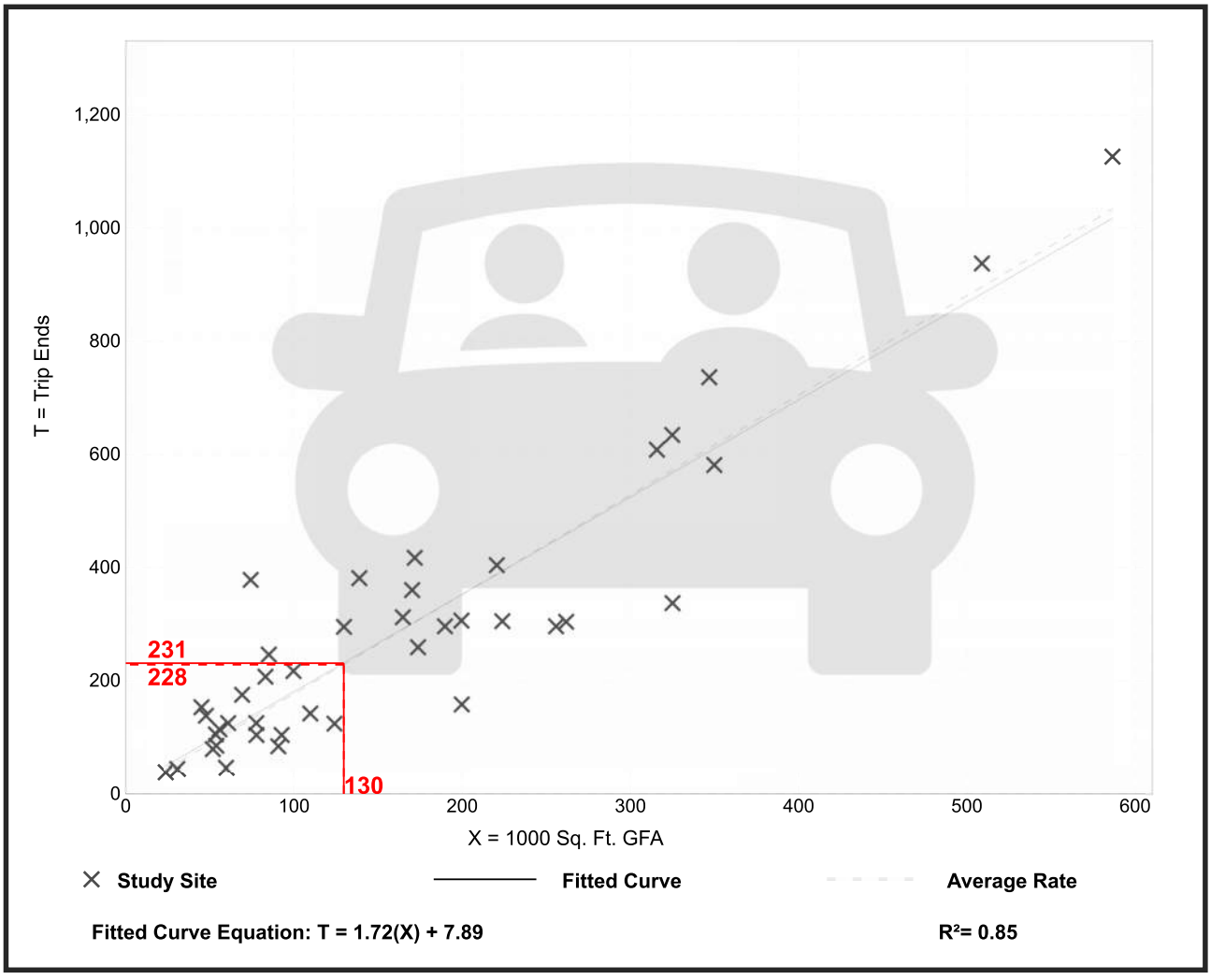
Single Tenant Office Building
(715)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 41
Avg. 1000 Sq. Ft. GFA: 164
Directional Distribution: 15% entering, 85% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.76	0.77 - 5.07	0.61

Data Plot and Equation



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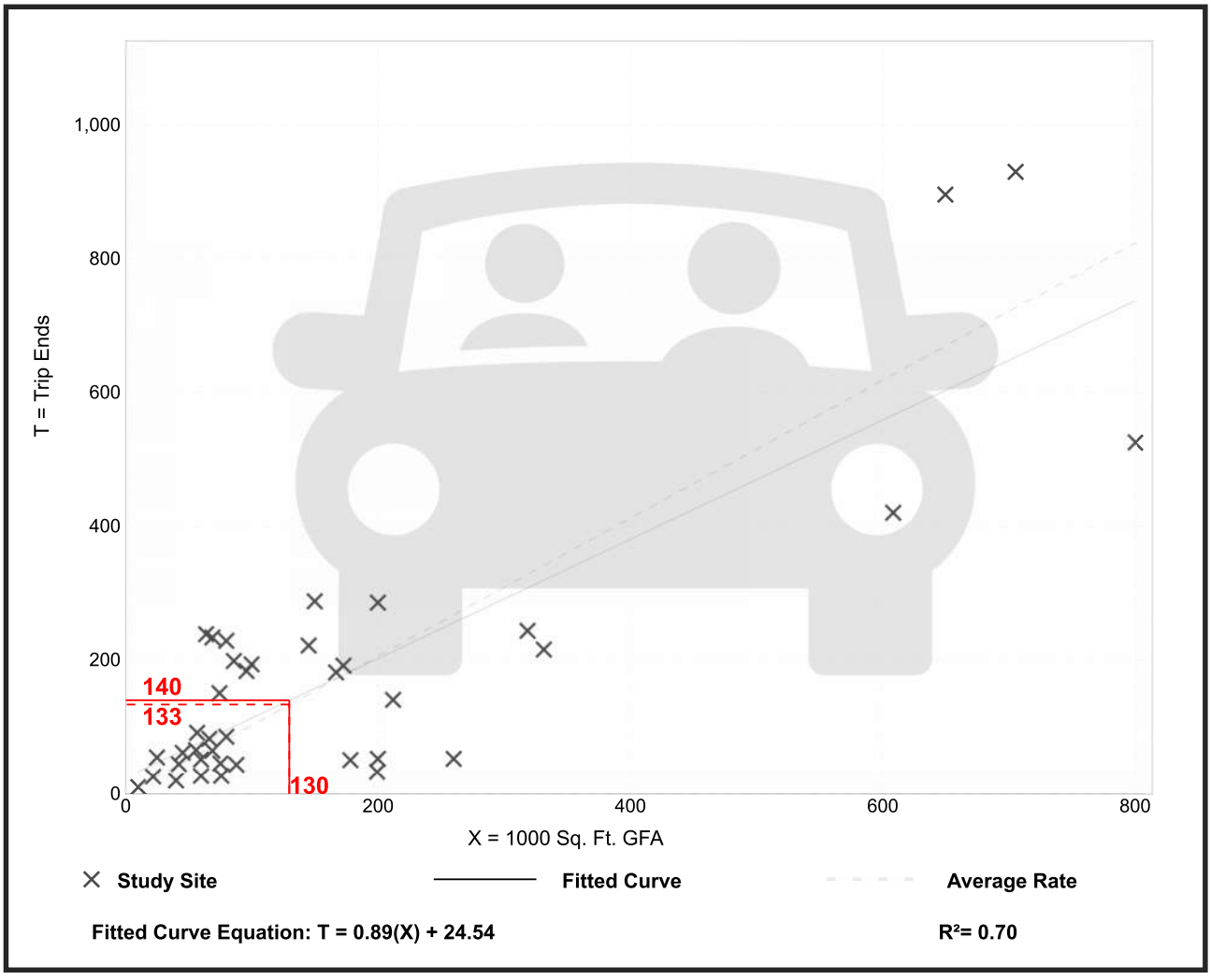
Research and Development Center
(760)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 39
Avg. 1000 Sq. Ft. GFA: 173
Directional Distribution: 82% entering, 18% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.03	0.17 - 3.73	0.65

Data Plot and Equation



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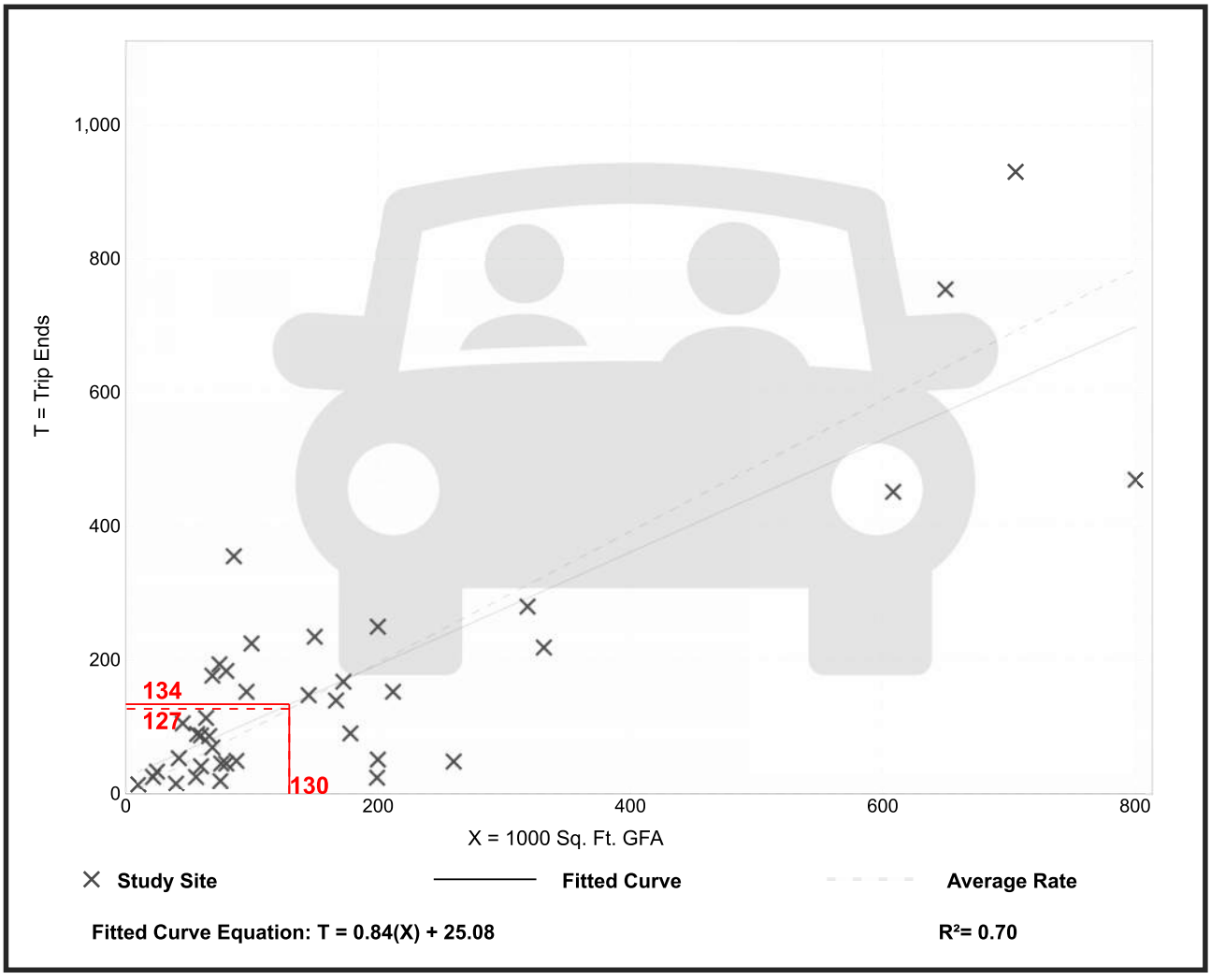
Research and Development Center
(760)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	39
Avg. 1000 Sq. Ft. GFA:	173
Directional Distribution:	16% entering, 84% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.98	0.13 - 4.13	0.64

Data Plot and Equation



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Variety Store
(814)

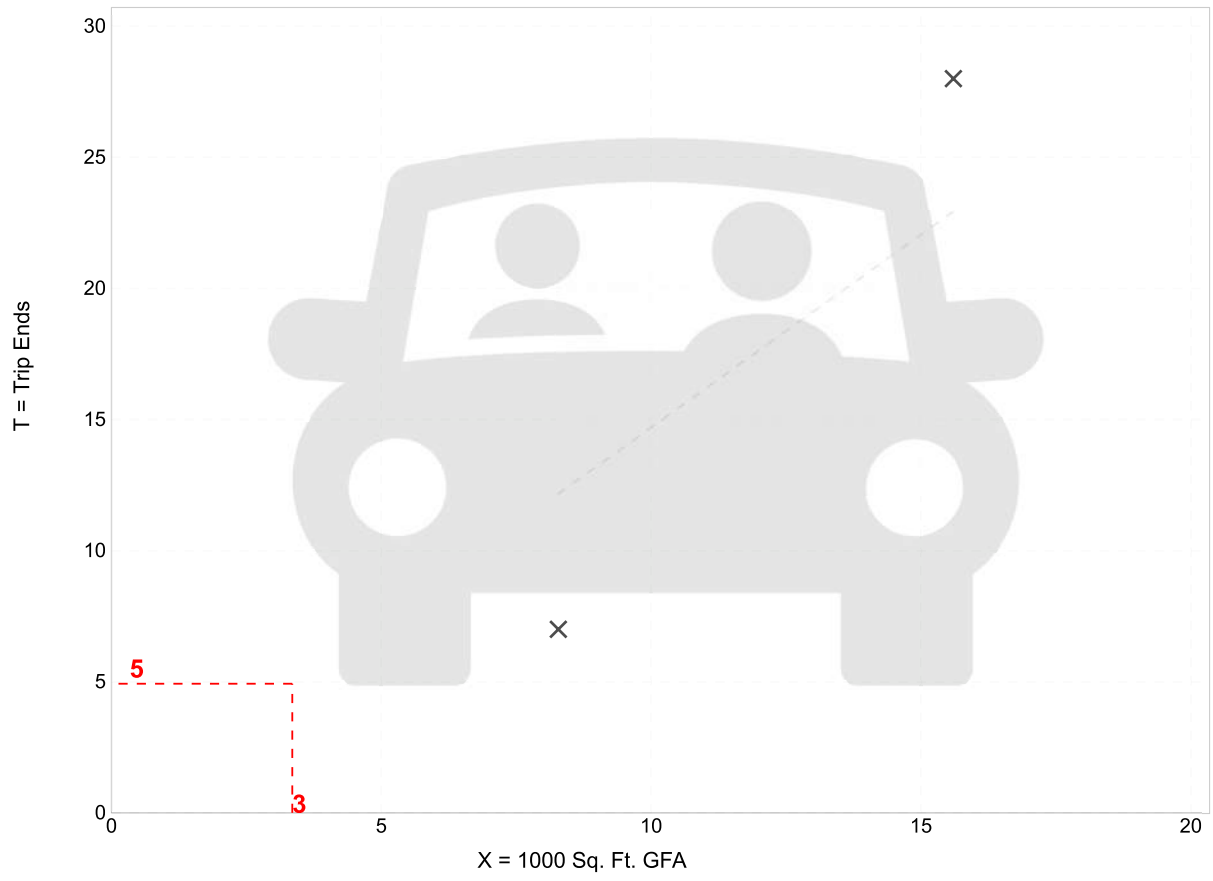
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 12
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.47	0.85 - 1.79	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Variety Store
(814)

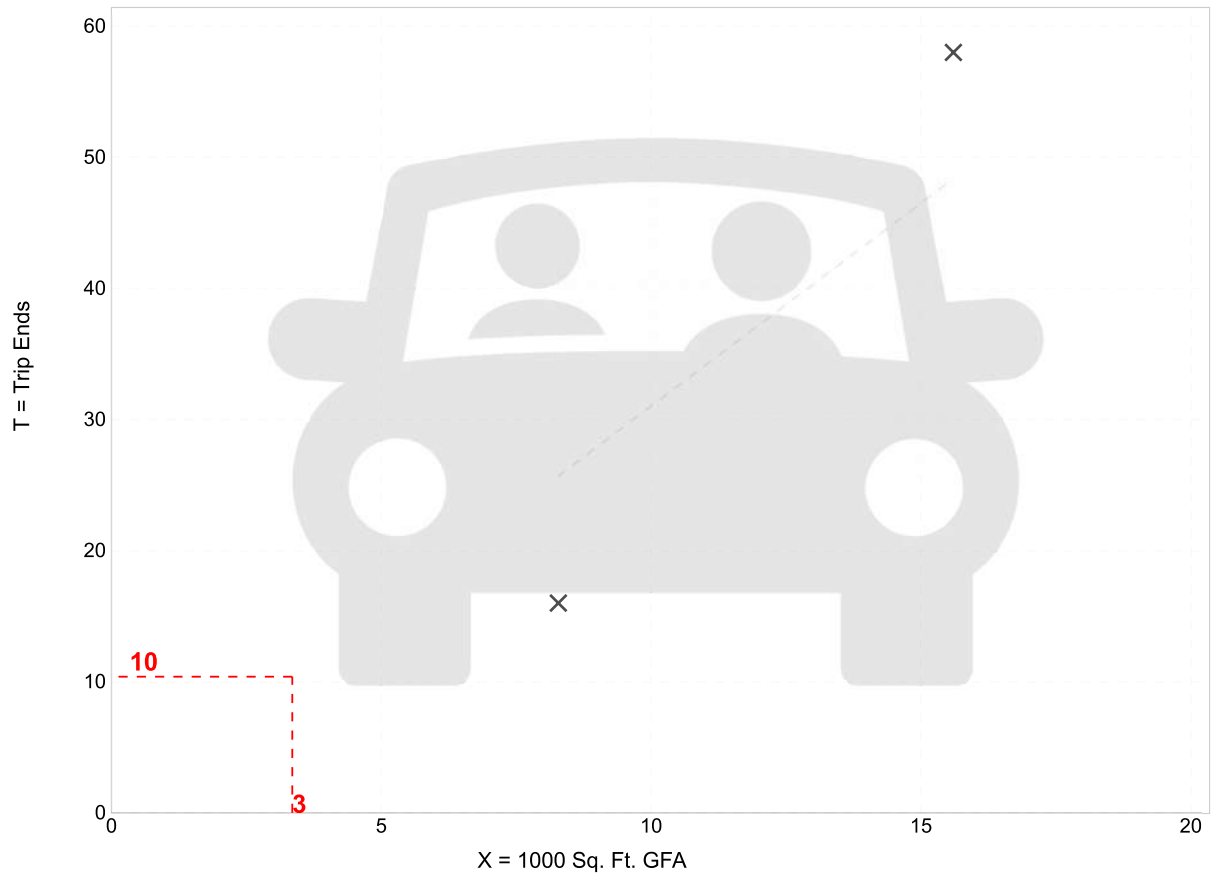
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 12
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.10	1.93 - 3.72	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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Strip Retail Plaza (<40k)
(822)

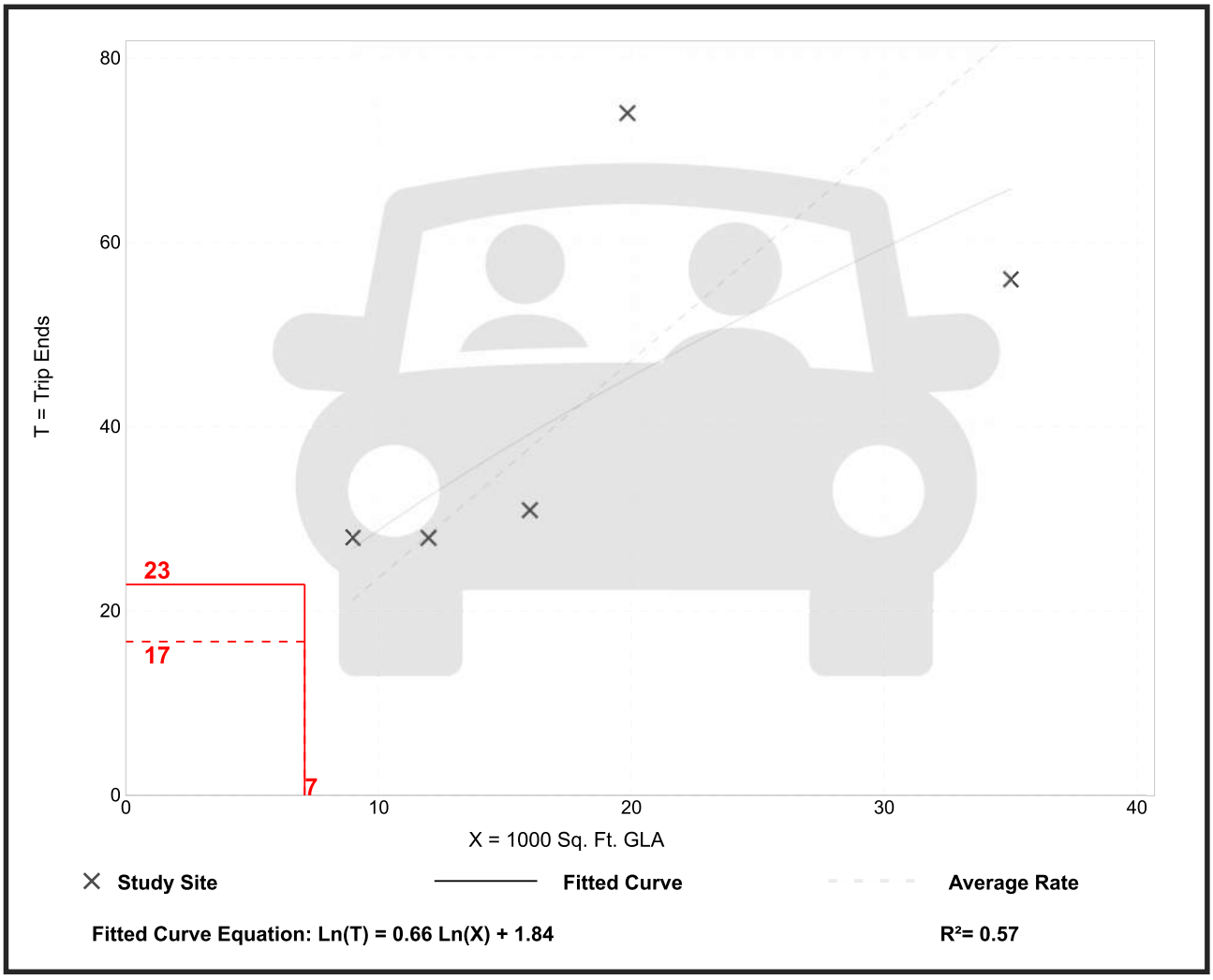
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 18
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation

Caution – Small Sample Size



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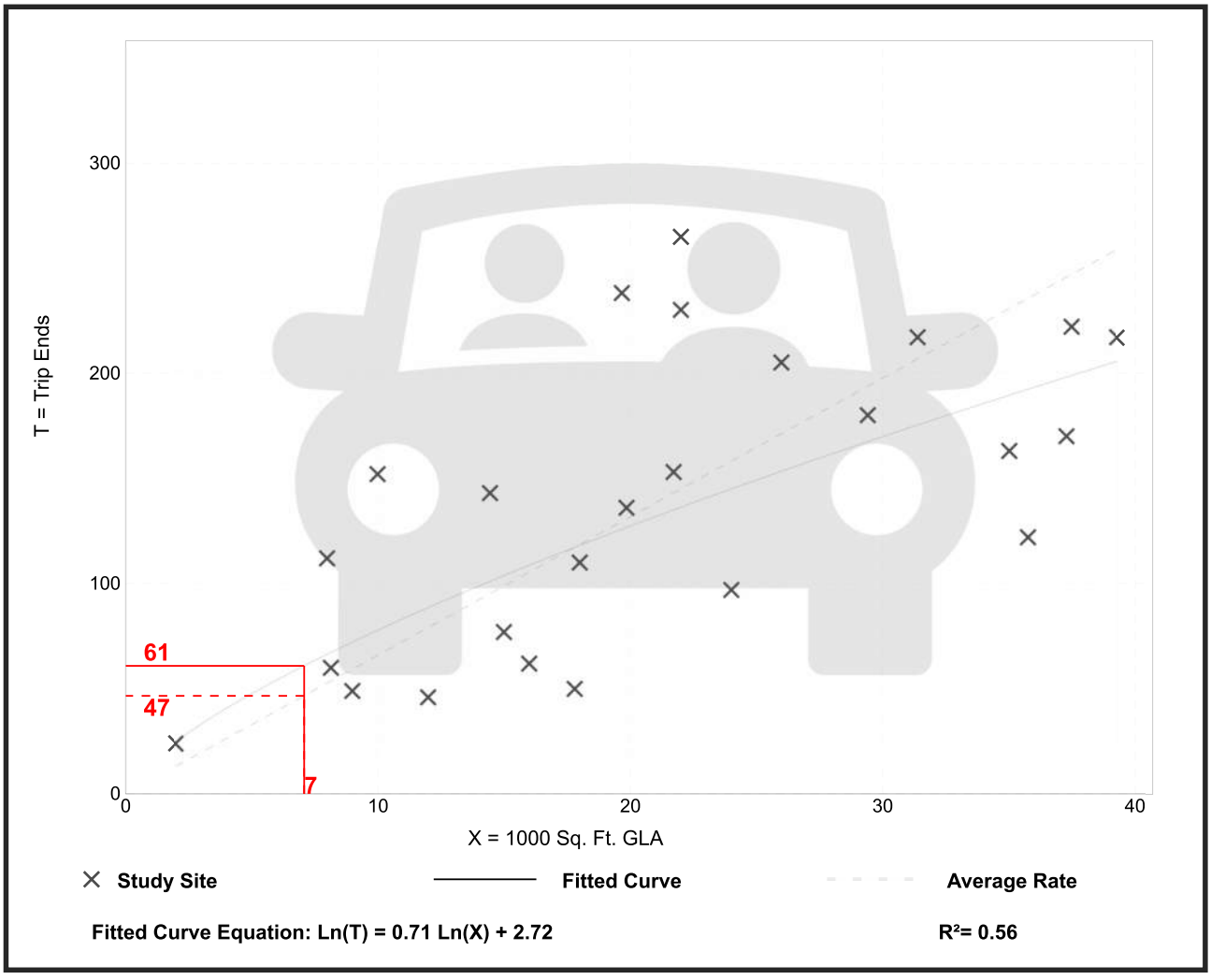
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 25
Avg. 1000 Sq. Ft. GLA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



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Strip Retail Plaza (<40k)
(822)

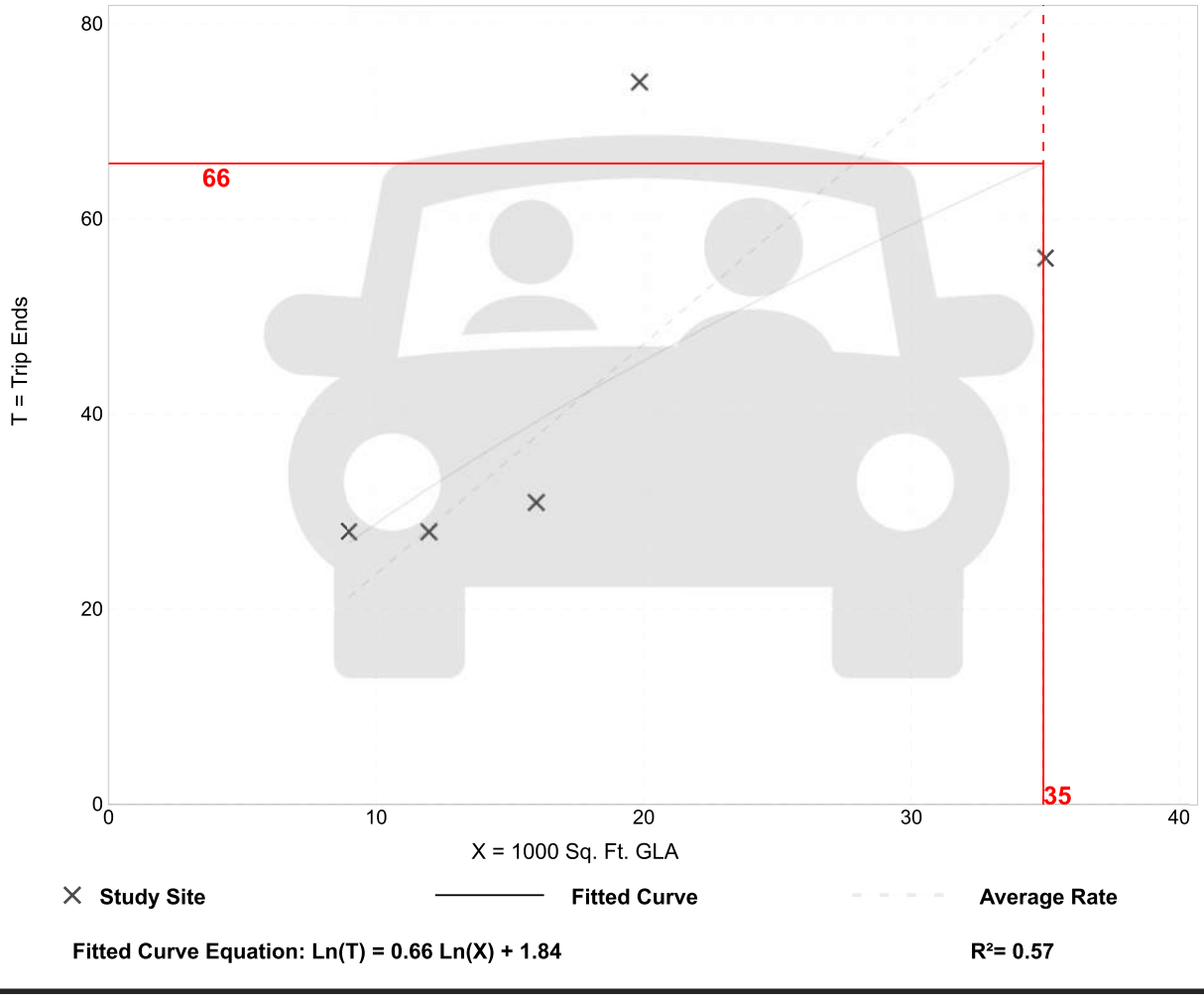
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 18
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Ln(T) = 0.66 Ln(X) + 1.84

R^2= 0.57

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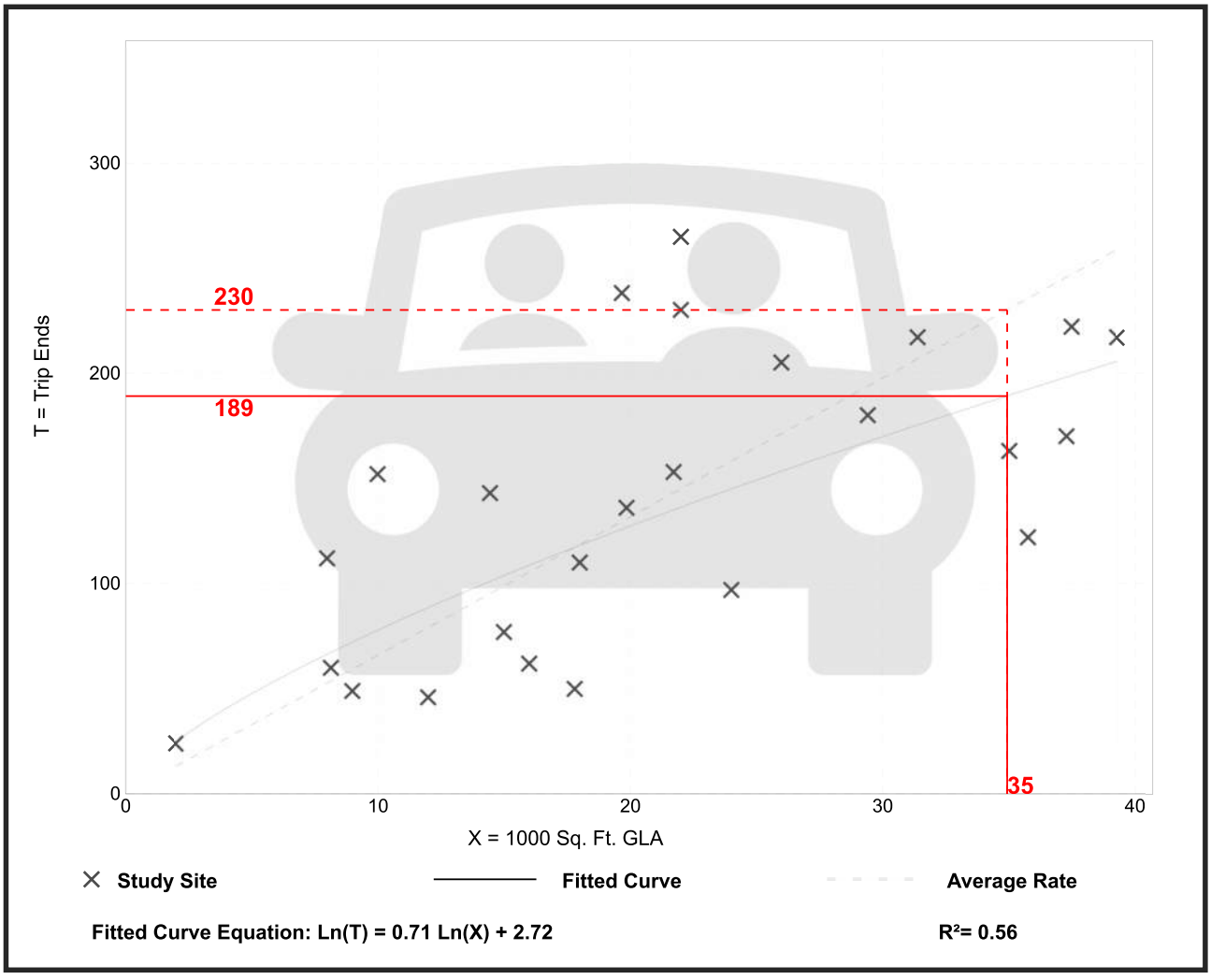
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 25
Avg. 1000 Sq. Ft. GLA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



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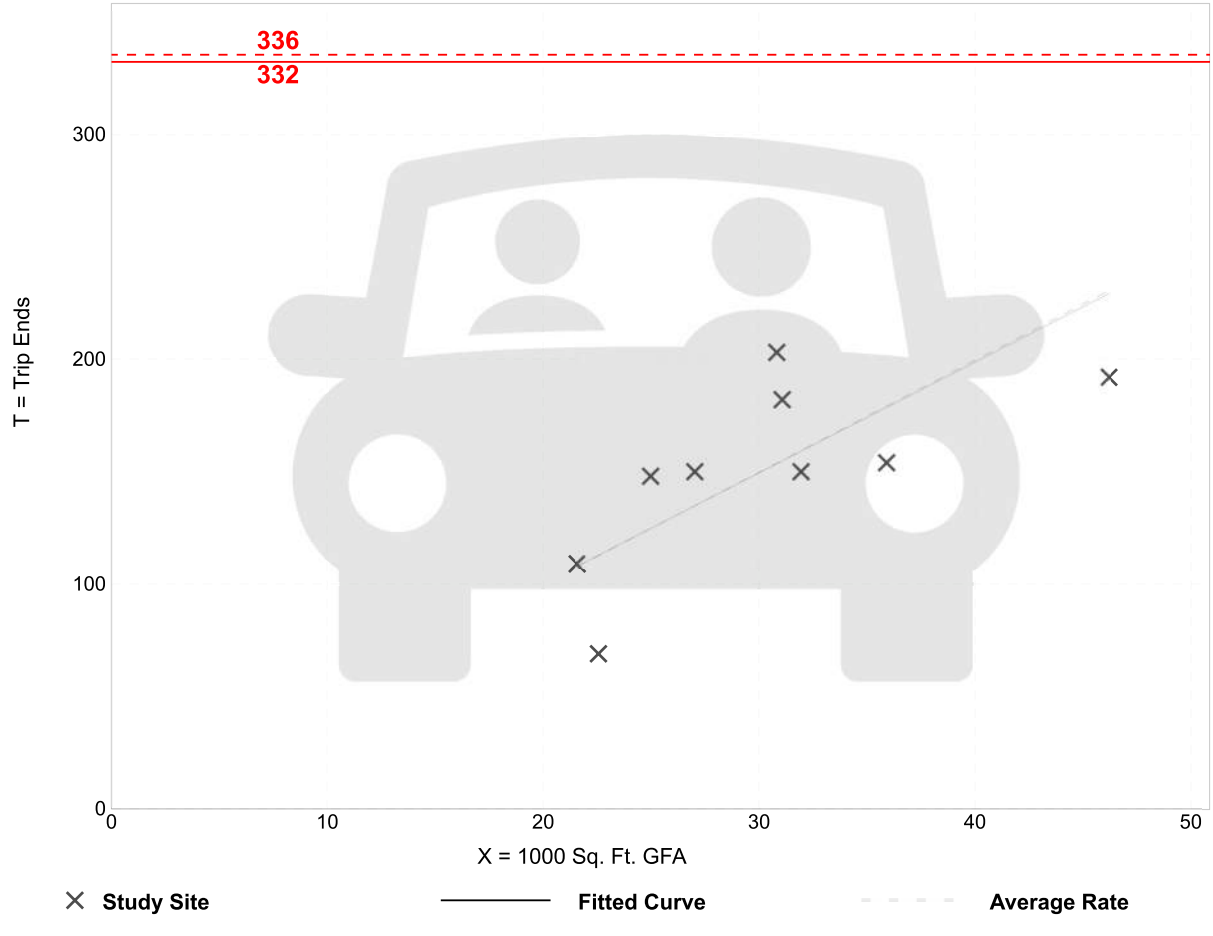
Supermarket
(850)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**Dense Multi-Use Urban**
Number of Studies:	9
Avg. 1000 Sq. Ft. GFA:	30
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.99	3.06 - 6.58	1.05

Data Plot and Equation



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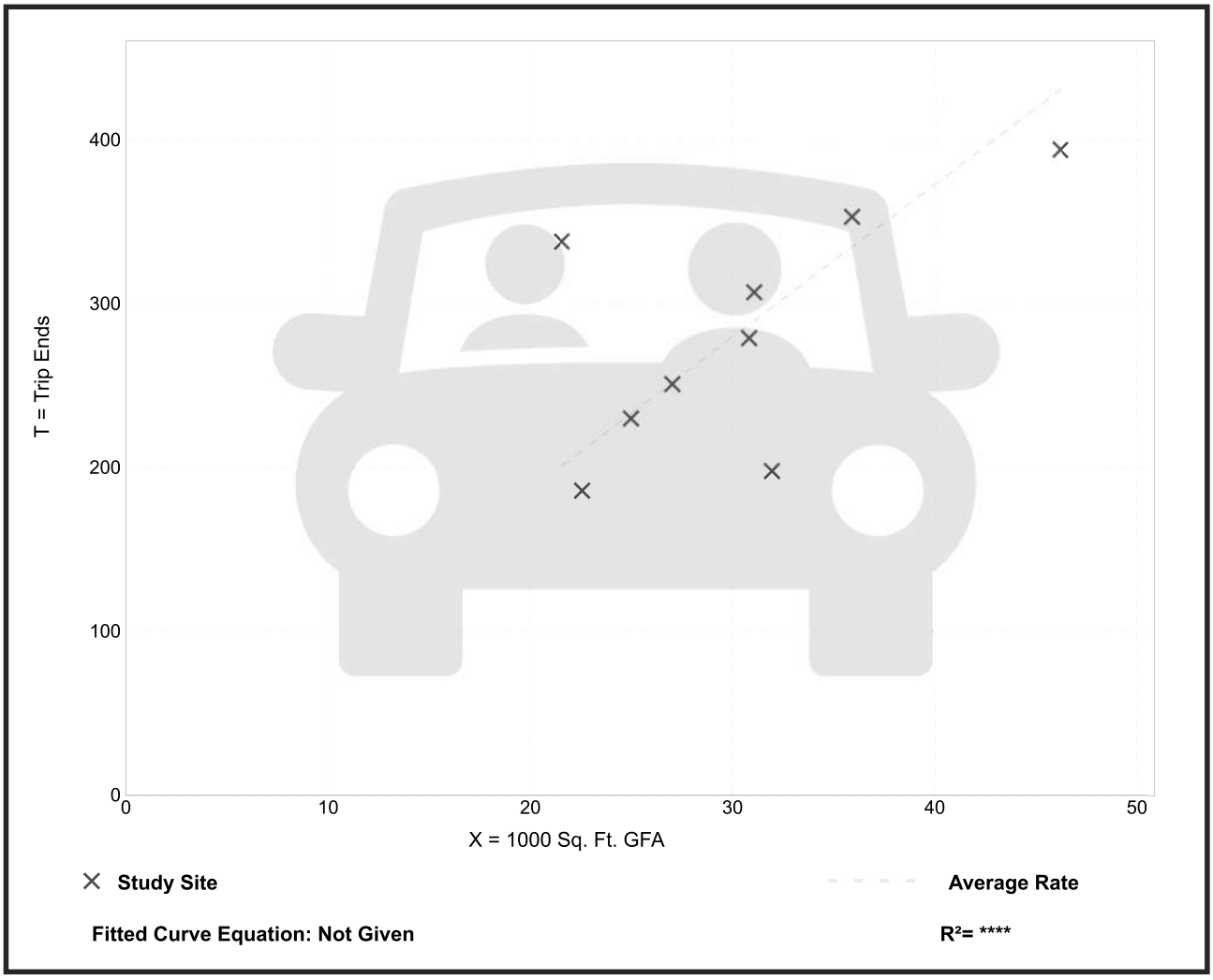
Supermarket
(850)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**Dense Multi-Use Urban**
Number of Studies:	9
Avg. 1000 Sq. Ft. GFA:	30
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.32	6.20 - 15.67	2.28

Data Plot and Equation



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Sporting Goods Superstore
(861)

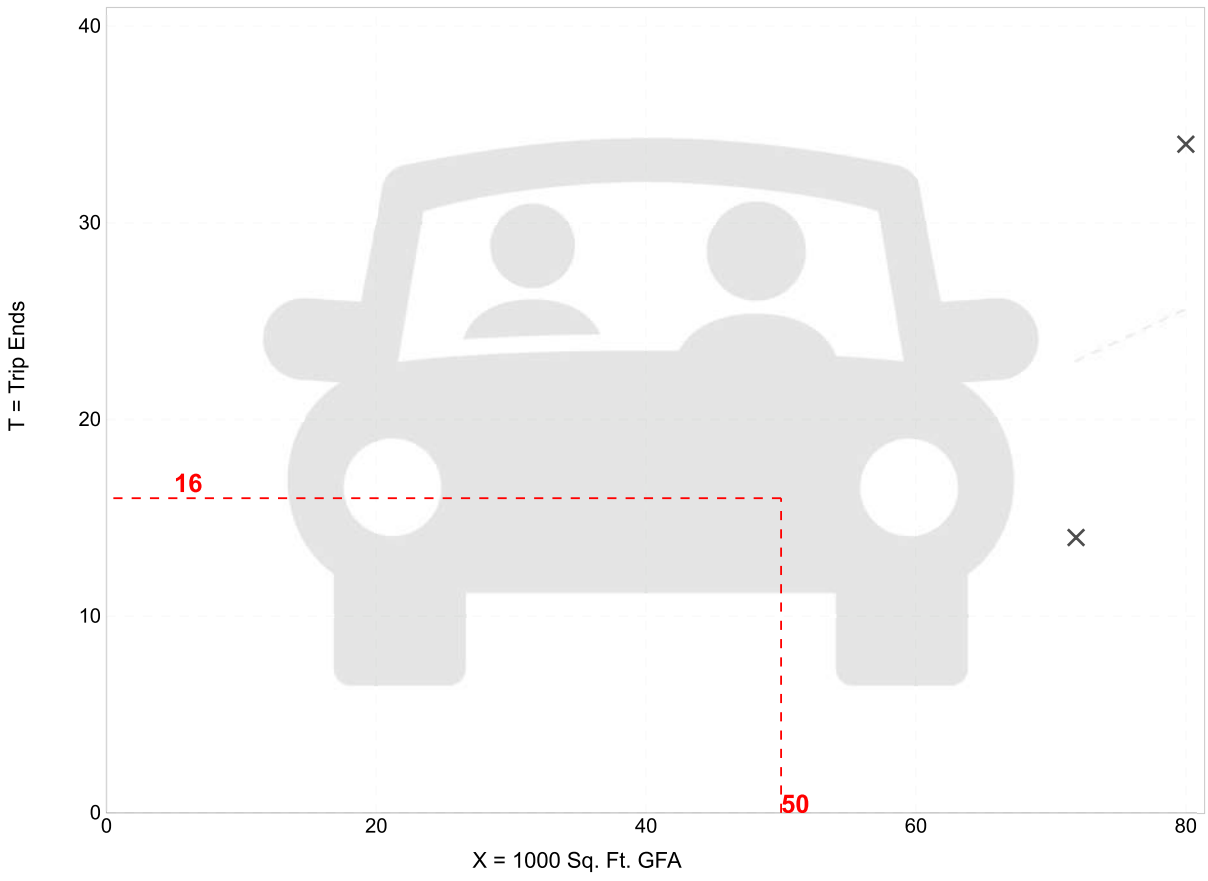
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 76
Directional Distribution: 90% entering, 10% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.32	0.19 - 0.43	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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Sporting Goods Superstore
(861)

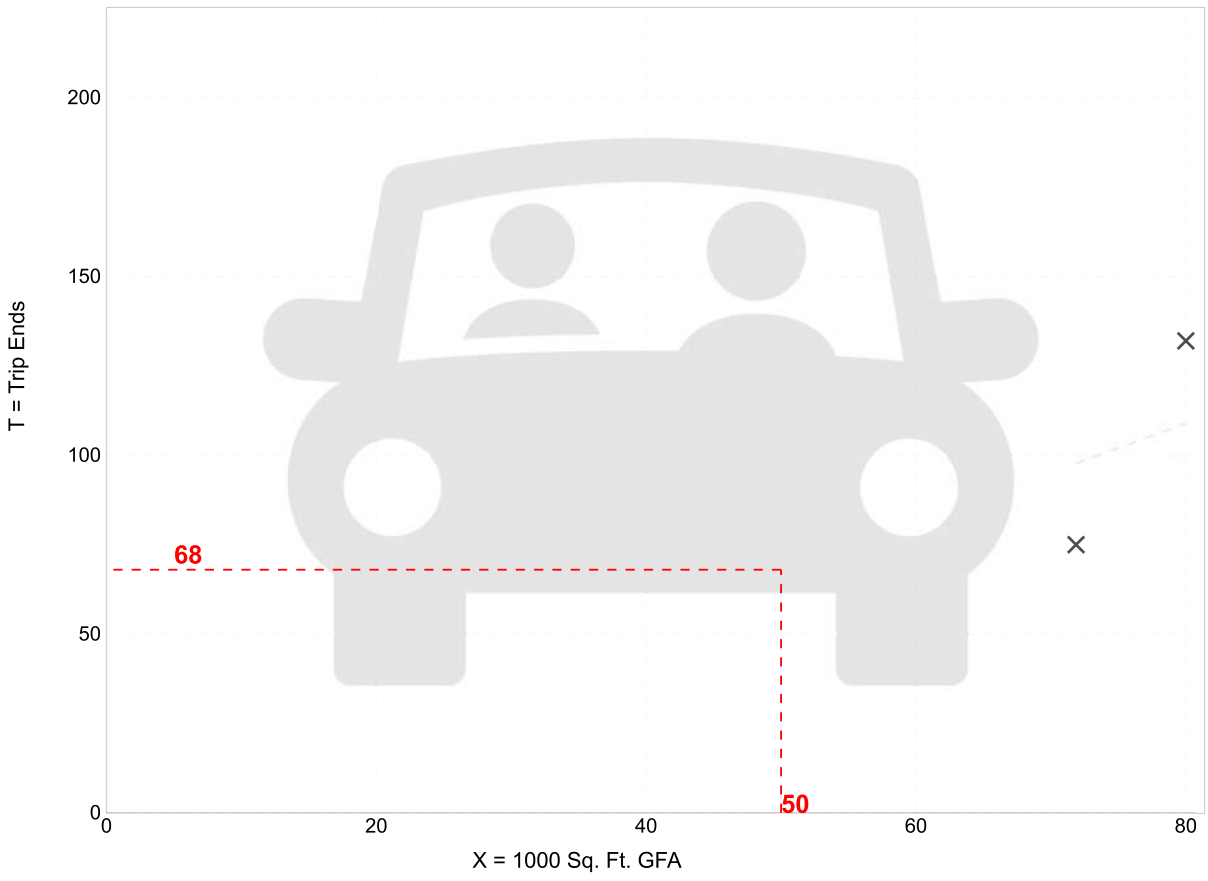
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 76
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.36	1.04 - 1.65	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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Apparel Store
(876)

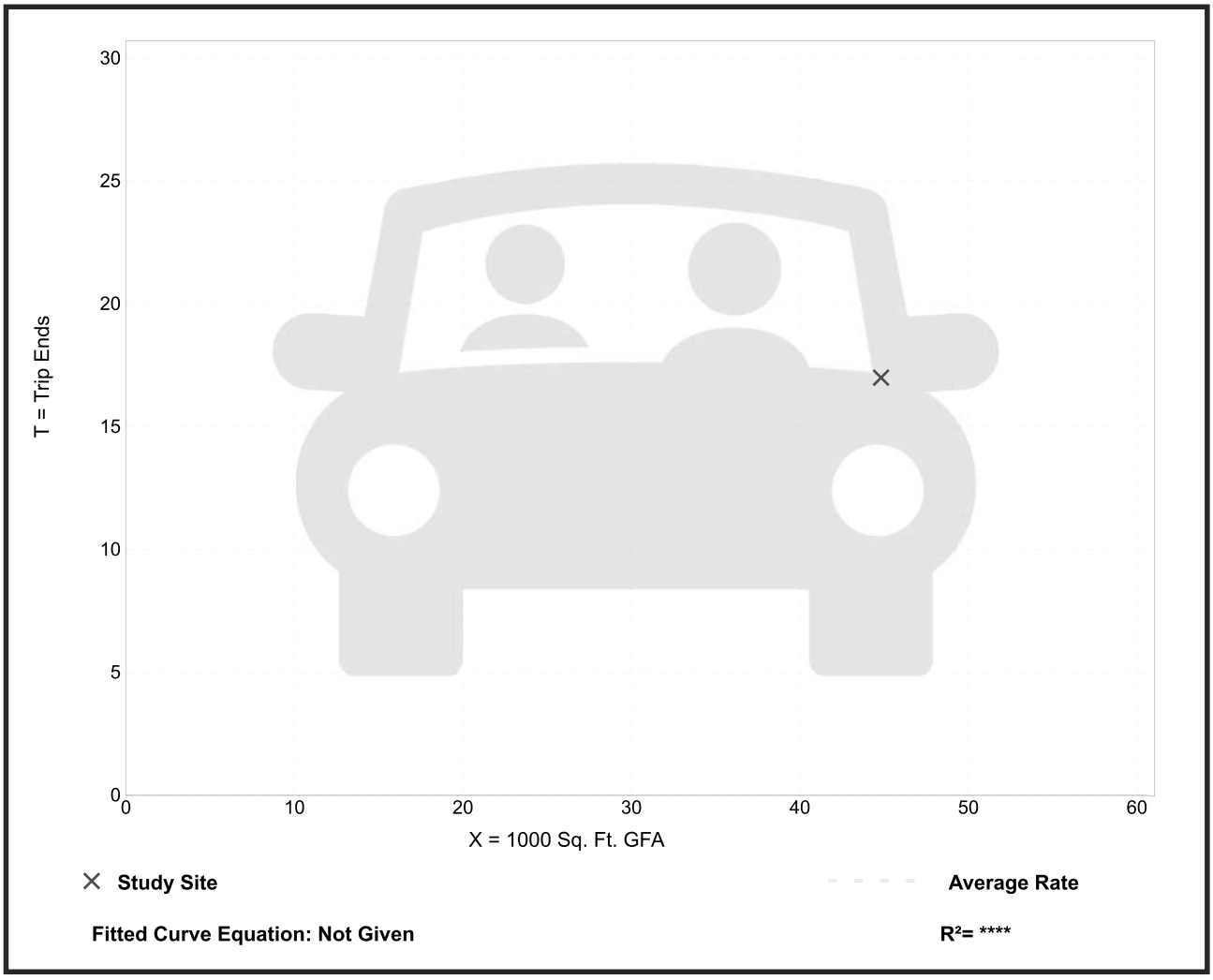
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 45
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.38	0.38 - 0.38	*

Data Plot and Equation

Caution – Small Sample Size



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Apparel Store
(876)

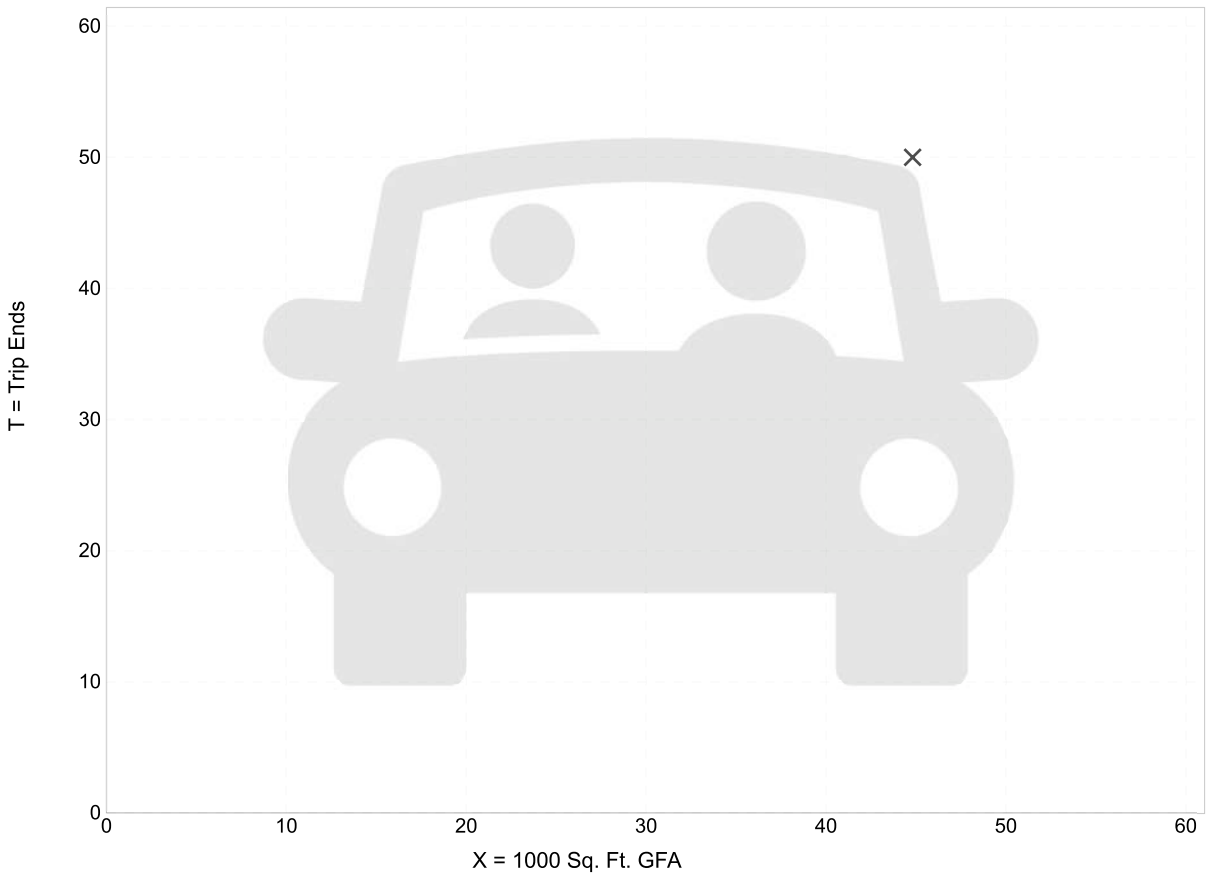
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 45
Directional Distribution: 42% entering, 58% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.12	1.12 - 1.12	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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Arts and Crafts Store
(879)

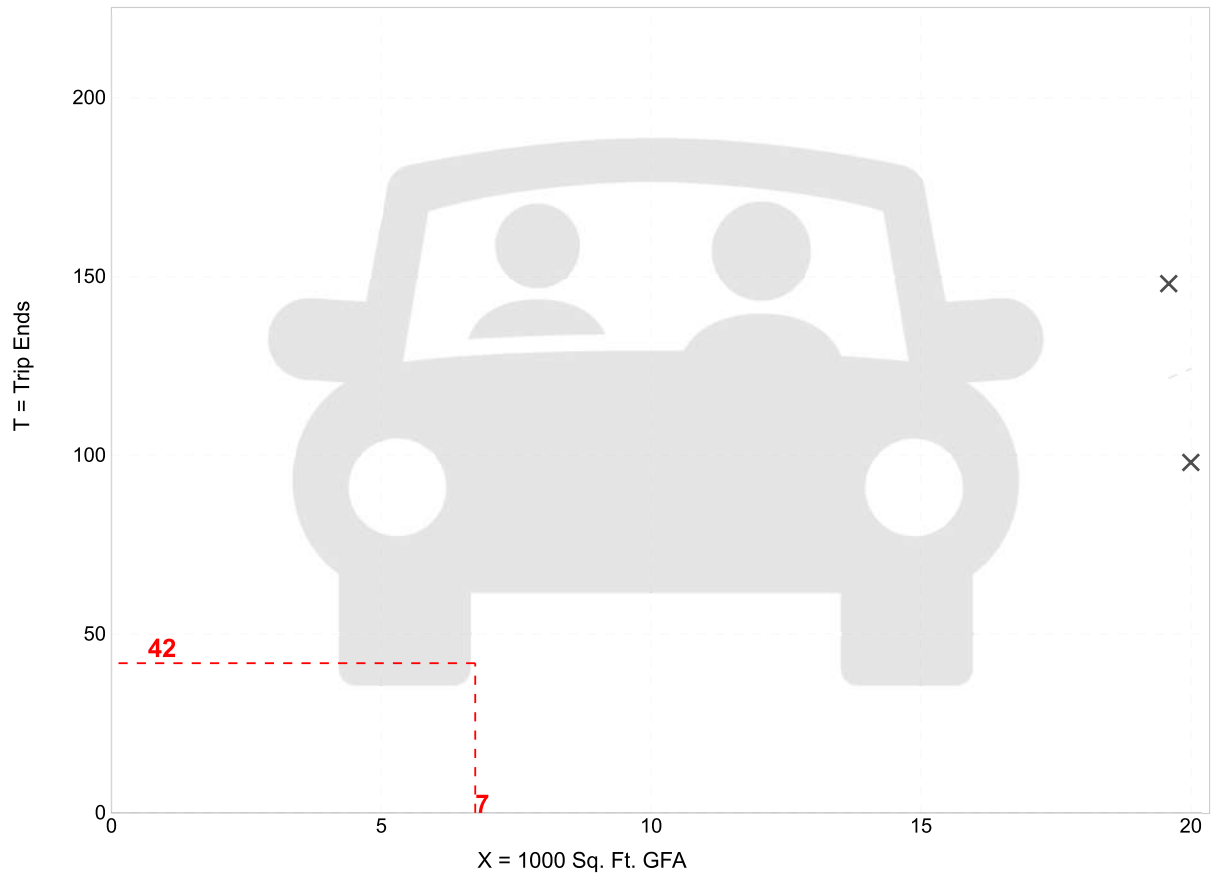
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 20
Directional Distribution: 46% entering, 54% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
6.21	4.90 - 7.55	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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Copy, Print, and Express Ship Store
(920)

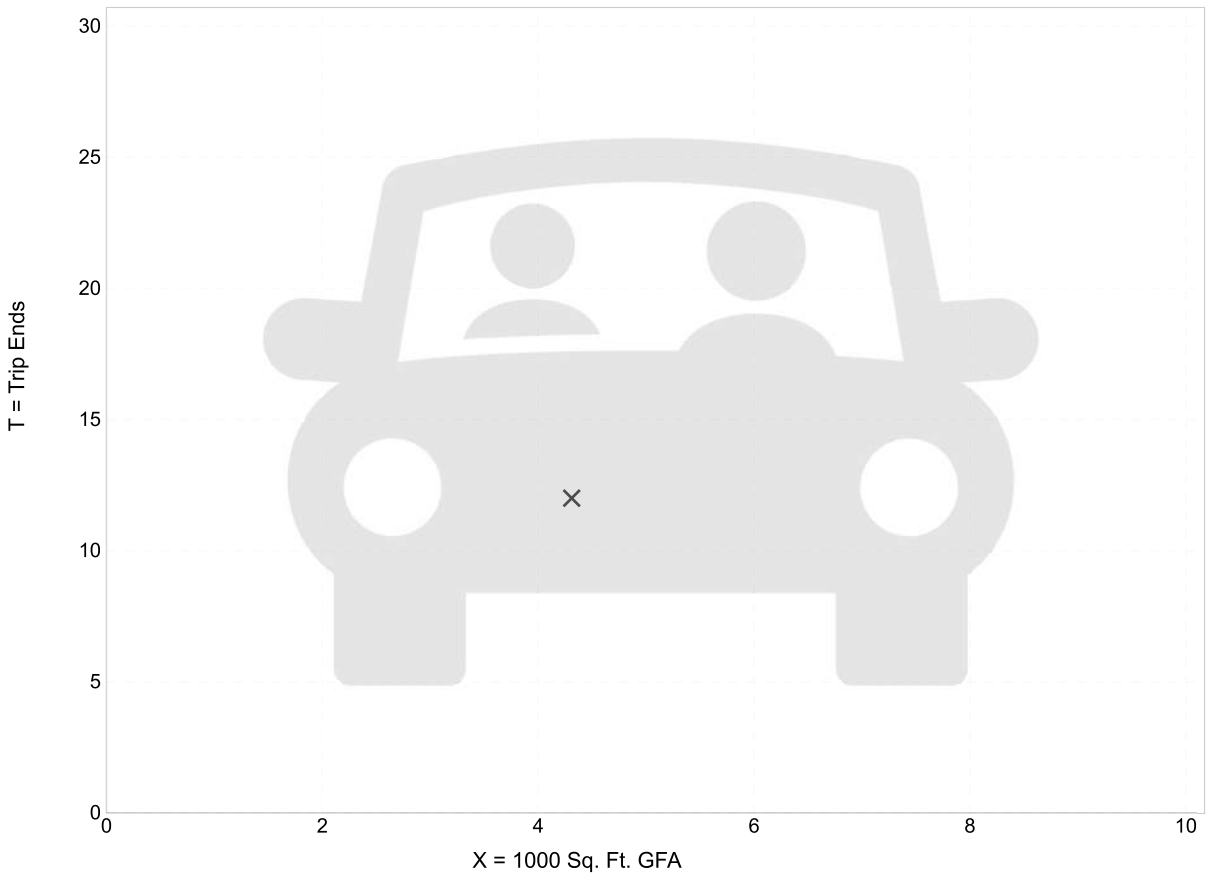
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 75% entering, 25% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.78	2.78 - 2.78	*

Data Plot and Equation

Caution – Small Sample Size



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Copy, Print, and Express Ship Store
(920)

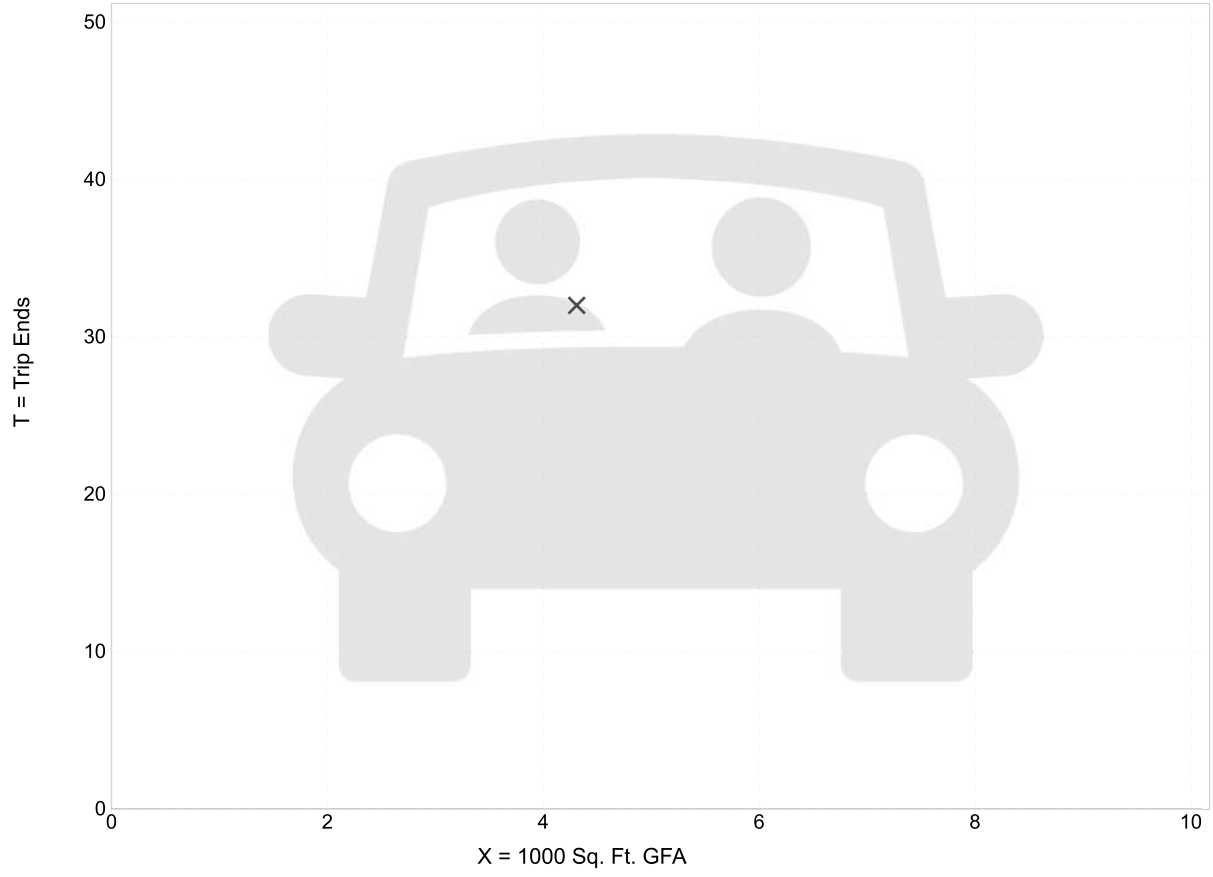
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 44% entering, 56% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.42	7.42 - 7.42	*

Data Plot and Equation

Caution – Small Sample Size



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Fast Casual Restaurant
(930)

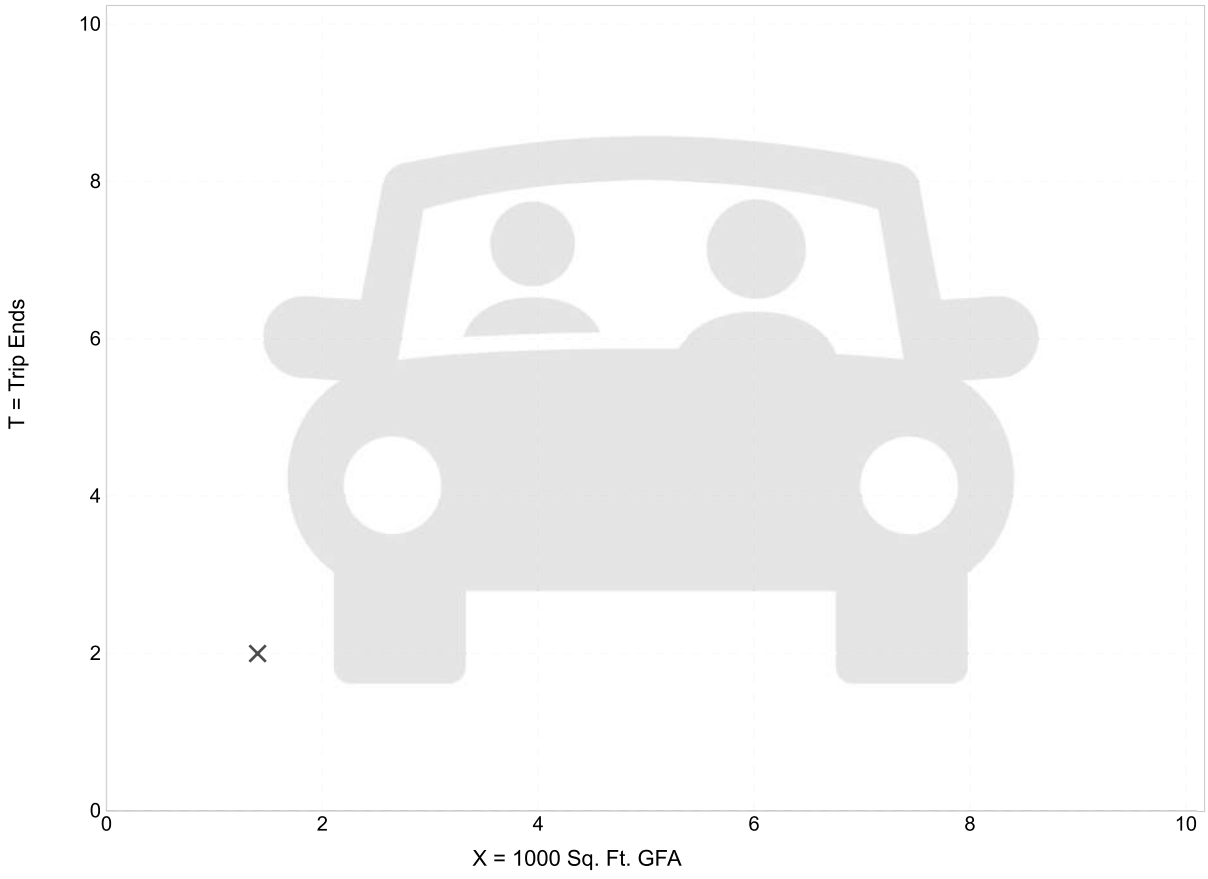
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 1
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.43	1.43 - 1.43	*

Data Plot and Equation

Caution – Small Sample Size



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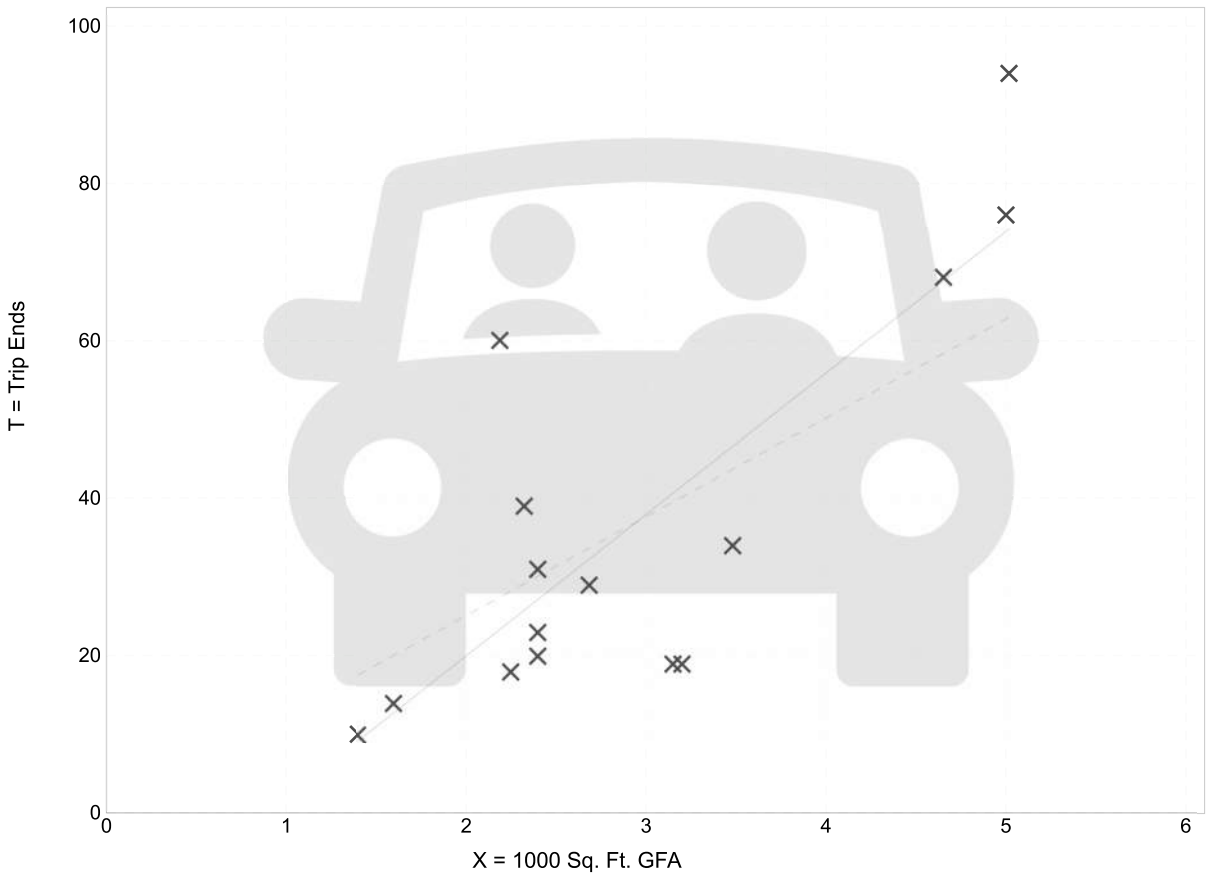
Fast Casual Restaurant
(930)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 15
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
12.55	5.94 - 27.40	5.52

Data Plot and Equation



Fitted Curve Equation: T = 17.96(X) - 15.94

R^2= 0.65

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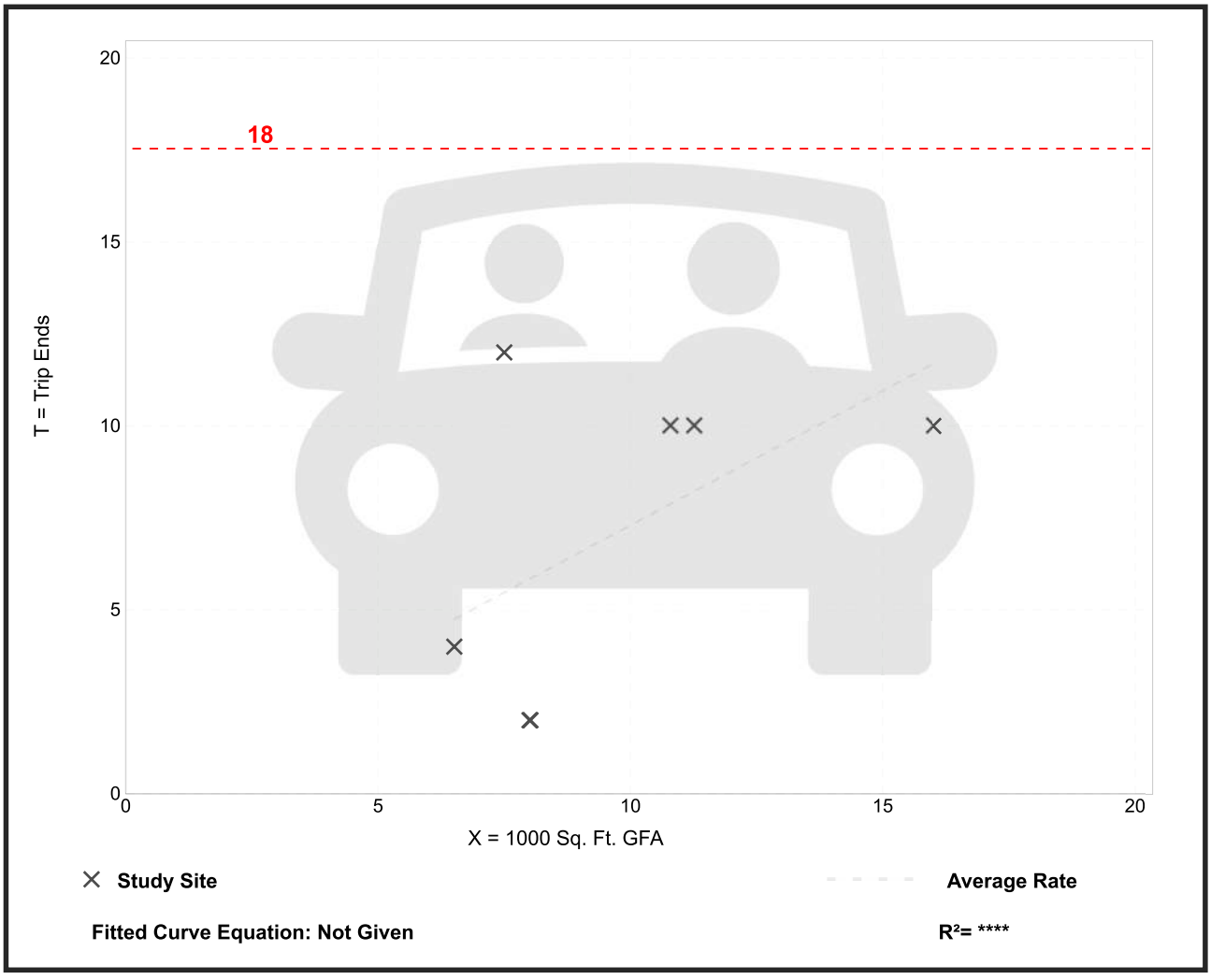
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



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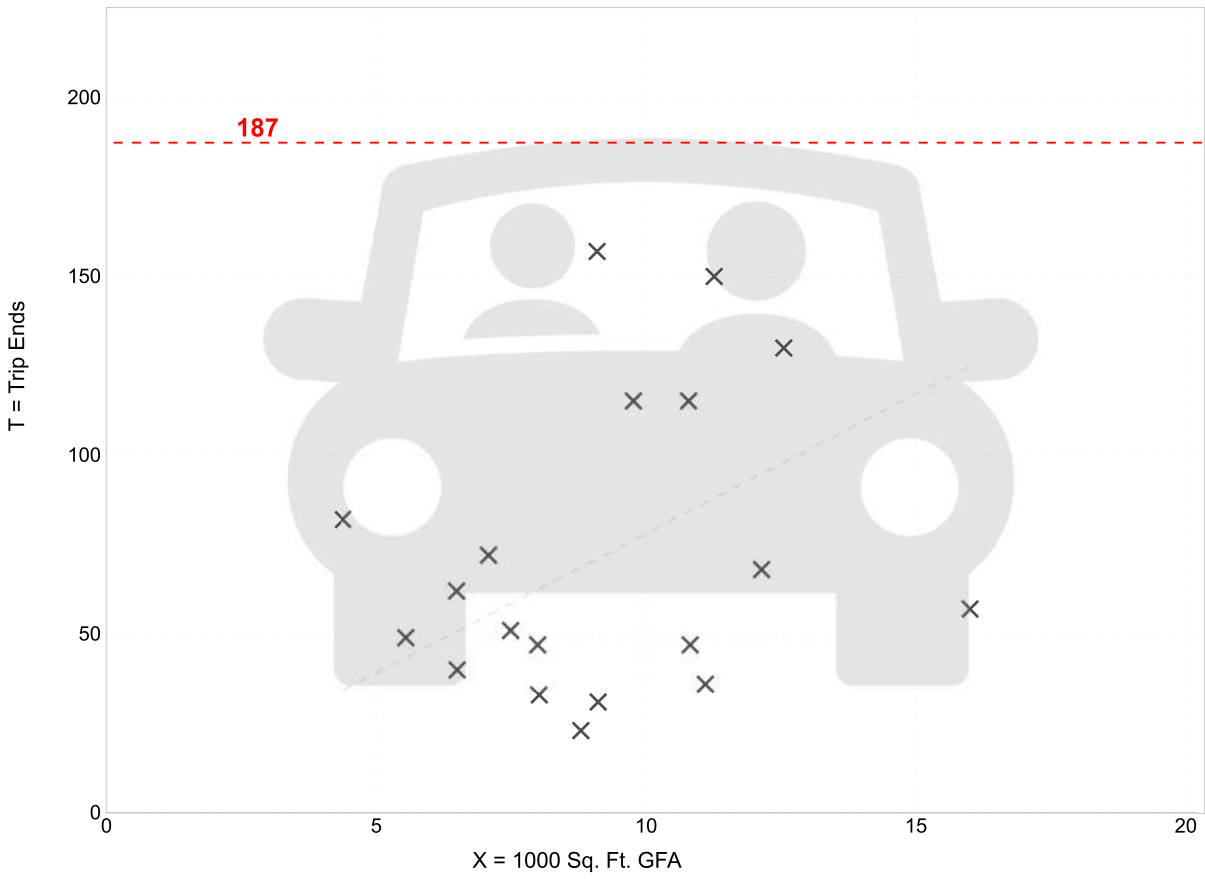
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



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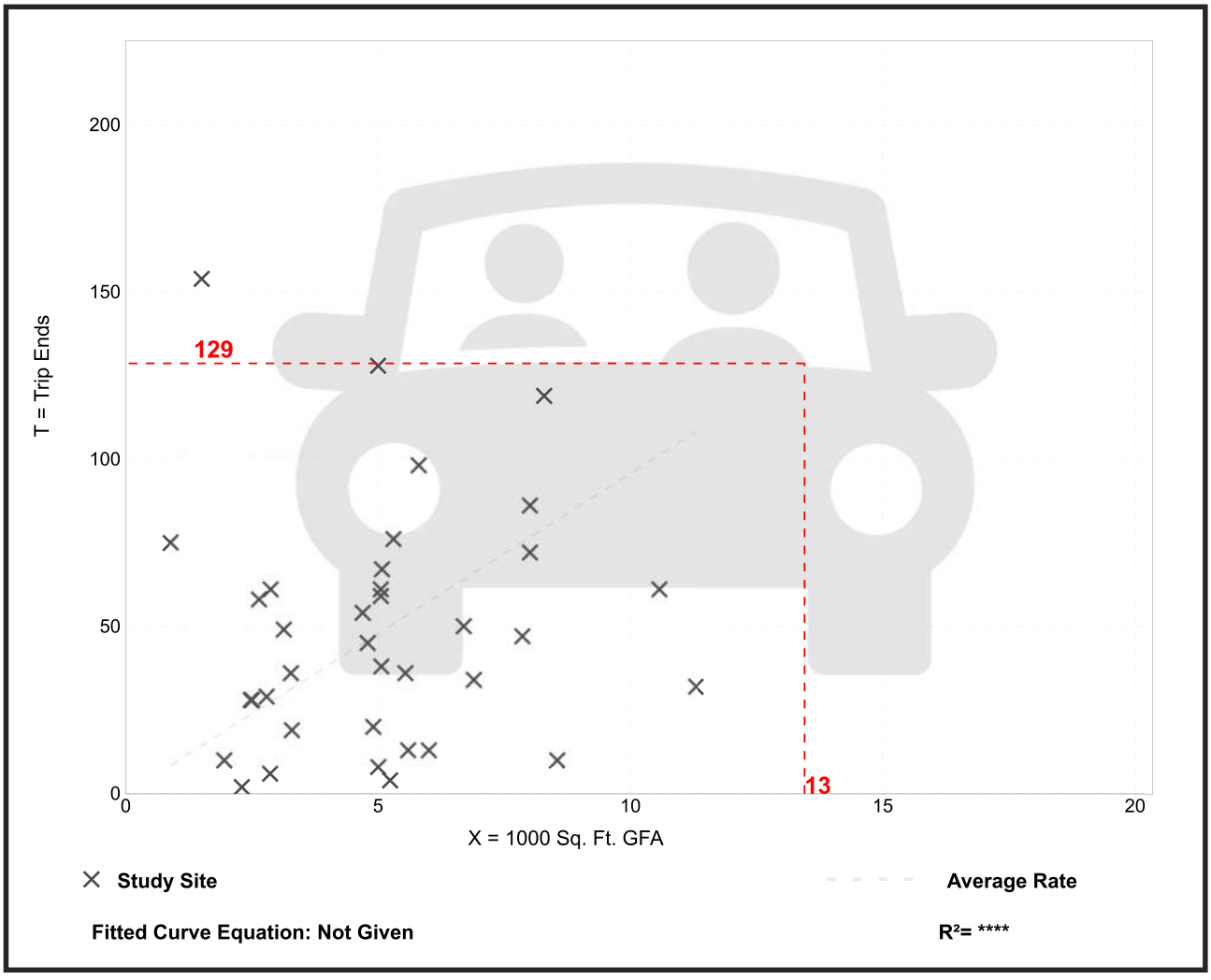
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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High-Turnover (Sit-Down) Restaurant
(932)

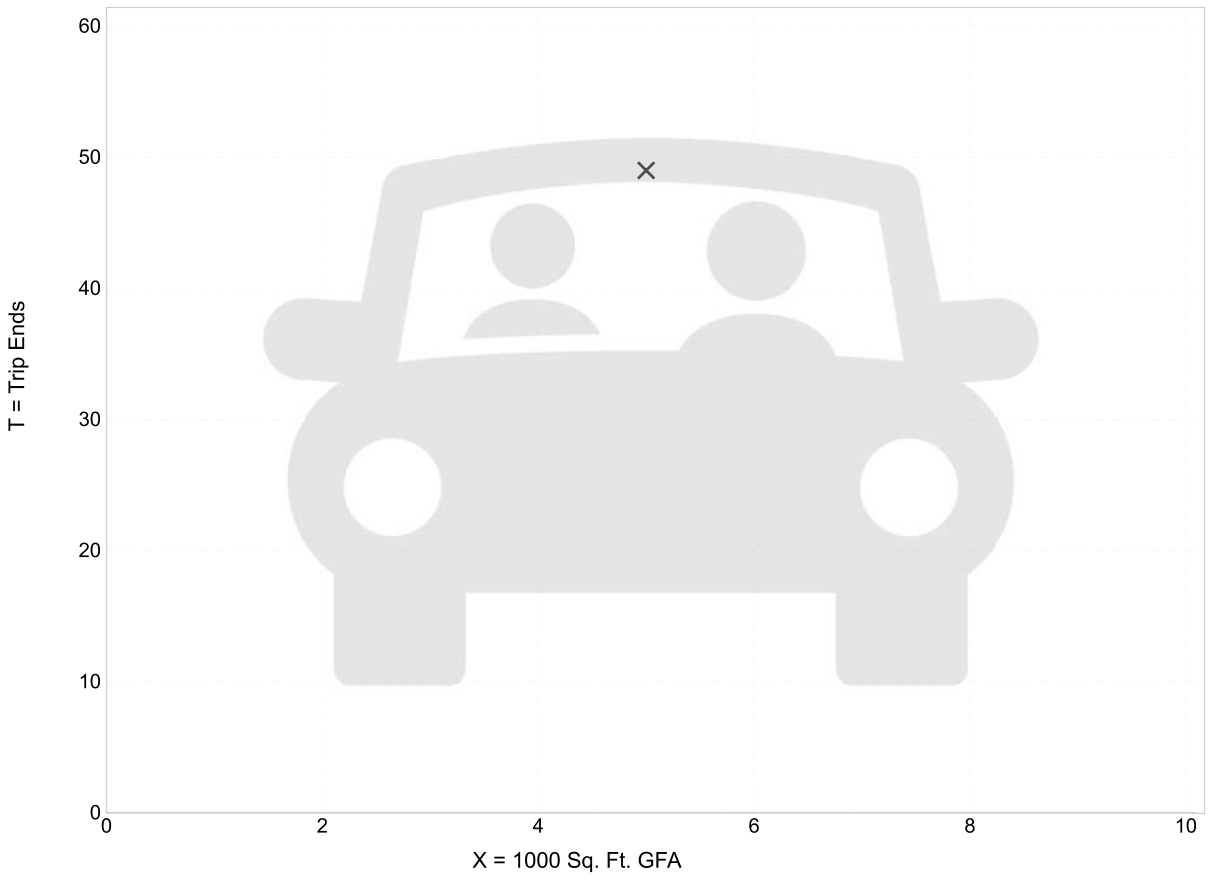
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.80	9.80 - 9.80	*

Data Plot and Equation

Caution – Small Sample Size



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Fast-Food Restaurant without Drive-Through Window
(933)

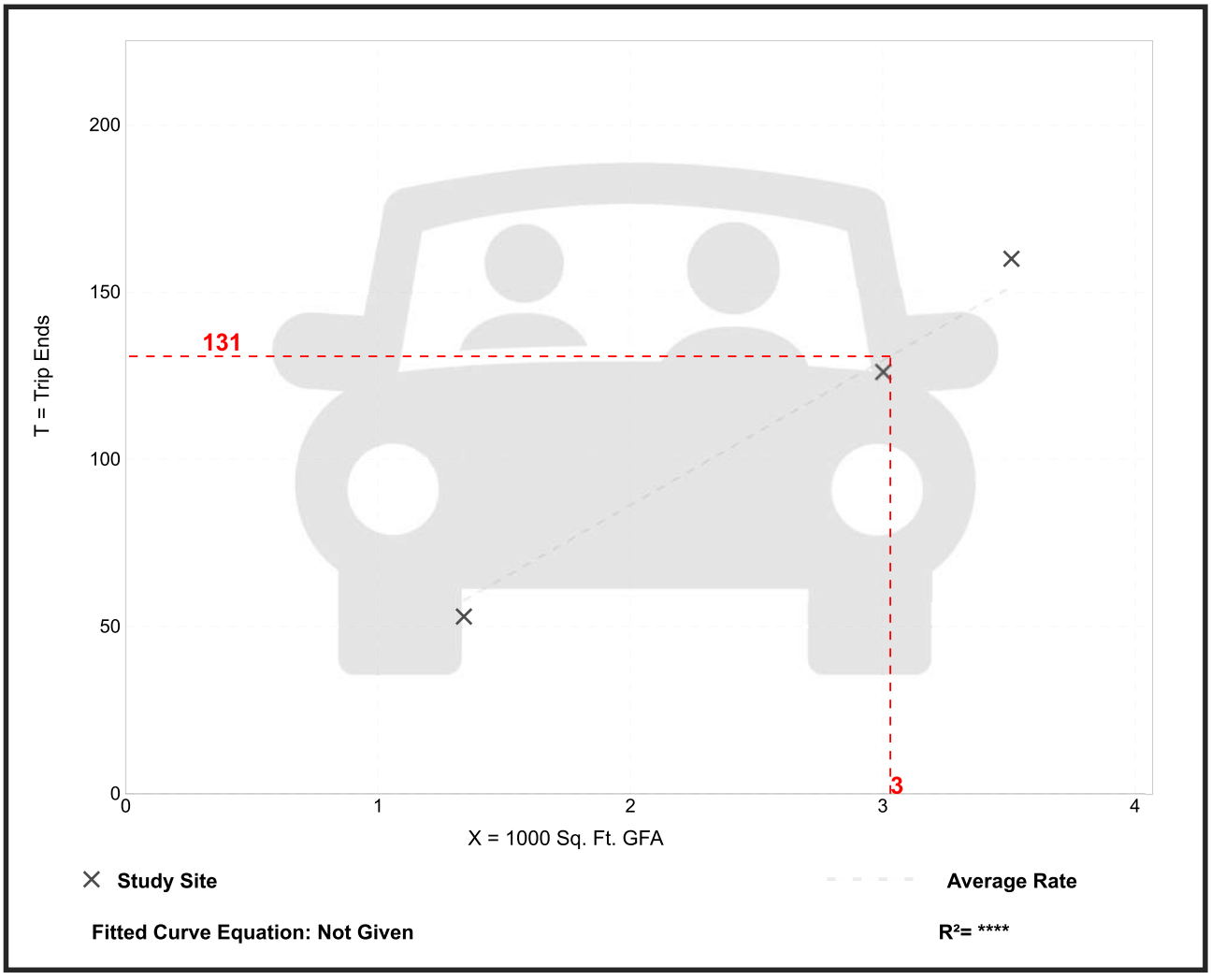
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 58% entering, 42% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
43.18	39.55 - 45.58	2.84

Data Plot and Equation

Caution – Small Sample Size



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Fast-Food Restaurant without Drive-Through Window
(933)

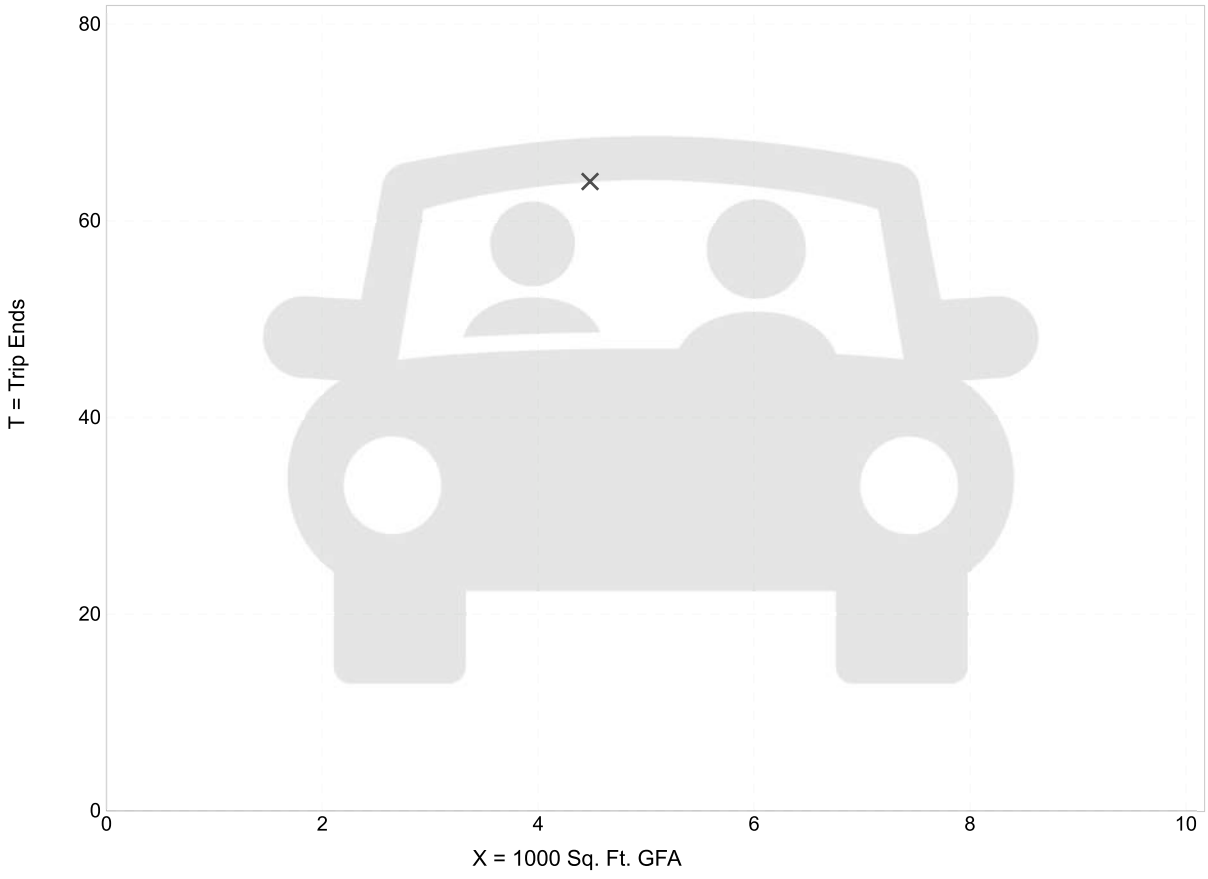
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
14.29	14.29 - 14.29	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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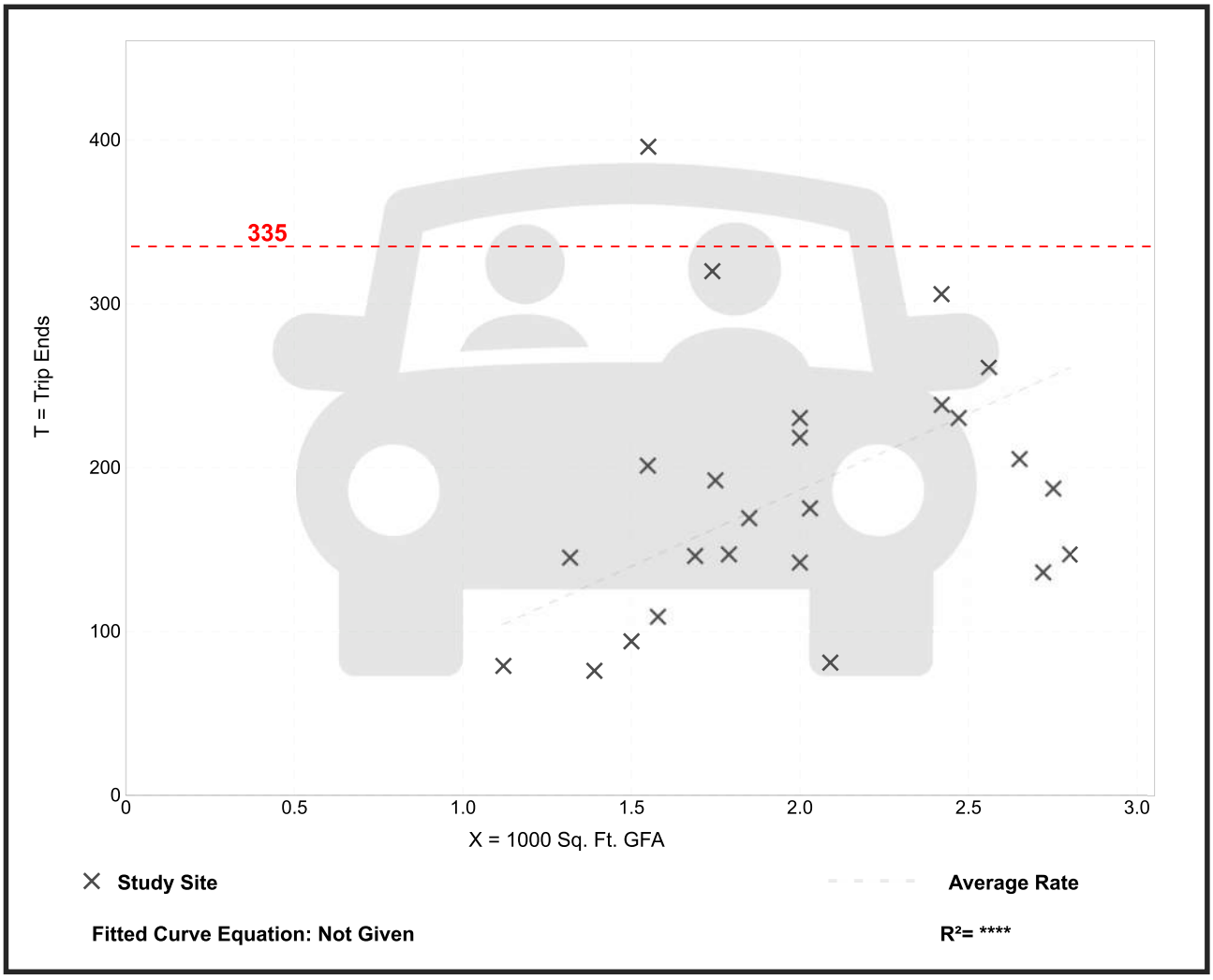
Coffee/Donut Shop without Drive-Through Window
(936)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 25
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
93.08	38.76 - 255.48	42.71

Data Plot and Equation



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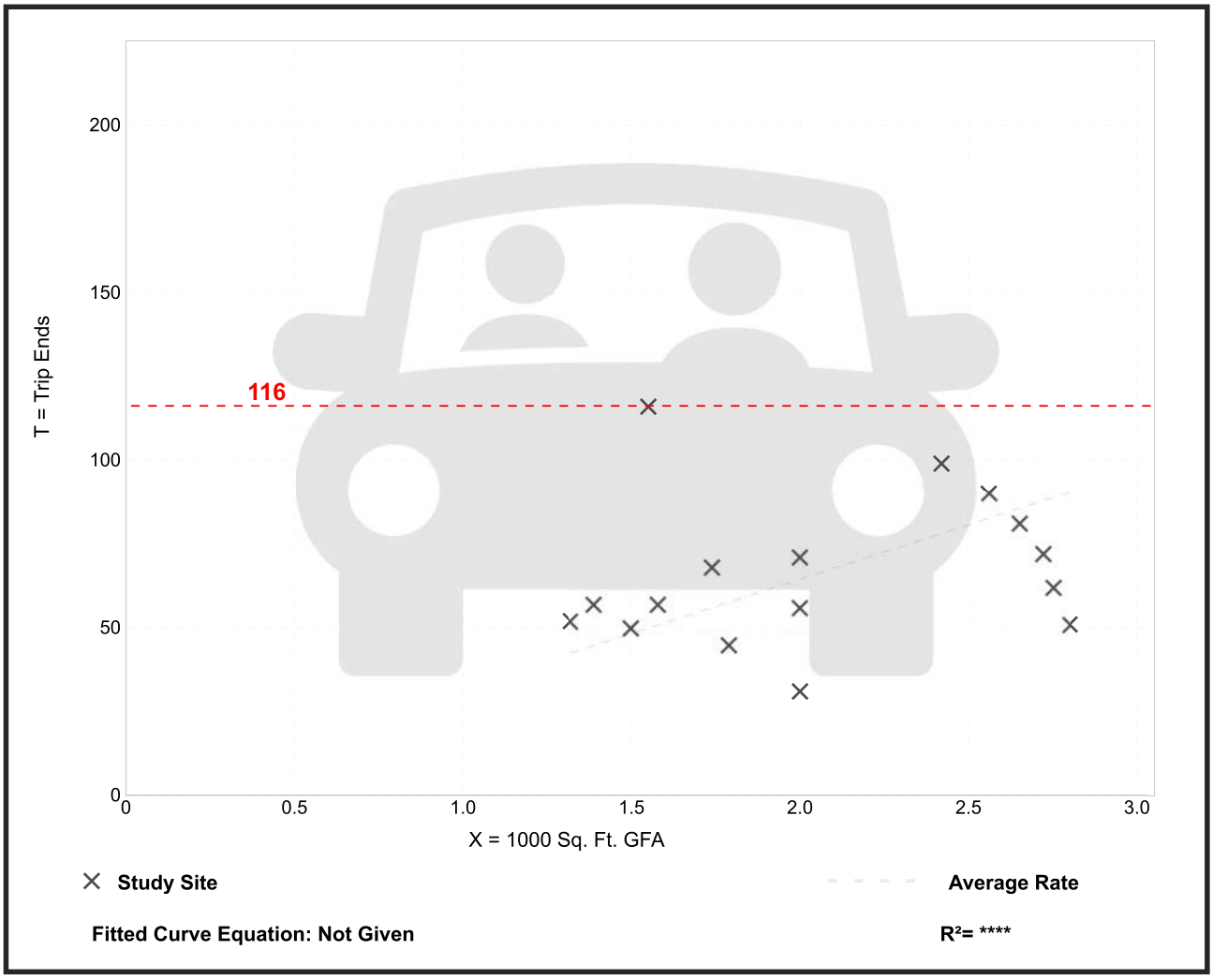
Coffee/Donut Shop without Drive-Through Window
(936)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	16
Avg. 1000 Sq. Ft. GFA:	2
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
32.29	15.50 - 74.84	12.64

Data Plot and Equation



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Coffee/Donut Shop with Drive-Through Window
(937)

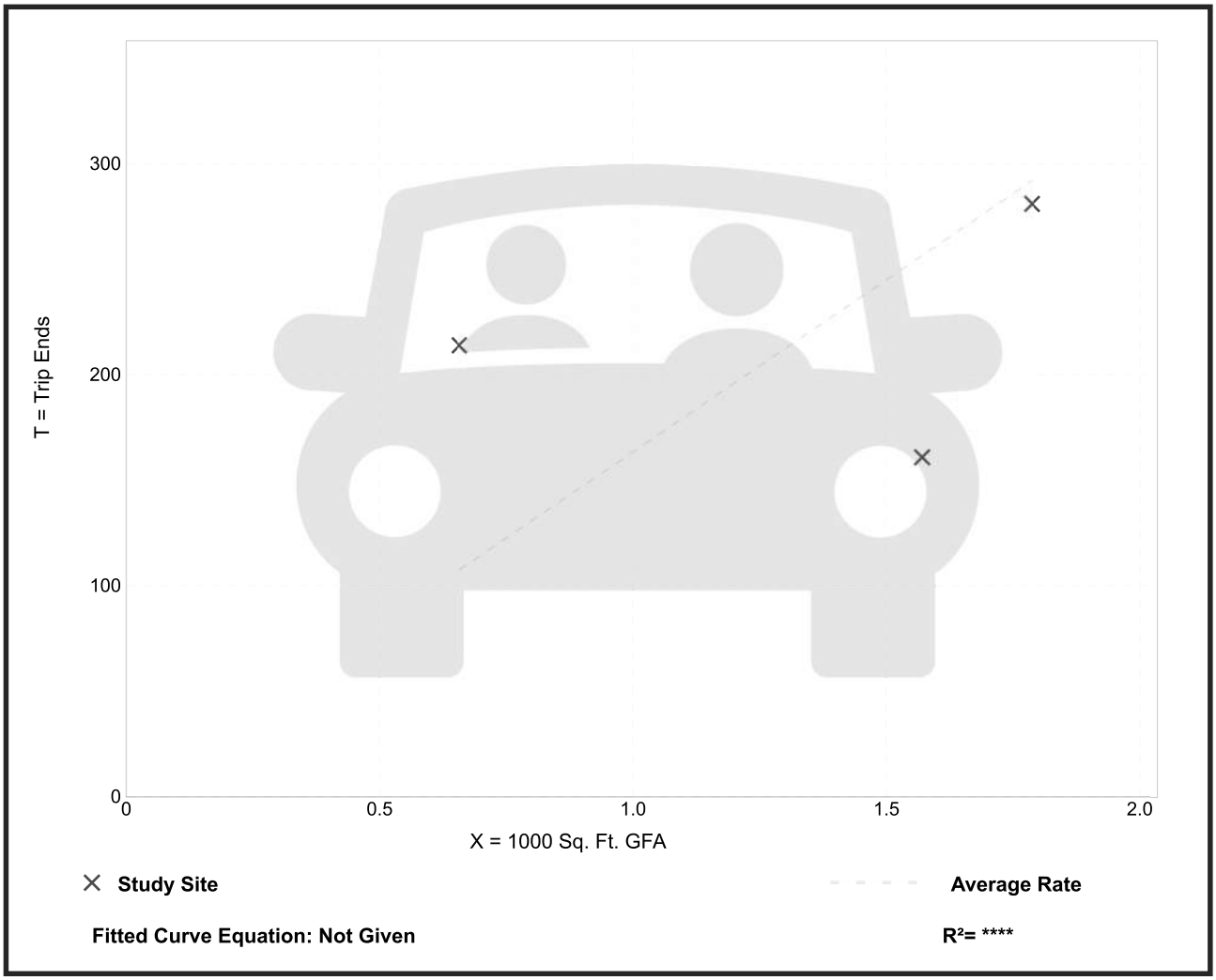
Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**Dense Multi-Use Urban**
Number of Studies:	3
Avg. 1000 Sq. Ft. GFA:	1
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
163.39	102.55 - 325.23	92.93

Data Plot and Equation

Caution – Small Sample Size



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Coffee/Donut Shop with Drive-Through Window
(937)

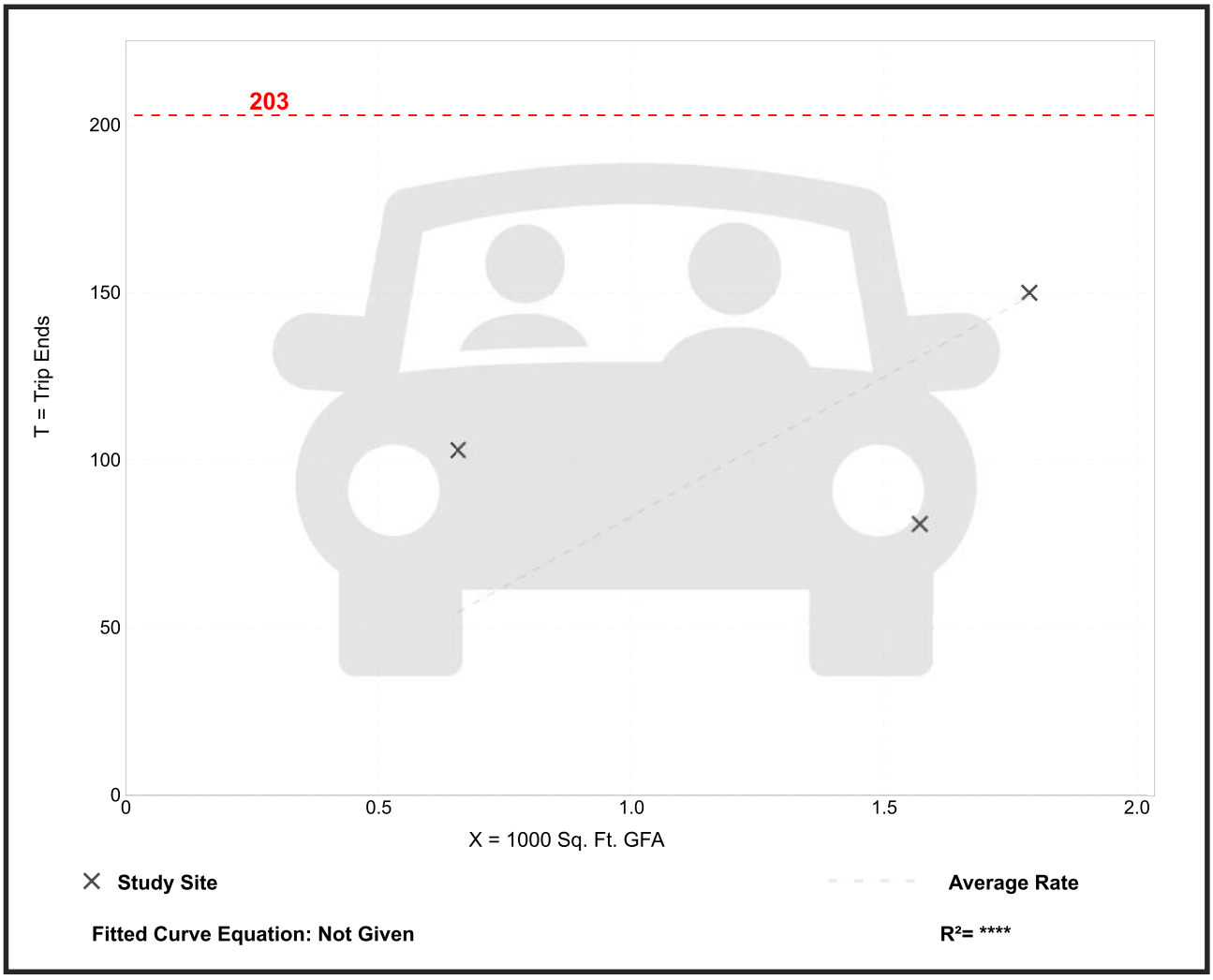
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Dense Multi-Use Urban**
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 1
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
83.19	51.59 - 156.53	43.69

Data Plot and Equation

Caution – Small Sample Size



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Appendix B

Internal Capture Estimation

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Olia Village	**Organization:**	CMT
Project Location:	Creve Coeur, MO	**Performed By:**	RRS
Scenario Description:	AM Peak, Dense Multi-Use	**Date:**	2/28/2023
Analysis Year:	2022	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	715, 760	259,226	SF	377	326	51
Retail	,850,861,876,	228,872	SF	495	286	209
Restaurant	31,932,933,93	80,199	SF	1060	570	490
Cinema/Entertainment	492	55,549	SF	73	37	36
Residential	220, 221	1,116	Dwellings	293	39	254
Hotel	310	251	Rooms	78	30	48
All Other Land Uses[2]	160	36,476	SF	4	2	2
Total				2380	1290	1090

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.10	0%	0%
Restaurant	1.00	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.10	0%	0%
Residential	1.00	0%	0%	1.10	0%	0%
Hotel	1.00	0%	0%	1.10	0%	0%
All Other Land Uses[2]	1.00	0%	0%	1.10	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	32	0	0	0
Retail	13		30	0	1	0
Restaurant	46	23		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	6	3	56	0		0
Hotel	10	7	5	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	2,484	1,290	1,194
Internal Capture Percentage	20%	19%	21%
External Vehicle-Trips[3]	1,901	1,041	860
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	23%	90%
Retail	16%	19%
Restaurant	22%	13%
Cinema/Entertainment	0%	0%
Residential	8%	23%
Hotel	3%	42%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Olia Village
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	326	326	1.00	51	51
Retail	1.00	286	286	1.10	209	230
Restaurant	1.00	570	570	1.10	490	539
Cinema/Entertainment	1.00	37	37	1.10	36	40
Residential	1.00	39	39	1.10	254	279
Hotel	1.00	30	30	1.10	48	53

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	32	0	1	0
Retail	67		30	0	32	0
Restaurant	167	75		0	22	16
Cinema/Entertainment	0	0	0		0	0
Residential	6	3	56	0		0
Hotel	40	7	5	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		92	131	0	0	0
Retail	13		285	0	1	0
Restaurant	46	23		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	10	49	114	0		0
Hotel	10	11	34	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	75	251	326	251	0	0
Retail	47	239	286	239	0	0
Restaurant	123	447	570	447	0	0
Cinema/Entertainment	0	37	37	37	0	0
Residential	3	36	39	36	0	0
Hotel	1	29	30	29	0	0
All Other Land Uses[3]	0	2	2	2	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	46	5	51	5	0	0
Retail	44	186	230	169	0	0
Restaurant	72	467	539	425	0	0
Cinema/Entertainment	0	40	40	36	0	0
Residential	65	214	279	195	0	0
Hotel	22	31	53	28	0	0
All Other Land Uses[3]	0	2	2	2	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Olia Village	**Organization:**	CMT
Project Location:	Creve Coeur, MO	**Performed By:**	RRS
Scenario Description:	PM Peak, Dense Multi-Use	**Date:**	2/28/2023
Analysis Year:	2022	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	715, 760	259,226	SF	365	56	309
Retail	,850,861,876,	228,872	SF	1087	533	554
Restaurant	31,932,933,93	80,199	SF	1270	721	549
Cinema/Entertainment	492	55,549	SF	169	96	73
Residential	220, 221	1,116	Dwellings	314	238	76
Hotel	310	251	Rooms	53	23	30
All Other Land Uses[2]	160	36,476	SF	3	1	2
Total				3261	1668	1593

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses[2]	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		600	300		600	
Retail					900	
Restaurant					700	
Cinema/Entertainment					600	
Residential		900	800			
Hotel					1000	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		38	12	0	6	0
Retail	11		161	22	109	4
Restaurant	16	225		31	38	16
Cinema/Entertainment	1	15	22		6	0
Residential	3	25	13	0		2
Hotel	0	5	20	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	3,261	1,668	1,593
Internal Capture Percentage	49%	48%	50%
External Vehicle-Trips[3]	1,659	867	792
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	55%	18%
Retail	58%	55%
Restaurant	32%	59%
Cinema/Entertainment	55%	60%
Residential	67%	57%
Hotel	96%	83%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Olia Village
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	56	56	1.00	309	309
Retail	1.00	533	533	1.00	554	554
Restaurant	1.00	721	721	1.00	549	549
Cinema/Entertainment	1.00	96	96	1.00	73	73
Residential	1.00	238	238	1.00	76	76
Hotel	1.00	23	23	1.00	30	30

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		54	12	0	6	0
Retail	11		161	22	138	28
Restaurant	16	225		44	99	38
Cinema/Entertainment	1	15	23		6	1
Residential	3	25	13	0		2
Hotel	0	5	20	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		38	14	1	10	0
Retail	17		209	25	109	4
Restaurant	17	267		31	38	16
Cinema/Entertainment	3	21	22		10	0
Residential	32	42	83	0		3
Hotel	0	11	36	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	31	25	56	25	0	0
Retail	308	225	533	225	0	0
Restaurant	228	493	721	493	0	0
Cinema/Entertainment	53	43	96	43	0	0
Residential	159	79	238	79	0	0
Hotel	22	1	23	1	0	0
All Other Land Uses[3]	0	1	1	1	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	56	253	309	253	0	0
Retail	307	247	554	247	0	0
Restaurant	326	223	549	223	0	0
Cinema/Entertainment	44	29	73	29	0	0
Residential	43	33	76	33	0	0
Hotel	25	5	30	5	0	0
All Other Land Uses[3]	0	2	2	2	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix C

Synchro Analysis Results

2022 AM Existing.....C-1
2022 PM Existing.....C-23
2028 AM No-Build.....C-45
2028 PM No-Build.....C-67
2048 AM No-Build.....C-89
2048 PM No-Build.....C-111
2028 AM Build.....C-133
2028 PM Build.....C-159
2048 AM Build.....C-183
2048 PM Build.....C-209
2028 AM Build with Improvements.....C-234
2028 PM Build with Improvements.....C-237
2048 AM Build with Improvements.....C-240
2048 PM Build with Improvements.....C-243
Additional Considerations.....C-246

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1216	134	96	1123	5	263
Future Volume (vph)	1216	134	96	1123	5	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		147				103
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.91	0.91	0.89	0.89	0.90	0.90
Adj. Flow (vph)	1336	147	108	1262	6	292
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1336	147	108	1262	6	292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	20.0	56.5	44.2	
Total Split (s)	86.0	23.0	21.0	107.0	23.0	
Total Split (%)	66.2%	17.7%	16.2%	82.3%	17.7%	
Maximum Green (s)	79.6	14.8	13.5	100.5	14.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	85.9	104.8	9.5	102.8	12.5	29.5
Actuated g/C Ratio	0.66	0.81	0.07	0.79	0.10	0.23
v/c Ratio	0.57	0.11	0.43	0.45	0.04	0.41
Control Delay	4.8	0.5	67.1	11.1	52.2	28.3
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	4.9	0.5	67.1	11.1	52.2	28.3
LOS	A	A	E	B	D	C
Approach Delay	4.5			15.5	28.8	
Approach LOS	A			B	C	
Queue Length 50th (ft)	219	4	48	386	5	75
Queue Length 95th (ft)	108	1	81	245	18	118
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2339	1330	356	2798	201	740
Starvation Cap Reductn	108	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.11	0.30	0.45	0.03	0.39

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 124 (95%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SB Lindbergh & Olive

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1392	87	3	1063	156	177
Future Volume (vph)	1392	87	3	1063	156	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3400	3505	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3400	3505	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		87				166
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	1547	97	3	1155	177	201
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1547	97	3	1155	177	201
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		6				4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	82.0	82.0	18.0	100.0	30.0	30.0
Total Split (%)	63.1%	63.1%	13.8%	76.9%	23.1%	23.1%
Maximum Green (s)	76.0	76.0	11.1	93.9	23.1	23.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	101.9	101.9	7.0	104.6	12.4	12.4
Actuated g/C Ratio	0.78	0.78	0.05	0.80	0.10	0.10
v/c Ratio	0.56	0.08	0.02	0.41	0.54	0.67
Control Delay	5.9	1.8	54.0	5.5	61.8	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	1.8	54.0	5.5	61.8	24.2
LOS	A	A	D	A	E	C
Approach Delay	5.7			5.6	41.8	
Approach LOS	A			A	D	
Queue Length 50th (ft)	131	0	1	120	74	28
Queue Length 95th (ft)	263	12	m3	251	106	99
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2774	1259	290	2819	610	417
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.08	0.01	0.41	0.29	0.48

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	88	1481	1022	237	37	44
Future Volume (vph)	88	1481	1022	237	37	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3505	1568	1656	1482
Flt Permitted	0.220				0.950	
Satd. Flow (perm)	410	3539	3505	1568	1656	1482
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				255		52
Link Speed (mph)		40	40		40	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		11.8	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.84	0.84
Heavy Vehicles (%)	2%	2%	3%	3%	9%	9%
Adj. Flow (vph)	98	1646	1099	255	44	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	1646	1099	255	44	52
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			2		3
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	25.0	108.0	83.0	83.0	22.0	22.0
Total Split (%)	19.2%	83.1%	63.8%	63.8%	16.9%	16.9%
Maximum Green (s)	19.2	102.3	77.4	77.4	16.6	16.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	96.4	102.3	89.5	89.5	16.6	16.6
Actuated g/C Ratio	0.74	0.79	0.69	0.69	0.13	0.13
v/c Ratio	0.26	0.59	0.46	0.22	0.21	0.22
Control Delay	4.0	5.1	10.0	1.3	53.7	15.7
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	4.0	5.5	10.0	1.3	53.7	15.7
LOS	A	A	B	A	D	B
Approach Delay		5.4	8.4		33.1	
Approach LOS		A	A		C	
Queue Length 50th (ft)	6	55	202	0	34	0
Queue Length 95th (ft)	35	499	252	26	67	34
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	523	2784	2412	1158	211	234
Starvation Cap Reductn	0	575	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.75	0.46	0.22	0.21	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 41 (32%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 56.0%		ICU Level of Service B	
Analysis Period (min) 15			

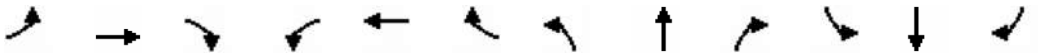
Splits and Phases: 17: Olive & Old Olive St E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1296	0	0	1027	101	0	0	0	54	0	7
Future Volume (vph)	14	1296	0	0	1027	101	0	0	0	54	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	0		210	0		20	150		0
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Flt Permitted	0.216									0.950		
Satd. Flow (perm)	402	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						127						121
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			176			526	
Travel Time (s)		17.9			13.3			4.0			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	16	1507	0	0	1081	106	0	0	0	65	0	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1507	0	0	1081	106	0	0	0	65	0	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2	1	1	2	1	1		1
Detector Template	Left	Thru	Right		Thru	Right	Left	Thru	Right	Left		Right
Leading Detector (ft)	20	100	20		100	20	20	100	20	20		20
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Size(ft)	20	6	20		6	20	20	6	20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	D.P+P	NA	Perm		NA	Perm			Perm	Prot		Perm
Protected Phases	1	6			2		4	4		3		
Permitted Phases	2		6			2			4			3

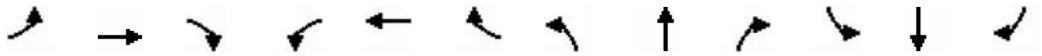
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6		2	2	4	4	4	3		3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0		10.0	10.0	7.0	7.0	7.0	7.0		7.0
Minimum Split (s)	12.8	15.5	15.5		15.6	15.6	13.0	13.0	13.0	13.3		13.3
Total Split (s)	16.0	92.0	92.0		76.0	76.0	8.0	8.0	8.0	30.0		30.0
Total Split (%)	12.3%	70.8%	70.8%		58.5%	58.5%	6.2%	6.2%	6.2%	23.1%		23.1%
Maximum Green (s)	10.2	86.5	86.5		70.4	70.4	2.0	2.0	2.0	23.7		23.7
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.8	1.5	1.5		1.6	1.6	2.0	2.0	2.0	2.3		2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.5	5.5		5.6	5.6		6.0	6.0	6.3		6.3
Lead/Lag	Lag				Lead	Lead	Lag	Lag	Lag	Lead		Lead
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Max	C-Max		C-Max	C-Max	None	None	None	Max		Max
Act Effct Green (s)	91.9	94.5			88.0	88.0				23.7		23.7
Actuated g/C Ratio	0.71	0.73			0.68	0.68				0.18		0.18
v/c Ratio	0.04	0.59			0.45	0.10				0.20		0.02
Control Delay	1.9	4.3			3.2	0.5				47.1		0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0		0.0
Total Delay	1.9	4.3			3.2	0.5				47.1		0.1
LOS	A	A			A	A				D		A
Approach Delay		4.3			2.9						41.9	
Approach LOS		A			A						D	
Queue Length 50th (ft)	3	137			68	0				47		0
Queue Length 95th (ft)	m2	56			67	0				83		0
Internal Link Dist (ft)		972			703			96			446	
Turn Bay Length (ft)	190					210				150		
Base Capacity (vph)	391	2572			2395	1112				322		387
Starvation Cap Reductn	0	0			0	0				0		0
Spillback Cap Reductn	0	0			0	0				0		0
Storage Cap Reductn	0	0			0	0				0		0
Reduced v/c Ratio	0.04	0.59			0.45	0.10				0.20		0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	1189	6	19	968	47	4	5	21	100	8	302
Future Volume (vph)	153	1189	6	19	968	47	4	5	21	100	8	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.879			0.854	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1369	0	1770	1591	0
Flt Permitted	0.249			0.168			0.274			0.737		
Satd. Flow (perm)	464	3539	1583	313	3539	1583	427	1369	0	1373	1591	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			78		25			308	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			119			409	
Travel Time (s)		8.9			17.9			2.7			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	168	1307	7	20	1008	49	5	6	25	102	8	308
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1307	7	20	1008	49	5	31	0	102	316	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	

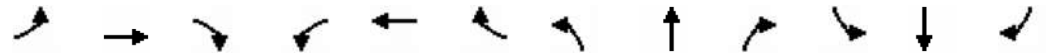


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	8			4		
Detector Phase	1	6	6	5	2	2	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	13.1	16.2	16.2	13.1	30.3	30.3	13.2	13.2		13.1	13.1	
Total Split (s)	27.0	77.0	77.0	23.0	73.0	73.0	30.0	30.0		30.0	30.0	
Total Split (%)	20.8%	59.2%	59.2%	17.7%	56.2%	56.2%	23.1%	23.1%		23.1%	23.1%	
Maximum Green (s)	20.9	70.8	70.8	16.9	66.7	66.7	23.8	23.8		23.9	23.9	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.2	2.2	2.1	2.3	2.3	2.2	2.2		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	6.2	6.1	6.3	6.3	6.2	6.2		6.1	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	2.5	4.5	4.5	2.5	4.5	4.5	2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0						
Flash Dont Walk (s)					17.0	17.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	97.0	93.8	93.8	100.7	88.6	88.6	14.6	14.6		14.7	14.7	
Actuated g/C Ratio	0.75	0.72	0.72	0.77	0.68	0.68	0.11	0.11		0.11	0.11	
v/c Ratio	0.39	0.51	0.01	0.05	0.42	0.04	0.11	0.18		0.66	0.70	
Control Delay	4.7	7.1	0.0	0.6	0.7	0.1	53.5	23.3		74.2	14.9	
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	4.7	7.2	0.0	0.6	0.7	0.1	53.5	23.3		74.2	14.9	
LOS	A	A	A	A	A	A	D	C		E	B	
Approach Delay		6.9			0.7			27.5			29.3	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	17	70	0	0	6	0	4	5		84	6	
Queue Length 95th (ft)	28	219	m0	m0	2	0	15	30		138	94	
Internal Link Dist (ft)		375			972			39			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	577	2554	1165	432	2411	1103	78	271		252	543	
Starvation Cap Reductn	0	337	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.29	0.59	0.01	0.05	0.42	0.04	0.06	0.11		0.40	0.58	

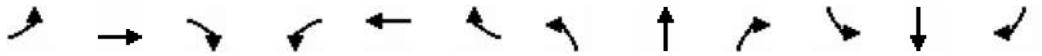
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 116 (89%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 73.1%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1214	63	85	1183	6	64	1	118	16	3	3
Future Volume (vph)	1	1214	63	85	1183	6	64	1	118	16	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850			0.850		0.925	
Flt Protected	0.950			0.950				0.953		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	0	1775	1583	1770	1723	0
Flt Permitted	0.171			0.121				0.724		0.708		
Satd. Flow (perm)	319	3514	0	225	3539	1583	0	1349	1583	1319	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				28			57		4	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			9.3	
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.86	0.86	0.86	0.75	0.75	0.75
Adj. Flow (vph)	1	1305	68	97	1344	7	74	1	137	21	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1373	0	97	1344	7	0	75	137	21	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.Pm	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		6		5	2			8	5		4	
Permitted Phases	2			6		2	8		8	4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	103.0	83.0		20.0	103.0	103.0	27.0	27.0	20.0	27.0	27.0	
Total Split (%)	79.2%	63.8%		15.4%	79.2%	79.2%	20.8%	20.8%	15.4%	20.8%	20.8%	
Maximum Green (s)	96.7	76.8		14.0	96.7	96.7	20.7	20.7	14.0	20.7	20.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag		Lead		Lag					Lag			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)	4.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	Max	Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)	17.0	23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	96.7	76.8		91.0	96.7	96.7		20.7	41.0	20.7	20.7	
Actuated g/C Ratio	0.74	0.59		0.70	0.74	0.74		0.16	0.32	0.16	0.16	
v/c Ratio	0.00	0.66		0.30	0.51	0.01		0.35	0.25	0.10	0.03	
Control Delay	4.0	19.7		7.0	2.9	0.0		54.0	20.4	48.2	35.7	
Queue Delay	0.0	0.0		0.0	0.1	0.0		0.0	0.0	0.0	0.0	
Total Delay	4.0	19.7		7.0	3.1	0.0		54.0	20.4	48.2	35.7	
LOS	A	B		A	A	A		D	C	D	D	
Approach Delay		19.7			3.3			32.3			44.8	
Approach LOS		B			A			C			D	
Queue Length 50th (ft)	0	386		6	112	0		57	49	15	3	
Queue Length 95th (ft)	2	462		13	69	m0		102	95	34	15	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	237	2078		323	2632	1184		214	538	210	277	
Starvation Cap Reductn	0	0		0	365	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.00	0.66		0.30	0.59	0.01		0.35	0.25	0.10	0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 3 (2%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	105	0	0	160	0	1205	90	0	1785	210
Future Vol, veh/h	0	0	105	0	0	160	0	1205	90	0	1785	210
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	114	0	0	174	0	1310	98	0	1940	228

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	970	-	-	655	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.98	-	-	6.98	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.34	-	-	3.34	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	249	0	0	404	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	249	-	-	404	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.1	20.5	0	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	249	404	-
HCM Lane V/C Ratio	-	0.458	0.43	-
HCM Control Delay (s)	-	31.1	20.5	-
HCM Lane LOS	-	D	C	-
HCM 95th %tile Q(veh)	-	2.2	2.1	-

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	23	0	0	0	42	0
Future Vol, veh/h	23	0	0	0	42	0
Peak Hour Factor	0.82	0.92	0.92	0.92	0.86	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	0	0	0	49	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	0	7.4
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	100%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	42	23	0
LT Vol	42	0	0
Through Vol	0	23	0
RT Vol	0	0	0
Lane Flow Rate	49	28	0
Geometry Grp	1	1	1
Degree of Util (X)	0.057	0.031	0
Departure Headway (Hd)	4.183	4.019	4.04
Convergence, Y/N	Yes	Yes	Yes
Cap	859	890	0
Service Time	2.195	2.046	2.073
HCM Lane V/C Ratio	0.057	0.031	0
HCM Control Delay	7.4	7.2	7.1
HCM Lane LOS	A	A	N
HCM 95th-tile Q	0.2	0.1	0

Intersection	
Intersection Delay, s/veh	6.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	37	0	23	0	0
Future Vol, veh/h	5	37	0	23	0	0
Peak Hour Factor	0.86	0.86	0.92	0.82	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	43	0	28	0	0
Number of Lanes	1	0	1	1	0	0

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	2	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	6.7	6.8
HCM LOS	A	A

Lane	NBLn1	NBLn2	WBLn1
Vol Left, %	0%	0%	12%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	100%	88%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	23	42
LT Vol	0	0	5
Through Vol	0	0	0
RT Vol	0	23	37
Lane Flow Rate	0	28	49
Geometry Grp	7	7	2
Degree of Util (X)	0	0.031	0.047
Departure Headway (Hd)	4.619	3.918	3.478
Convergence, Y/N	Yes	Yes	Yes
Cap	0	917	1032
Service Time	2.327	1.626	1.49
HCM Lane V/C Ratio	0	0.031	0.047
HCM Control Delay	7.3	6.8	6.7
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0.1	0.1

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	23	0	0	0	5
Future Vol, veh/h	0	23	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	82	92	92	92	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	28	0	0	0	6

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	6	-	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	1015	0	-	0	0	-
Stage 1	-	0	-	0	0	-
Stage 2	1017	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1015	-	-	-	-	-
Mov Cap-2 Maneuver	1015	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1017	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-

MOVEMENT SUMMARY

Site: 101 [2022 AM Existing (Site Folder: Eastmost Monsanto Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: Monsanto															
1a	L1	All MCs	9	3.0	9	3.0	0.006	3.5	LOS A	0.0	0.0	0.00	0.43	0.00	23.7
6	T1	All MCs	1	3.0	1	3.0	0.006	0.0	LOS A	0.0	0.0	0.00	0.43	0.00	25.5
Approach			10	3.0	10	3.0	0.006	3.1	NA	0.0	0.0	0.00	0.43	0.00	23.9
West: Monsanto															
2	T1	All MCs	25	3.0	25	3.0	0.026	7.2	LOS A	0.1	2.3	0.05	1.06	0.05	20.1
Approach			25	3.0	25	3.0	0.026	7.2	LOS A	0.1	2.3	0.05	1.06	0.05	20.1
SouthWest: NB Ramp															
12ax	R1	All MCs	40	3.0	40	3.0	0.038	7.0	LOS A	0.2	4.2	0.11	0.93	0.11	20.1
Approach			40	3.0	40	3.0	0.038	7.0	LOS A	0.2	4.2	0.11	0.93	0.11	20.1
All Vehicles			75	3.0	75	3.0	0.038	6.6	NA	0.2	4.2	0.08	0.91	0.08	20.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Minor Road Approach LOS values are based on average delay for all movements (v/c not used).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1123	176	174	1617	21	149
Future Volume (vph)	1123	176	174	1617	21	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		167				124
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.94	0.94	0.96	0.96	0.93	0.93
Adj. Flow (vph)	1195	187	181	1684	23	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1195	187	181	1684	23	160
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	14.5	56.5	44.2	
Total Split (s)	82.0	24.0	24.0	106.0	24.0	
Total Split (%)	63.1%	18.5%	18.5%	81.5%	18.5%	
Maximum Green (s)	75.6	15.8	16.5	99.5	15.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	87.9	102.1	12.2	107.4	7.9	27.5
Actuated g/C Ratio	0.68	0.79	0.09	0.83	0.06	0.21
v/c Ratio	0.50	0.15	0.56	0.58	0.21	0.23
Control Delay	6.3	0.6	62.9	7.9	62.4	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	0.6	62.9	7.9	62.4	12.0
LOS	A	A	E	A	E	B
Approach Delay	5.5			13.2	18.3	
Approach LOS	A			B	B	
Queue Length 50th (ft)	166	2	77	372	19	14
Queue Length 95th (ft)	203	0	114	355	48	44
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2391	1365	435	2924	215	764
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.14	0.42	0.58	0.11	0.21

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay: 10.4	Intersection LOS: B
Intersection Capacity Utilization 62.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SB Lindbergh & Olive

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1150	122	12	1609	182	180
Future Volume (vph)	1150	122	12	1609	182	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		128				188
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.96	0.96
Adj. Flow (vph)	1211	128	13	1749	190	188
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1211	128	13	1749	190	188
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6				4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	85.0	85.0	22.0	107.0	23.0	23.0
Total Split (%)	65.4%	65.4%	16.9%	82.3%	17.7%	17.7%
Maximum Green (s)	79.0	79.0	15.1	100.9	16.1	16.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	99.1	99.1	7.0	104.5	12.5	12.5
Actuated g/C Ratio	0.76	0.76	0.05	0.80	0.10	0.10
v/c Ratio	0.45	0.10	0.07	0.61	0.58	0.58
Control Delay	2.8	0.3	50.1	9.8	63.0	15.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	2.8	0.3	50.1	9.9	63.0	15.0
LOS	A	A	D	A	E	B
Approach Delay	2.5			10.2	39.1	
Approach LOS	A			B	D	
Queue Length 50th (ft)	39	0	5	352	80	0
Queue Length 95th (ft)	90	1	m9	517	117	70
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2696	1236	398	2845	425	360
Starvation Cap Reductn	0	0	0	260	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.10	0.03	0.68	0.45	0.52

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 10.4	Intersection LOS: B
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive

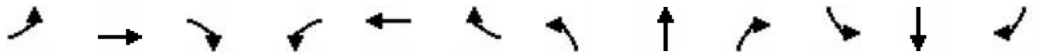
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	1303	1479	276	114	142
Future Volume (vph)	27	1303	1479	276	114	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.121				0.950	
Satd. Flow (perm)	225	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				285		159
Link Speed (mph)		40	40		30	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		15.8	
Peak Hour Factor	0.96	0.96	0.97	0.97	0.82	0.82
Adj. Flow (vph)	28	1357	1525	285	139	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	1357	1525	285	139	173
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	2			2		3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	16.0	106.0	90.0	90.0	24.0	24.0
Total Split (%)	12.3%	81.5%	69.2%	69.2%	18.5%	18.5%
Maximum Green (s)	10.2	100.3	84.4	84.4	18.6	18.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	96.7	100.3	93.2	93.2	18.6	18.6
Actuated g/C Ratio	0.74	0.77	0.72	0.72	0.14	0.14
v/c Ratio	0.12	0.50	0.60	0.23	0.55	0.48
Control Delay	3.2	7.5	11.1	1.3	60.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	7.5	11.1	1.3	60.8	14.2
LOS	A	A	B	A	E	B
Approach Delay		7.4	9.6		35.0	
Approach LOS		A	A		C	
Queue Length 50th (ft)	2	392	346	0	110	10
Queue Length 95th (ft)	m6	251	419	28	163	58
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	292	2730	2536	1215	253	362
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.50	0.60	0.23	0.55	0.48

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 49 (38%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 58.8%	ICU Level of Service B
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Olive & Old Olive St E

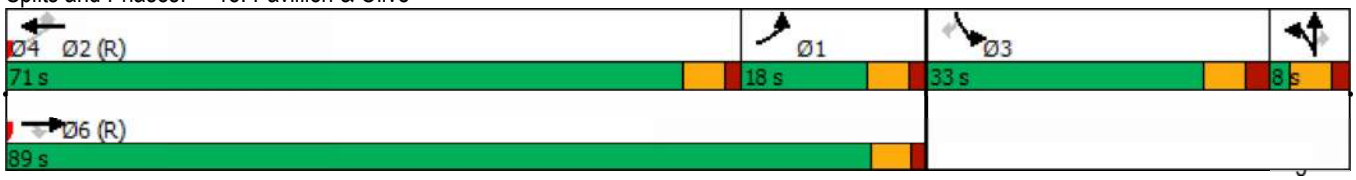


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	1193	0	0	1418	220	0	0	0	106	0	42
Future Volume (vph)	49	1193	0	0	1418	220	0	0	0	106	0	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	0		210	0		20	150		0
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Flt Permitted	0.084									0.950		
Satd. Flow (perm)	156	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						155						121
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			176			526	
Travel Time (s)		17.9			13.3			4.0			14.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	53	1283	0	0	1525	237	0	0	0	143	0	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	1283	0	0	1525	237	0	0	0	143	0	57
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2	1	1	2	1	1		1
Detector Template	Left	Thru	Right		Thru	Right	Left	Thru	Right	Left		Right
Leading Detector (ft)	20	100	20		100	20	20	100	20	20		20
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Size(ft)	20	6	20		6	20	20	6	20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	D.P+P	NA	Perm		NA	Perm			Perm	Prot		Perm
Protected Phases	1	6			2		4	4		3		
Permitted Phases	2		6			2			4			3

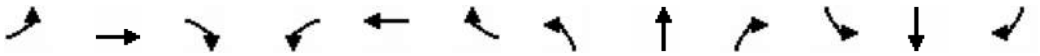
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6		2	2	4	4	4	3		3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0		10.0	10.0	7.0	7.0	7.0	7.0		7.0
Minimum Split (s)	12.8	15.5	15.5		15.6	15.6	13.0	13.0	13.0	13.3		13.3
Total Split (s)	18.0	89.0	89.0		71.0	71.0	8.0	8.0	8.0	33.0		33.0
Total Split (%)	13.8%	68.5%	68.5%		54.6%	54.6%	6.2%	6.2%	6.2%	25.4%		25.4%
Maximum Green (s)	12.2	83.5	83.5		65.4	65.4	2.0	2.0	2.0	26.7		26.7
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.8	1.5	1.5		1.6	1.6	2.0	2.0	2.0	2.3		2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.5	5.5		5.6	5.6		6.0	6.0	6.3		6.3
Lead/Lag	Lag				Lead	Lead	Lag	Lag	Lag	Lead		Lead
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Max	C-Max		C-Max	C-Max	None	None	None	Max		Max
Act Effct Green (s)	86.6	91.5			77.0	77.0				26.7		26.7
Actuated g/C Ratio	0.67	0.70			0.59	0.59				0.21		0.21
v/c Ratio	0.22	0.52			0.73	0.24				0.39		0.14
Control Delay	4.3	2.8			10.9	3.2				48.5		0.7
Queue Delay	0.0	0.0			0.1	0.0				0.0		0.0
Total Delay	4.3	2.8			11.0	3.2				48.5		0.7
LOS	A	A			B	A				D		A
Approach Delay		2.8			9.9						34.8	
Approach LOS		A			A						C	
Queue Length 50th (ft)	5	62			99	2				105		0
Queue Length 95th (ft)	8	68			228	48				138		0
Internal Link Dist (ft)		972			703			96			446	
Turn Bay Length (ft)	190					210				150		
Base Capacity (vph)	254	2490			2096	1000				363		421
Starvation Cap Reductn	0	0			52	0				0		0
Spillback Cap Reductn	0	0			0	0				0		0
Storage Cap Reductn	0	0			0	0				0		0
Reduced v/c Ratio	0.21	0.52			0.75	0.24				0.39		0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 54.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 18: Pavillion & Olive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	1104	10	47	1310	103	11	38	53	85	29	372
Future Volume (vph)	283	1104	10	47	1310	103	11	38	53	85	29	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.912			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1699	0	1770	1604	0
Flt Permitted	0.085			0.200			0.244			0.686		
Satd. Flow (perm)	158	3539	1583	373	3539	1583	455	1699	0	1278	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			78		48			338	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			119			409	
Travel Time (s)		8.9			17.9			2.7			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	298	1162	11	54	1506	118	12	40	56	92	32	404
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	1162	11	54	1506	118	12	96	0	92	436	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2		6	6		2	8			4		

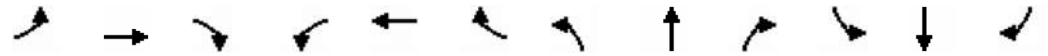


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	13.1	16.2	16.2	13.1	30.3	30.3	13.2	13.2		13.1	13.1	
Total Split (s)	30.0	82.0	82.0	16.0	68.0	68.0	32.0	32.0		32.0	32.0	
Total Split (%)	23.1%	63.1%	63.1%	12.3%	52.3%	52.3%	24.6%	24.6%		24.6%	24.6%	
Maximum Green (s)	23.9	75.8	75.8	9.9	61.7	61.7	25.8	25.8		25.9	25.9	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.2	2.2	2.1	2.3	2.3	2.2	2.2		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	6.2	6.1	6.3	6.3	6.2	6.2		6.1	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	2.5	4.5	4.5	2.5	4.5	4.5	2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0						
Flash Dont Walk (s)					17.0	17.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	95.2	88.4	88.4	96.4	74.1	74.1	16.4	16.4		16.5	16.5	
Actuated g/C Ratio	0.73	0.68	0.68	0.74	0.57	0.57	0.13	0.13		0.13	0.13	
v/c Ratio	0.80	0.48	0.01	0.14	0.75	0.13	0.21	0.38		0.57	0.88	
Control Delay	64.5	4.0	0.0	2.4	8.6	0.5	55.5	29.8		65.2	31.8	
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	64.5	4.2	0.0	2.4	8.6	0.5	55.5	29.8		65.2	31.8	
LOS	E	A	A	A	A	A	E	C		E	C	
Approach Delay		16.4			7.9			32.7			37.6	
Approach LOS		B			A			C			D	
Queue Length 50th (ft)	187	63	0	3	59	0	9	37		74	82	
Queue Length 95th (ft)	m225	88	m0	m4	543	m4	28	85		123	205	
Internal Link Dist (ft)		375			972			39			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	414	2407	1102	382	2017	936	90	375		254	590	
Starvation Cap Reductn	0	428	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.72	0.59	0.01	0.14	0.75	0.13	0.13	0.26		0.36	0.74	

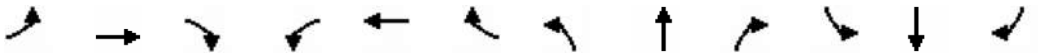
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 113 (87%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 91.8% ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1260	107	103	1571	19	94	7	120	17	6	2
Future Volume (vph)	5	1260	107	103	1571	19	94	7	120	17	6	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988				0.850			0.850		0.959	
Flt Protected	0.950			0.950				0.956		0.950		
Satd. Flow (prot)	1770	3497	0	1770	3539	1583	0	1763	1568	1770	1786	0
Flt Permitted	0.102			0.064				0.734		0.621		
Satd. Flow (perm)	190	3497	0	119	3539	1583	0	1354	1568	1157	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				81			80		3	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.81	0.81	0.81	0.72	0.72	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	5	1370	116	105	1603	19	116	9	148	24	8	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1486	0	105	1603	19	0	125	148	24	11	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			8	5		4	

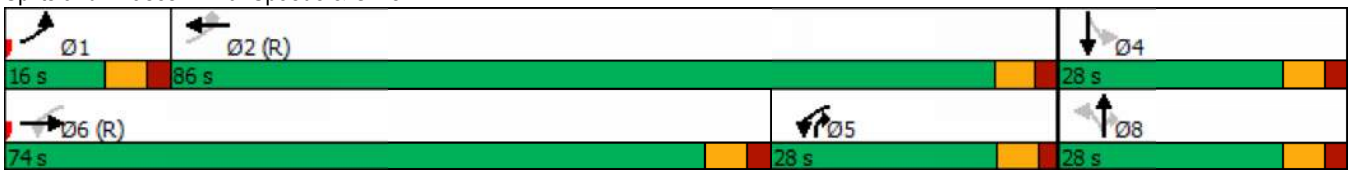


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		2	8		8	4		
Detector Phase	1	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	16.0	74.0		28.0	86.0	86.0	28.0	28.0	28.0	28.0	28.0	
Total Split (%)	12.3%	56.9%		21.5%	66.2%	66.2%	21.5%	21.5%	21.5%	21.5%	21.5%	
Maximum Green (s)	9.7	67.8		22.0	79.7	79.7	21.7	21.7	22.0	21.7	21.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag	Lead	Lead		Lag	Lag	Lag			Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	2.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max	C-Max	Max	Max	None	None	None	
Walk Time (s)		7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)		23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)		0			0	0	0	0				
Act Effct Green (s)	94.4	67.8		90.0	93.0	93.0		21.7	50.0	21.7	21.7	
Actuated g/C Ratio	0.73	0.52		0.69	0.72	0.72		0.17	0.38	0.17	0.17	
v/c Ratio	0.02	0.81		0.29	0.63	0.02		0.55	0.23	0.12	0.04	
Control Delay	4.8	30.2		11.1	3.3	0.0		60.0	13.5	48.1	38.2	
Queue Delay	0.0	0.0		0.0	0.1	0.0		0.0	0.0	0.0	0.0	
Total Delay	4.8	30.2		11.1	3.4	0.0		60.0	13.5	48.1	38.2	
LOS	A	C		B	A	A		E	B	D	D	
Approach Delay		30.1			3.8			34.8			45.0	
Approach LOS		C			A			C			D	
Queue Length 50th (ft)	1	526		20	69	0		98	37	17	6	
Queue Length 95th (ft)	4	628		m38	114	m0		148	70	36	19	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	256	1828		361	2533	1155		226	652	193	300	
Starvation Cap Reductn	0	0		0	177	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.02	0.81		0.29	0.68	0.02		0.55	0.23	0.12	0.04	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 119 (92%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive



Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	100	0	0	395	0	1190	20	0	1500	250
Future Vol, veh/h	0	0	100	0	0	395	0	1190	20	0	1500	250
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	109	0	0	429	0	1293	22	0	1630	272

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	815	-	-	647	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	321	0	0	~ 414	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	321	-	-	~ 414	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.9	86.3	0	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	321	414	-
HCM Lane V/C Ratio	-	0.339	1.037	-
HCM Control Delay (s)	-	21.9	86.3	-
HCM Lane LOS	-	C	F	-
HCM 95th %tile Q(veh)	-	1.5	13.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	0	0	10	15	0
Future Vol, veh/h	14	0	0	10	15	0
Peak Hour Factor	0.58	0.92	0.92	0.92	0.53	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	0	0	11	28	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.1	7.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	100%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	15	14	10
LT Vol	15	0	0
Through Vol	0	14	10
RT Vol	0	0	0
Lane Flow Rate	28	24	11
Geometry Grp	1	1	1
Degree of Util (X)	0.033	0.027	0.012
Departure Headway (Hd)	4.195	3.992	4.001
Convergence, Y/N	Yes	Yes	Yes
Cap	856	898	895
Service Time	2.21	2.009	2.022
HCM Lane V/C Ratio	0.033	0.027	0.012
HCM Control Delay	7.4	7.1	7.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	0	14	0	0
Future Vol, veh/h	0	25	0	14	0	0
Peak Hour Factor	0.92	0.78	0.92	0.58	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	32	0	24	0	0
Number of Lanes	1	0	1	1	0	0

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	2	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	6.5	6.7
HCM LOS	A	A

Lane	NBLn1	NBLn2	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	100%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	14	25
LT Vol	0	0	0
Through Vol	0	0	0
RT Vol	0	14	25
Lane Flow Rate	0	24	32
Geometry Grp	7	7	2
Degree of Util (X)	0	0.026	0.03
Departure Headway (Hd)	4.589	3.889	3.375
Convergence, Y/N	Yes	Yes	Yes
Cap	0	925	1064
Service Time	2.293	1.593	1.385
HCM Lane V/C Ratio	0	0.026	0.03
HCM Control Delay	7.3	6.7	6.5
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0.1	0.1

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	14	0	0	0	0
Future Vol, veh/h	0	14	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	58	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	24	0	0	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1	-	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	1022	0	-	0	0	-
Stage 1	-	0	-	0	0	-
Stage 2	1022	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1022	-	-	-	-	-
Mov Cap-2 Maneuver	1022	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1022	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-

MOVEMENT SUMMARY

Site: 101 [2022 PM Existing (Site Folder: Eastmost Monsanto Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: Monsanto															
1a	L1	All MCs	20	3.0	20	3.0	0.017	3.5	LOS A	0.0	0.0	0.00	0.31	0.00	24.6
6	T1	All MCs	11	3.0	11	3.0	0.017	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	26.6
Approach			30	3.0	30	3.0	0.017	2.3	NA	0.0	0.0	0.00	0.31	0.00	25.3
West: Monsanto															
2	T1	All MCs	15	3.0	15	3.0	0.016	7.3	LOS A	0.1	1.4	0.10	1.03	0.10	20.1
Approach			15	3.0	15	3.0	0.016	7.3	LOS A	0.1	1.4	0.10	1.03	0.10	20.1
SouthWest: NB Ramp															
12ax	R1	All MCs	10	3.0	10	3.0	0.009	7.0	LOS A	0.0	1.0	0.08	0.94	0.08	20.1
Approach			10	3.0	10	3.0	0.009	7.0	LOS A	0.0	1.0	0.08	0.94	0.08	20.1
All Vehicles			55	3.0	55	3.0	0.017	4.5	NA	0.1	1.4	0.04	0.62	0.04	22.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Minor Road Approach LOS values are based on average delay for all movements (v/c not used).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: M:\JackMatthewsDev\22005028-00_CreveCoeurTIS\Eng_Study\Comps\Synchro\05-2023 Updated Models\Monsanto Interchange.sip9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1253	138	99	1157	5	271
Future Volume (vph)	1253	138	99	1157	5	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		152				94
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.91	0.91	0.89	0.89	0.90	0.90
Adj. Flow (vph)	1377	152	111	1300	6	301
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1377	152	111	1300	6	301
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	20.0	56.5	44.2	
Total Split (s)	86.0	23.0	21.0	107.0	23.0	
Total Split (%)	66.2%	17.7%	16.2%	82.3%	17.7%	
Maximum Green (s)	79.6	14.8	13.5	100.5	14.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	85.4	104.7	9.6	102.4	12.9	30.0
Actuated g/C Ratio	0.66	0.81	0.07	0.79	0.10	0.23
v/c Ratio	0.59	0.12	0.44	0.47	0.03	0.42
Control Delay	5.1	0.5	67.6	11.4	52.0	30.0
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	0.5	67.6	11.4	52.0	30.0
LOS	A	A	E	B	D	C
Approach Delay	4.7			15.8	30.4	
Approach LOS	A			B	C	
Queue Length 50th (ft)	256	0	51	411	5	82
Queue Length 95th (ft)	110	1	82	248	18	126
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2326	1325	356	2788	201	733
Starvation Cap Reductn	105	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.11	0.31	0.47	0.03	0.41

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 124 (95%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SB Lindbergh & Olive

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1434	90	3	1095	161	182
Future Volume (vph)	1434	90	3	1095	161	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3400	3505	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3400	3505	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		88				163
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	1593	100	3	1190	183	207
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1593	100	3	1190	183	207
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		6				4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	82.0	82.0	18.0	100.0	30.0	30.0
Total Split (%)	63.1%	63.1%	13.8%	76.9%	23.1%	23.1%
Maximum Green (s)	76.0	76.0	11.1	93.9	23.1	23.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	101.6	101.6	7.0	104.2	12.8	12.8
Actuated g/C Ratio	0.78	0.78	0.05	0.80	0.10	0.10
v/c Ratio	0.58	0.08	0.02	0.42	0.54	0.69
Control Delay	6.1	1.8	54.0	6.0	61.4	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	1.8	54.0	6.0	61.4	26.3
LOS	A	A	D	A	E	C
Approach Delay	5.8			6.1	42.8	
Approach LOS	A			A	D	
Queue Length 50th (ft)	115	1	1	127	77	35
Queue Length 95th (ft)	272	12	m3	281	108	108
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2764	1256	290	2810	610	415
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	4	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.08	0.01	0.42	0.30	0.50

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	91	1526	1053	244	38	45
Future Volume (vph)	91	1526	1053	244	38	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3505	1568	1656	1482
Flt Permitted	0.211				0.950	
Satd. Flow (perm)	393	3539	3505	1568	1656	1482
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				262		54
Link Speed (mph)		40	40		40	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		11.8	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.84	0.84
Heavy Vehicles (%)	2%	2%	3%	3%	9%	9%
Adj. Flow (vph)	101	1696	1132	262	45	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	1696	1132	262	45	54
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			2		3
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	25.0	108.0	83.0	83.0	22.0	22.0
Total Split (%)	19.2%	83.1%	63.8%	63.8%	16.9%	16.9%
Maximum Green (s)	19.2	102.3	77.4	77.4	16.6	16.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	96.4	102.3	89.5	89.5	16.6	16.6
Actuated g/C Ratio	0.74	0.79	0.69	0.69	0.13	0.13
v/c Ratio	0.28	0.61	0.47	0.23	0.21	0.23
Control Delay	4.0	4.9	10.2	1.3	53.8	15.4
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	4.0	5.4	10.2	1.3	53.8	15.4
LOS	A	A	B	A	D	B
Approach Delay		5.3	8.5		32.9	
Approach LOS		A	A		C	
Queue Length 50th (ft)	4	41	211	0	35	0
Queue Length 95th (ft)	36	534	264	27	68	35
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	512	2784	2412	1161	211	236
Starvation Cap Reductn	0	576	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.77	0.47	0.23	0.21	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 41 (32%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 57.3%		ICU Level of Service B	
Analysis Period (min) 15			

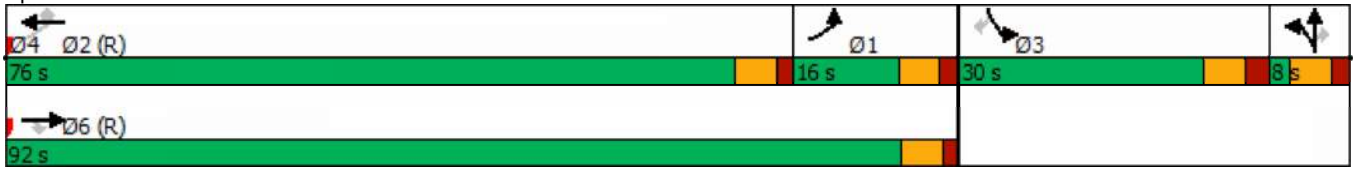
Splits and Phases: 17: Olive & Old Olive St E

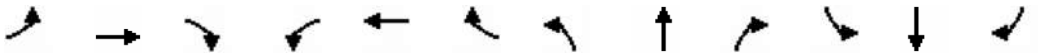
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1335	0	0	1058	104	0	0	0	56	0	7
Future Volume (vph)	14	1335	0	0	1058	104	0	0	0	56	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	0		210	0		20	150		0
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Flt Permitted	0.206									0.950		
Satd. Flow (perm)	384	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						127						121
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			176			526	
Travel Time (s)		17.9			13.3			4.0			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	16	1552	0	0	1114	109	0	0	0	67	0	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1552	0	0	1114	109	0	0	0	67	0	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2	1	1	2	1	1		1
Detector Template	Left	Thru	Right		Thru	Right	Left	Thru	Right	Left		Right
Leading Detector (ft)	20	100	20		100	20	20	100	20	20		20
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Size(ft)	20	6	20		6	20	20	6	20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	D.P+P	NA	Perm		NA	Perm			Perm	Prot		Perm
Protected Phases	1	6			2		4	4		3		
Permitted Phases	2		6			2			4			3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6		2	2	4	4	4	3		3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0		10.0	10.0	7.0	7.0	7.0	7.0		7.0
Minimum Split (s)	12.8	15.5	15.5		15.6	15.6	13.0	13.0	13.0	13.3		13.3
Total Split (s)	16.0	92.0	92.0		76.0	76.0	8.0	8.0	8.0	30.0		30.0
Total Split (%)	12.3%	70.8%	70.8%		58.5%	58.5%	6.2%	6.2%	6.2%	23.1%		23.1%
Maximum Green (s)	10.2	86.5	86.5		70.4	70.4	2.0	2.0	2.0	23.7		23.7
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.8	1.5	1.5		1.6	1.6	2.0	2.0	2.0	2.3		2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.5	5.5		5.6	5.6		6.0	6.0	6.3		6.3
Lead/Lag	Lag				Lead	Lead	Lag	Lag	Lag	Lead		Lead
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Max	C-Max		C-Max	C-Max	None	None	None	Max		Max
Act Effct Green (s)	91.9	94.5			88.0	88.0				23.7		23.7
Actuated g/C Ratio	0.71	0.73			0.68	0.68				0.18		0.18
v/c Ratio	0.04	0.60			0.47	0.10				0.21		0.02
Control Delay	1.4	3.6			3.1	0.5				47.2		0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0		0.0
Total Delay	1.4	3.6			3.1	0.5				47.2		0.1
LOS	A	A			A	A				D		A
Approach Delay		3.5			2.9						42.2	
Approach LOS		A			A						D	
Queue Length 50th (ft)	1	65			68	0				49		0
Queue Length 95th (ft)	m2	56			67	0				86		0
Internal Link Dist (ft)		972			703			96			446	
Turn Bay Length (ft)	190					210				150		
Base Capacity (vph)	380	2572			2395	1112				322		387
Starvation Cap Reductn	0	0			0	0				0		0
Spillback Cap Reductn	0	0			0	0				0		0
Storage Cap Reductn	0	0			0	0				0		0
Reduced v/c Ratio	0.04	0.60			0.47	0.10				0.21		0.02

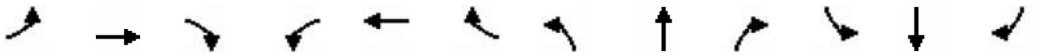
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 4.3		Intersection LOS: A	
Intersection Capacity Utilization 48.2%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	1225	6	20	997	48	4	5	22	103	8	311
Future Volume (vph)	158	1225	6	20	997	48	4	5	22	103	8	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.878			0.854	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1367	0	1770	1591	0
Flt Permitted	0.238			0.151			0.268			0.736		
Satd. Flow (perm)	443	3539	1583	281	3539	1583	417	1367	0	1371	1591	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			78		26			317	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			119			409	
Travel Time (s)		8.9			17.9			2.7			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	174	1346	7	21	1039	50	5	6	26	105	8	317
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1346	7	21	1039	50	5	32	0	105	325	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	

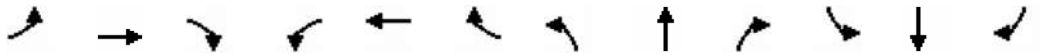


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	8			4		
Detector Phase	1	6	6	5	2	2	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	13.1	16.2	16.2	13.1	30.3	30.3	13.2	13.2		13.1	13.1	
Total Split (s)	27.0	77.0	77.0	23.0	73.0	73.0	30.0	30.0		30.0	30.0	
Total Split (%)	20.8%	59.2%	59.2%	17.7%	56.2%	56.2%	23.1%	23.1%		23.1%	23.1%	
Maximum Green (s)	20.9	70.8	70.8	16.9	66.7	66.7	23.8	23.8		23.9	23.9	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.2	2.2	2.1	2.3	2.3	2.2	2.2		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	6.2	6.1	6.3	6.3	6.2	6.2		6.1	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	2.5	4.5	4.5	2.5	4.5	4.5	2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0						
Flash Dont Walk (s)					17.0	17.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	96.7	88.9	88.9	99.2	88.2	88.2	14.9	14.9		15.0	15.0	
Actuated g/C Ratio	0.74	0.68	0.68	0.76	0.68	0.68	0.11	0.11		0.12	0.12	
v/c Ratio	0.42	0.56	0.01	0.06	0.43	0.05	0.11	0.18		0.67	0.70	
Control Delay	5.4	9.3	0.0	0.7	0.8	0.1	53.2	22.9		74.2	14.7	
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.4	9.4	0.0	0.7	0.8	0.1	53.2	22.9		74.2	14.7	
LOS	A	A	A	A	A	A	D	C		E	B	
Approach Delay		8.9			0.7			27.0			29.2	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	18	186	0	0	6	0	4	5		86	6	
Queue Length 95th (ft)	m29	240	m0	m0	2	0	15	31		142	95	
Internal Link Dist (ft)		375			972			39			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	563	2421	1108	408	2401	1099	76	271		252	551	
Starvation Cap Reductn	0	267	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.31	0.62	0.01	0.05	0.43	0.05	0.07	0.12		0.42	0.59	

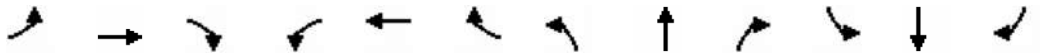
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 116 (89%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 9.0		Intersection LOS: A	
Intersection Capacity Utilization 74.7%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1251	65	88	1219	6	66	1	122	16	3	3
Future Volume (vph)	1	1251	65	88	1219	6	66	1	122	16	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850			0.850		0.925	
Flt Protected	0.950			0.950				0.953		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	0	1775	1583	1770	1723	0
Flt Permitted	0.162			0.112				0.724		0.706		
Satd. Flow (perm)	302	3514	0	209	3539	1583	0	1349	1583	1315	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				28			51		4	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			9.3	
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.86	0.86	0.86	0.75	0.75	0.75
Adj. Flow (vph)	1	1345	70	100	1385	7	77	1	142	21	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1415	0	100	1385	7	0	78	142	21	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.Pm	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		6		5	2			8	5		4	
Permitted Phases	2			6		2	8		8	4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	103.0	83.0		20.0	103.0	103.0	27.0	27.0	20.0	27.0	27.0	
Total Split (%)	79.2%	63.8%		15.4%	79.2%	79.2%	20.8%	20.8%	15.4%	20.8%	20.8%	
Maximum Green (s)	96.7	76.8		14.0	96.7	96.7	20.7	20.7	14.0	20.7	20.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag		Lead		Lag					Lag			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)	4.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	Max	Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)	17.0	23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	96.7	76.8		91.0	96.7	96.7		20.7	41.0	20.7	20.7	
Actuated g/C Ratio	0.74	0.59		0.70	0.74	0.74		0.16	0.32	0.16	0.16	
v/c Ratio	0.00	0.68		0.32	0.53	0.01		0.36	0.27	0.10	0.03	
Control Delay	4.0	20.2		8.6	3.0	0.0		54.4	22.5	48.3	35.7	
Queue Delay	0.0	0.0		0.0	0.1	0.0		0.0	0.0	0.0	0.0	
Total Delay	4.0	20.2		8.6	3.1	0.0		54.4	22.5	48.3	35.7	
LOS	A	C		A	A	A		D	C	D	D	
Approach Delay		20.2			3.4			33.8			44.8	
Approach LOS		C			A			C			D	
Queue Length 50th (ft)	0	406		6	115	0		59	56	15	3	
Queue Length 95th (ft)	2	485		21	71	m0		105	104	34	15	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	224	2078		314	2632	1184		214	534	209	277	
Starvation Cap Reductn	0	0		0	315	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.00	0.68		0.32	0.60	0.01		0.36	0.27	0.10	0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 3 (2%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	108	0	0	165	0	1242	93	0	1839	216
Future Vol, veh/h	0	0	108	0	0	165	0	1242	93	0	1839	216
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	117	0	0	179	0	1350	101	0	1999	235

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1000	-	-	675	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.98	-	-	6.98	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.34	-	-	3.34	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	238	0	0	392	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	238	-	-	392	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34	21.7	0	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	238	392	-
HCM Lane V/C Ratio	-	0.493	0.458	-
HCM Control Delay (s)	-	34	21.7	-
HCM Lane LOS	-	D	C	-
HCM 95th %tile Q(veh)	-	2.5	2.3	-

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	0	0	0	43	0
Future Vol, veh/h	24	0	0	0	43	0
Peak Hour Factor	0.82	0.92	0.92	0.92	0.86	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	0	0	0	50	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	0	7.5
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	100%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	43	24	0
LT Vol	43	0	0
Through Vol	0	24	0
RT Vol	0	0	0
Lane Flow Rate	50	29	0
Geometry Grp	1	1	1
Degree of Util (X)	0.058	0.033	0
Departure Headway (Hd)	4.185	4.021	4.043
Convergence, Y/N	Yes	Yes	Yes
Cap	858	890	0
Service Time	2.199	2.048	2.077
HCM Lane V/C Ratio	0.058	0.033	0
HCM Control Delay	7.5	7.2	7.1
HCM Lane LOS	A	A	N
HCM 95th-tile Q	0.2	0.1	0

Intersection	
Intersection Delay, s/veh	6.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	38	0	24	0	0
Future Vol, veh/h	5	38	0	24	0	0
Peak Hour Factor	0.86	0.86	0.92	0.82	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	44	0	29	0	0
Number of Lanes	1	0	1	1	0	0

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	2	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	6.7	6.8
HCM LOS	A	A

Lane	NBLn1	NBLn2	WBLn1
Vol Left, %	0%	0%	12%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	100%	88%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	24	43
LT Vol	0	0	5
Through Vol	0	0	0
RT Vol	0	24	38
Lane Flow Rate	0	29	50
Geometry Grp	7	7	2
Degree of Util (X)	0	0.032	0.048
Departure Headway (Hd)	4.621	3.92	3.478
Convergence, Y/N	Yes	Yes	Yes
Cap	0	917	1033
Service Time	2.329	1.628	1.49
HCM Lane V/C Ratio	0	0.032	0.048
HCM Control Delay	7.3	6.8	6.7
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0.1	0.2

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	24	0	0	0	5
Future Vol, veh/h	0	24	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	82	92	92	92	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	0	0	0	6

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	6	-	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	1015	0	-	0	0	-
Stage 1	-	0	-	0	0	-
Stage 2	1017	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1015	-	-	-	-	-
Mov Cap-2 Maneuver	1015	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1017	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-

MOVEMENT SUMMARY

Site: 101 [2028 AM Existing (Site Folder: Eastmost Monsanto Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: Monsanto															
1a	L1	All MCs	9	3.0	9	3.0	0.006	3.5	LOS A	0.0	0.0	0.00	0.43	0.00	23.7
6	T1	All MCs	1	3.0	1	3.0	0.006	0.0	LOS A	0.0	0.0	0.00	0.43	0.00	25.5
Approach			10	3.0	10	3.0	0.006	3.1	NA	0.0	0.0	0.00	0.43	0.00	23.9
West: Monsanto															
2	T1	All MCs	26	3.0	26	3.0	0.027	7.2	LOS A	0.1	2.4	0.05	1.06	0.05	20.1
Approach			26	3.0	26	3.0	0.027	7.2	LOS A	0.1	2.4	0.05	1.06	0.05	20.1
SouthWest: NB Ramp															
12ax	R1	All MCs	41	3.0	41	3.0	0.040	7.0	LOS A	0.2	4.3	0.11	0.92	0.11	20.1
Approach			41	3.0	41	3.0	0.040	7.0	LOS A	0.2	4.3	0.11	0.92	0.11	20.1
All Vehicles			77	3.0	77	3.0	0.040	6.6	NA	0.2	4.3	0.08	0.91	0.08	20.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Minor Road Approach LOS values are based on average delay for all movements (v/c not used).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1157	181	179	1666	22	154
Future Volume (vph)	1157	181	179	1666	22	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		158				114
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.94	0.94	0.96	0.96	0.93	0.93
Adj. Flow (vph)	1231	193	186	1735	24	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1231	193	186	1735	24	166
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	14.5	56.5	44.2	
Total Split (s)	82.0	24.0	24.0	106.0	24.0	
Total Split (%)	63.1%	18.5%	18.5%	81.5%	18.5%	
Maximum Green (s)	75.6	15.8	16.5	99.5	15.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	87.4	102.0	12.3	107.1	8.2	28.0
Actuated g/C Ratio	0.67	0.78	0.09	0.82	0.06	0.22
v/c Ratio	0.52	0.15	0.57	0.60	0.21	0.24
Control Delay	6.6	0.6	62.6	8.0	61.7	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	0.6	62.6	8.0	61.7	14.7
LOS	A	A	E	A	E	B
Approach Delay	5.8			13.3	20.6	
Approach LOS	A			B	C	
Queue Length 50th (ft)	173	0	79	374	20	20
Queue Length 95th (ft)	221	1	117	358	48	51
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2378	1358	435	2915	215	758
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.14	0.43	0.60	0.11	0.22

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 10.6	Intersection LOS: B
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: SB Lindbergh & Olive

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1185	126	12	1658	188	185
Future Volume (vph)	1185	126	12	1658	188	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		133				193
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.96	0.96
Adj. Flow (vph)	1247	133	13	1802	196	193
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1247	133	13	1802	196	193
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6				4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	85.0	85.0	22.0	107.0	23.0	23.0
Total Split (%)	65.4%	65.4%	16.9%	82.3%	17.7%	17.7%
Maximum Green (s)	79.0	79.0	15.1	100.9	16.1	16.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	98.8	98.8	7.0	104.3	12.7	12.7
Actuated g/C Ratio	0.76	0.76	0.05	0.80	0.10	0.10
v/c Ratio	0.46	0.11	0.07	0.63	0.59	0.59
Control Delay	2.8	0.3	51.2	10.4	63.0	14.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	2.8	0.3	51.2	10.5	63.0	14.8
LOS	A	A	D	B	E	B
Approach Delay	2.5			10.8	39.1	
Approach LOS	A			B	D	
Queue Length 50th (ft)	45	0	5	384	82	0
Queue Length 95th (ft)	88	0	m10	530	120	71
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2690	1235	398	2839	425	365
Starvation Cap Reductn	0	0	0	251	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.11	0.03	0.70	0.46	0.53

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 10.7	Intersection LOS: B
Intersection Capacity Utilization 62.5%	ICU Level of Service B
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	1303	1479	276	114	142
Future Volume (vph)	27	1303	1479	276	114	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.121				0.950	
Satd. Flow (perm)	225	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				285		159
Link Speed (mph)		40	40		30	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		15.8	
Peak Hour Factor	0.96	0.96	0.97	0.97	0.82	0.82
Adj. Flow (vph)	28	1357	1525	285	139	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	1357	1525	285	139	173
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	2			2		3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	16.0	106.0	90.0	90.0	24.0	24.0
Total Split (%)	12.3%	81.5%	69.2%	69.2%	18.5%	18.5%
Maximum Green (s)	10.2	100.3	84.4	84.4	18.6	18.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	96.7	100.3	93.2	93.2	18.6	18.6
Actuated g/C Ratio	0.74	0.77	0.72	0.72	0.14	0.14
v/c Ratio	0.12	0.50	0.60	0.23	0.55	0.48
Control Delay	3.1	7.0	11.1	1.3	60.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	7.0	11.1	1.3	60.8	14.2
LOS	A	A	B	A	E	B
Approach Delay		6.9	9.6		35.0	
Approach LOS		A	A		C	
Queue Length 50th (ft)	2	389	346	0	110	10
Queue Length 95th (ft)	m6	187	419	28	163	58
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	292	2730	2536	1215	253	362
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.50	0.60	0.23	0.55	0.48

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 49 (38%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

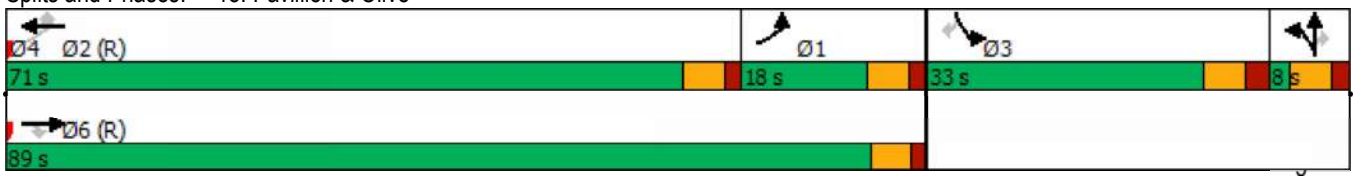
Splits and Phases: 17: Olive & Old Olive St E

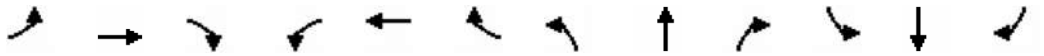
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1229	0	0	1461	227	0	0	0	109	0	43
Future Volume (vph)	50	1229	0	0	1461	227	0	0	0	109	0	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	0		210	0		20	150		0
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Flt Permitted	0.075									0.950		
Satd. Flow (perm)	140	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						155						121
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			176			526	
Travel Time (s)		17.9			13.3			4.0			14.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	54	1322	0	0	1571	244	0	0	0	147	0	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	1322	0	0	1571	244	0	0	0	147	0	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2	1	1	2	1	1		1
Detector Template	Left	Thru	Right		Thru	Right	Left	Thru	Right	Left		Right
Leading Detector (ft)	20	100	20		100	20	20	100	20	20		20
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Size(ft)	20	6	20		6	20	20	6	20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	D.P+P	NA	Perm		NA	Perm			Perm	Prot		Perm
Protected Phases	1	6			2		4	4		3		
Permitted Phases	2		6			2			4			3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6		2	2	4	4	4	3		3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0		10.0	10.0	7.0	7.0	7.0	7.0		7.0
Minimum Split (s)	12.8	15.5	15.5		15.6	15.6	13.0	13.0	13.0	13.3		13.3
Total Split (s)	18.0	89.0	89.0		71.0	71.0	8.0	8.0	8.0	33.0		33.0
Total Split (%)	13.8%	68.5%	68.5%		54.6%	54.6%	6.2%	6.2%	6.2%	25.4%		25.4%
Maximum Green (s)	12.2	83.5	83.5		65.4	65.4	2.0	2.0	2.0	26.7		26.7
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.8	1.5	1.5		1.6	1.6	2.0	2.0	2.0	2.3		2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.5	5.5		5.6	5.6		6.0	6.0	6.3		6.3
Lead/Lag	Lag				Lead	Lead	Lag	Lag	Lag	Lead		Lead
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Max	C-Max		C-Max	C-Max	None	None	None	Max		Max
Act Effct Green (s)	86.6	91.5			77.0	77.0				26.7		26.7
Actuated g/C Ratio	0.67	0.70			0.59	0.59				0.21		0.21
v/c Ratio	0.23	0.53			0.75	0.24				0.40		0.14
Control Delay	5.1	2.8			12.0	3.6				48.7		0.7
Queue Delay	0.0	0.0			0.1	0.0				0.0		0.0
Total Delay	5.1	2.8			12.1	3.6				48.7		0.7
LOS	A	A			B	A				D		A
Approach Delay		2.8			10.9						35.1	
Approach LOS		A			B						D	
Queue Length 50th (ft)	5	64			121	2				108		0
Queue Length 95th (ft)	8	71			250	53				141		0
Internal Link Dist (ft)		972			703			96			446	
Turn Bay Length (ft)	190					210				150		
Base Capacity (vph)	245	2490			2096	1000				363		421
Starvation Cap Reductn	0	0			52	0				0		0
Spillback Cap Reductn	0	0			0	0				0		0
Storage Cap Reductn	0	0			0	0				0		0
Reduced v/c Ratio	0.22	0.53			0.77	0.24				0.40		0.14

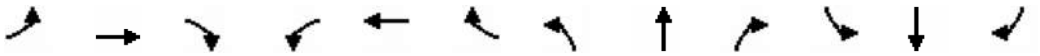
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 9.1		Intersection LOS: A	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 18: Pavillion & Olive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	1138	10	48	1350	106	11	39	55	88	30	383
Future Volume (vph)	292	1138	10	48	1350	106	11	39	55	88	30	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.912			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1699	0	1770	1604	0
Flt Permitted	0.072			0.188			0.234			0.678		
Satd. Flow (perm)	134	3539	1583	350	3539	1583	436	1699	0	1263	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			78		49			337	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			119			409	
Travel Time (s)		8.9			17.9			2.7			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	307	1198	11	55	1552	122	12	41	58	96	33	416
Shared Lane Traffic (%)												
Lane Group Flow (vph)	307	1198	11	55	1552	122	12	99	0	96	449	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2		6	6		2	8			4		

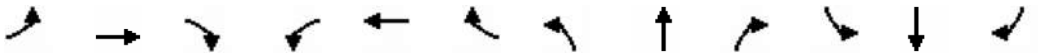


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	13.1	16.2	16.2	13.1	30.3	30.3	13.2	13.2		13.1	13.1	
Total Split (s)	30.0	82.0	82.0	16.0	68.0	68.0	32.0	32.0		32.0	32.0	
Total Split (%)	23.1%	63.1%	63.1%	12.3%	52.3%	52.3%	24.6%	24.6%		24.6%	24.6%	
Maximum Green (s)	23.9	75.8	75.8	9.9	61.7	61.7	25.8	25.8		25.9	25.9	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.2	2.2	2.1	2.3	2.3	2.2	2.2		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	6.2	6.1	6.3	6.3	6.2	6.2		6.1	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	2.5	4.5	4.5	2.5	4.5	4.5	2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0						
Flash Dont Walk (s)					17.0	17.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	94.5	87.7	87.7	95.7	72.9	72.9	17.1	17.1		17.2	17.2	
Actuated g/C Ratio	0.73	0.67	0.67	0.74	0.56	0.56	0.13	0.13		0.13	0.13	
v/c Ratio	0.84	0.50	0.01	0.15	0.78	0.13	0.21	0.37		0.57	0.89	
Control Delay	70.5	4.5	0.0	2.5	9.8	0.6	54.9	29.4		64.6	34.2	
Queue Delay	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	70.8	4.7	0.0	2.5	9.8	0.6	54.9	29.4		64.6	34.2	
LOS	E	A	A	A	A	A	D	C		E	C	
Approach Delay		18.1			8.9			32.1			39.6	
Approach LOS		B			A			C			D	
Queue Length 50th (ft)	209	68	0	3	62	0	9	38		77	96	
Queue Length 95th (ft)	m237	106	m0	m4	591	m4	28	87		128	223	
Internal Link Dist (ft)		375			972			39			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	400	2387	1093	366	1984	922	86	376		251	589	
Starvation Cap Reductn	6	419	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.78	0.61	0.01	0.15	0.78	0.13	0.14	0.26		0.38	0.76	

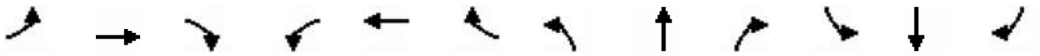
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 94.2%		ICU Level of Service F	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1298	110	106	1619	20	97	7	124	18	6	2
Future Volume (vph)	5	1298	110	106	1619	20	97	7	124	18	6	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988				0.850			0.850		0.959	
Flt Protected	0.950			0.950				0.956		0.950		
Satd. Flow (prot)	1770	3497	0	1770	3539	1583	0	1763	1568	1770	1786	0
Flt Permitted	0.093			0.064				0.733		0.610		
Satd. Flow (perm)	173	3497	0	119	3539	1583	0	1352	1568	1136	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				81			80		3	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.81	0.81	0.81	0.72	0.72	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	5	1411	120	108	1652	20	120	9	153	25	8	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1531	0	108	1652	20	0	129	153	25	11	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			8	5		4	

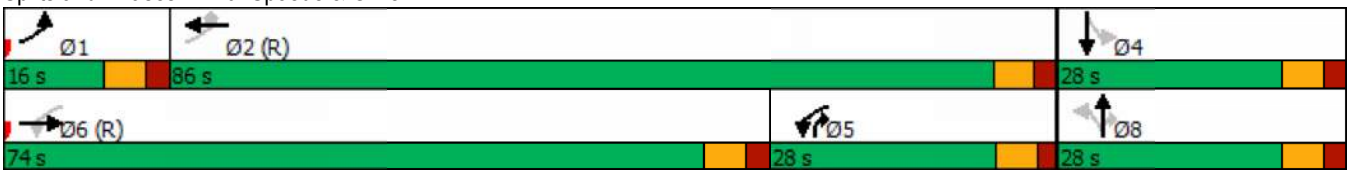


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		2	8		8	4		
Detector Phase	1	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	16.0	74.0		28.0	86.0	86.0	28.0	28.0	28.0	28.0	28.0	
Total Split (%)	12.3%	56.9%		21.5%	66.2%	66.2%	21.5%	21.5%	21.5%	21.5%	21.5%	
Maximum Green (s)	9.7	67.8		22.0	79.7	79.7	21.7	21.7	22.0	21.7	21.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag	Lead	Lead		Lag	Lag	Lag			Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	2.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max	C-Max	Max	Max	None	None	None	
Walk Time (s)		7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)		23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)		0			0	0	0	0				
Act Effct Green (s)	94.4	67.8		90.0	93.0	93.0		21.7	50.0	21.7	21.7	
Actuated g/C Ratio	0.73	0.52		0.69	0.72	0.72		0.17	0.38	0.17	0.17	
v/c Ratio	0.02	0.84		0.30	0.65	0.02		0.57	0.23	0.13	0.04	
Control Delay	4.8	31.5		11.1	3.3	0.0		61.0	13.9	48.3	38.2	
Queue Delay	0.0	0.0		0.0	0.1	0.0		0.0	0.0	0.0	0.0	
Total Delay	4.8	31.5		11.1	3.5	0.0		61.0	13.9	48.3	38.2	
LOS	A	C		B	A	A		E	B	D	D	
Approach Delay		31.4			3.9			35.5			45.3	
Approach LOS		C			A			D			D	
Queue Length 50th (ft)	1	555		21	74	0		101	39	18	6	
Queue Length 95th (ft)	4	662		m37	119	m0		151	74	36	19	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	245	1828		361	2533	1155		225	652	189	300	
Starvation Cap Reductn	0	0		0	177	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.02	0.84		0.30	0.70	0.02		0.57	0.23	0.13	0.04	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 119 (92%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 78.7%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive



Intersection	
Int Delay, s/veh	14.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	103	0	0	407	0	1226	21	0	1546	258
Future Vol, veh/h	0	0	103	0	0	407	0	1226	21	0	1546	258
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	112	0	0	442	0	1333	23	0	1680	280

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	840	-	-	667	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	309	0	0	~ 401	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	309	-	-	~ 401	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.1	107.9	0	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	309	401	-
HCM Lane V/C Ratio	-	0.362	1.103	-
HCM Control Delay (s)	-	23.1	107.9	-
HCM Lane LOS	-	C	F	-
HCM 95th %tile Q(veh)	-	1.6	15.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	0	0	10	15	0
Future Vol, veh/h	14	0	0	10	15	0
Peak Hour Factor	0.58	0.92	0.92	0.92	0.53	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	0	0	11	28	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.1	7.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	100%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	15	14	10
LT Vol	15	0	0
Through Vol	0	14	10
RT Vol	0	0	0
Lane Flow Rate	28	24	11
Geometry Grp	1	1	1
Degree of Util (X)	0.033	0.027	0.012
Departure Headway (Hd)	4.195	3.992	4.001
Convergence, Y/N	Yes	Yes	Yes
Cap	856	898	895
Service Time	2.21	2.009	2.022
HCM Lane V/C Ratio	0.033	0.027	0.012
HCM Control Delay	7.4	7.1	7.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	0	14	0	0
Future Vol, veh/h	0	26	0	14	0	0
Peak Hour Factor	0.92	0.78	0.92	0.58	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	33	0	24	0	0
Number of Lanes	1	0	1	1	0	0

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	2	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	6.5	6.7
HCM LOS	A	A

Lane	NBLn1	NBLn2	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	100%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	14	26
LT Vol	0	0	0
Through Vol	0	0	0
RT Vol	0	14	26
Lane Flow Rate	0	24	33
Geometry Grp	7	7	2
Degree of Util (X)	0	0.026	0.031
Departure Headway (Hd)	4.593	3.893	3.375
Convergence, Y/N	Yes	Yes	Yes
Cap	0	925	1064
Service Time	2.295	1.595	1.385
HCM Lane V/C Ratio	0	0.026	0.031
HCM Control Delay	7.3	6.7	6.5
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0.1	0.1

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	14	0	0	0	0
Future Vol, veh/h	0	14	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	58	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	24	0	0	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1	-	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	1022	0	-	0	0	-
Stage 1	-	0	-	0	0	-
Stage 2	1022	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1022	-	-	-	-	-
Mov Cap-2 Maneuver	1022	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1022	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-

MOVEMENT SUMMARY

Site: 101 [2028 PM Existing (Site Folder: Eastmost Monsanto Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: Monsanto															
1a	L1	All MCs	21	3.0	21	3.0	0.018	3.5	LOS A	0.0	0.0	0.00	0.32	0.00	24.6
6	T1	All MCs	11	3.0	11	3.0	0.018	0.0	LOS A	0.0	0.0	0.00	0.32	0.00	26.6
Approach			32	3.0	32	3.0	0.018	2.3	NA	0.0	0.0	0.00	0.32	0.00	25.2
West: Monsanto															
2	T1	All MCs	15	3.0	15	3.0	0.016	7.3	LOS A	0.1	1.4	0.10	1.03	0.10	20.1
Approach			15	3.0	15	3.0	0.016	7.3	LOS A	0.1	1.4	0.10	1.03	0.10	20.1
SouthWest: NB Ramp															
12ax	R1	All MCs	10	3.0	10	3.0	0.009	7.0	LOS A	0.0	1.0	0.08	0.94	0.08	20.1
Approach			10	3.0	10	3.0	0.009	7.0	LOS A	0.0	1.0	0.08	0.94	0.08	20.1
All Vehicles			57	3.0	57	3.0	0.018	4.5	NA	0.1	1.4	0.04	0.62	0.04	22.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Minor Road Approach LOS values are based on average delay for all movements (v/c not used).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: M:\JackMatthewsDev\22005028-00_CreveCoeurTIS\Eng_Study\Comps\Synchro\05-2023 Updated Models\Monsanto Interchange.sip9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1384	153	109	1278	6	299
Future Volume (vph)	1384	153	109	1278	6	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		168				67
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.91	0.91	0.89	0.89	0.90	0.90
Adj. Flow (vph)	1521	168	122	1436	7	332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1521	168	122	1436	7	332
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	20.0	56.5	44.2	
Total Split (s)	86.0	23.0	21.0	107.0	23.0	
Total Split (%)	66.2%	17.7%	16.2%	82.3%	17.7%	
Maximum Green (s)	79.6	14.8	13.5	100.5	14.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	84.0	104.3	10.0	101.4	13.9	31.4
Actuated g/C Ratio	0.65	0.80	0.08	0.78	0.11	0.24
v/c Ratio	0.67	0.13	0.46	0.52	0.04	0.46
Control Delay	5.8	0.5	69.0	12.1	52.0	34.9
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	0.5	69.0	12.1	52.0	34.9
LOS	A	A	E	B	D	C
Approach Delay	5.3			16.6	35.2	
Approach LOS	A			B	D	
Queue Length 50th (ft)	288	0	56	501	5	106
Queue Length 95th (ft)	113	2	89	257	21	153
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2286	1312	356	2758	201	747
Starvation Cap Reductn	101	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.13	0.34	0.52	0.03	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 124 (95%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 64.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: SB Lindbergh & Olive

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1585	99	3	1210	178	202
Future Volume (vph)	1585	99	3	1210	178	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3400	3505	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3400	3505	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		87				155
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	1761	110	3	1315	202	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1761	110	3	1315	202	230
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		6				4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	82.0	82.0	18.0	100.0	30.0	30.0
Total Split (%)	63.1%	63.1%	13.8%	76.9%	23.1%	23.1%
Maximum Green (s)	76.0	76.0	11.1	93.9	23.1	23.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	100.1	100.1	7.0	102.8	14.2	14.2
Actuated g/C Ratio	0.77	0.77	0.05	0.79	0.11	0.11
v/c Ratio	0.65	0.09	0.02	0.47	0.54	0.74
Control Delay	7.3	2.0	53.3	8.4	59.4	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	7.3	2.0	53.3	8.4	59.4	33.5
LOS	A	A	D	A	E	C
Approach Delay	7.0			8.6	45.6	
Approach LOS	A			A	D	
Queue Length 50th (ft)	222	4	1	195	85	61
Queue Length 95th (ft)	296	m12	m2	395	114	138
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2725	1239	290	2771	610	408
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	86	0	0	0	0	4
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.09	0.01	0.47	0.33	0.57

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive

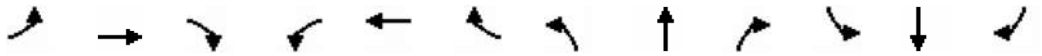
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	1686	1164	270	42	50
Future Volume (vph)	100	1686	1164	270	42	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3505	1568	1656	1482
Flt Permitted	0.178				0.950	
Satd. Flow (perm)	332	3539	3505	1568	1656	1482
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				290		60
Link Speed (mph)		40	40		40	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		11.8	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.84	0.84
Heavy Vehicles (%)	2%	2%	3%	3%	9%	9%
Adj. Flow (vph)	111	1873	1252	290	50	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	111	1873	1252	290	50	60
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			2		3
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	25.0	108.0	83.0	83.0	22.0	22.0
Total Split (%)	19.2%	83.1%	63.8%	63.8%	16.9%	16.9%
Maximum Green (s)	19.2	102.3	77.4	77.4	16.6	16.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	96.4	102.3	89.3	89.3	16.6	16.6
Actuated g/C Ratio	0.74	0.79	0.69	0.69	0.13	0.13
v/c Ratio	0.34	0.67	0.52	0.25	0.24	0.25
Control Delay	5.1	6.4	11.0	1.3	54.3	14.9
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0
Total Delay	5.1	7.4	11.0	1.3	54.3	14.9
LOS	A	A	B	A	D	B
Approach Delay		7.2	9.1		32.8	
Approach LOS		A	A		C	
Queue Length 50th (ft)	8	77	247	0	39	0
Queue Length 95th (ft)	m26	800	307	28	73	36
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	473	2784	2407	1167	211	241
Starvation Cap Reductn	0	576	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.85	0.52	0.25	0.24	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 41 (32%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Olive & Old Olive St E

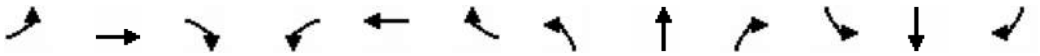


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1475	0	0	1169	115	0	0	0	61	0	8
Future Volume (vph)	16	1475	0	0	1169	115	0	0	0	61	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	0		210	0		20	150		0
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Flt Permitted	0.174									0.950		
Satd. Flow (perm)	324	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						127						121
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			176			526	
Travel Time (s)		17.9			13.3			4.0			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	19	1715	0	0	1231	121	0	0	0	73	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1715	0	0	1231	121	0	0	0	73	0	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2	1	1	2	1	1		1
Detector Template	Left	Thru	Right		Thru	Right	Left	Thru	Right	Left		Right
Leading Detector (ft)	20	100	20		100	20	20	100	20	20		20
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Size(ft)	20	6	20		6	20	20	6	20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	D.P+P	NA	Perm		NA	Perm			Perm	Prot		Perm
Protected Phases	1	6			2		4	4		3		
Permitted Phases	2		6			2			4			3

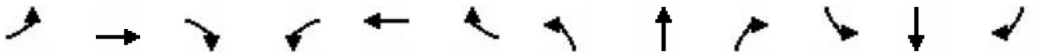
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6		2	2	4	4	4	3		3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0		10.0	10.0	7.0	7.0	7.0	7.0		7.0
Minimum Split (s)	12.8	15.5	15.5		15.6	15.6	13.0	13.0	13.0	13.3		13.3
Total Split (s)	16.0	92.0	92.0		76.0	76.0	8.0	8.0	8.0	30.0		30.0
Total Split (%)	12.3%	70.8%	70.8%		58.5%	58.5%	6.2%	6.2%	6.2%	23.1%		23.1%
Maximum Green (s)	10.2	86.5	86.5		70.4	70.4	2.0	2.0	2.0	23.7		23.7
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.8	1.5	1.5		1.6	1.6	2.0	2.0	2.0	2.3		2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.5	5.5		5.6	5.6		6.0	6.0	6.3		6.3
Lead/Lag	Lag				Lead	Lead	Lag	Lag	Lag	Lead		Lead
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Max	C-Max		C-Max	C-Max	None	None	None	Max		Max
Act Effct Green (s)	91.9	94.5			88.0	88.0				23.7		23.7
Actuated g/C Ratio	0.71	0.73			0.68	0.68				0.18		0.18
v/c Ratio	0.06	0.67			0.51	0.11				0.23		0.03
Control Delay	1.5	3.9			3.0	0.5				47.5		0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0		0.0
Total Delay	1.5	3.9			3.0	0.5				47.5		0.1
LOS	A	A			A	A				D		A
Approach Delay		3.8			2.8						41.8	
Approach LOS		A			A						D	
Queue Length 50th (ft)	1	71			67	0				53		0
Queue Length 95th (ft)	m2	59			66	0				91		0
Internal Link Dist (ft)		972			703			96			446	
Turn Bay Length (ft)	190					210				150		
Base Capacity (vph)	342	2572			2395	1112				322		387
Starvation Cap Reductn	0	0			0	0				0		0
Spillback Cap Reductn	0	0			0	0				0		0
Storage Cap Reductn	0	0			0	0				0		0
Reduced v/c Ratio	0.06	0.67			0.51	0.11				0.23		0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 4.4		Intersection LOS: A	
Intersection Capacity Utilization 52.1%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	1354	7	22	1102	54	5	6	24	114	9	344
Future Volume (vph)	174	1354	7	22	1102	54	5	6	24	114	9	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.879			0.854	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1369	0	1770	1591	0
Flt Permitted	0.201			0.117			0.248			0.734		
Satd. Flow (perm)	374	3539	1583	218	3539	1583	386	1369	0	1367	1591	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			78		29			321	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			119			409	
Travel Time (s)		8.9			17.9			2.7			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	191	1488	8	23	1148	56	6	7	29	116	9	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	1488	8	23	1148	56	6	36	0	116	360	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	

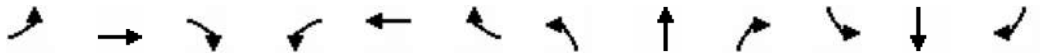


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	8			4		
Detector Phase	1	6	6	5	2	2	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	13.1	16.2	16.2	13.1	30.3	30.3	13.2	13.2		13.1	13.1	
Total Split (s)	27.0	77.0	77.0	23.0	73.0	73.0	30.0	30.0		30.0	30.0	
Total Split (%)	20.8%	59.2%	59.2%	17.7%	56.2%	56.2%	23.1%	23.1%		23.1%	23.1%	
Maximum Green (s)	20.9	70.8	70.8	16.9	66.7	66.7	23.8	23.8		23.9	23.9	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.2	2.2	2.1	2.3	2.3	2.2	2.2		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	6.2	6.1	6.3	6.3	6.2	6.2		6.1	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	2.5	4.5	4.5	2.5	4.5	4.5	2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0						
Flash Dont Walk (s)					17.0	17.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	95.5	87.7	87.7	98.0	85.6	85.6	16.1	16.1		16.2	16.2	
Actuated g/C Ratio	0.73	0.67	0.67	0.75	0.66	0.66	0.12	0.12		0.12	0.12	
v/c Ratio	0.50	0.62	0.01	0.07	0.49	0.05	0.13	0.19		0.68	0.75	
Control Delay	10.4	11.3	0.0	1.1	1.3	0.1	53.2	21.8		73.4	18.8	
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	10.4	11.5	0.0	1.1	1.3	0.1	53.2	21.8		73.4	18.8	
LOS	B	B	A	A	A	A	D	C		E	B	
Approach Delay		11.3			1.3			26.3			32.1	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)	21	217	0	0	7	0	5	5		95	30	
Queue Length 95th (ft)	m48	314	m0	m1	17	0	17	33		152	131	
Internal Link Dist (ft)		375			972			39			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	516	2388	1094	366	2331	1069	70	274		251	554	
Starvation Cap Reductn	0	247	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.37	0.70	0.01	0.06	0.49	0.05	0.09	0.13		0.46	0.65	

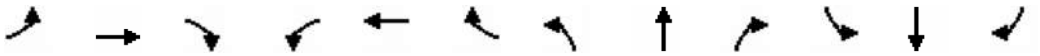
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 116 (89%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 80.4%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1382	72	97	1347	7	73	1	134	18	3	3
Future Volume (vph)	1	1382	72	97	1347	7	73	1	134	18	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850			0.850		0.925	
Flt Protected	0.950			0.950				0.953		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	0	1775	1583	1770	1723	0
Flt Permitted	0.132			0.081				0.723		0.701		
Satd. Flow (perm)	246	3514	0	151	3539	1583	0	1347	1583	1306	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				28			37		4	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			9.3	
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.86	0.86	0.86	0.75	0.75	0.75
Adj. Flow (vph)	1	1486	77	110	1531	8	85	1	156	24	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1563	0	110	1531	8	0	86	156	24	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.Pm	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		6		5	2			8	5		4	
Permitted Phases	2			6		2	8		8	4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	103.0	83.0		20.0	103.0	103.0	27.0	27.0	20.0	27.0	27.0	
Total Split (%)	79.2%	63.8%		15.4%	79.2%	79.2%	20.8%	20.8%	15.4%	20.8%	20.8%	
Maximum Green (s)	96.7	76.8		14.0	96.7	96.7	20.7	20.7	14.0	20.7	20.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag		Lead		Lag					Lag			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)	4.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	Max	Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)	17.0	23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	96.7	76.8		91.0	96.7	96.7		20.7	41.0	20.7	20.7	
Actuated g/C Ratio	0.74	0.59		0.70	0.74	0.74		0.16	0.32	0.16	0.16	
v/c Ratio	0.01	0.75		0.39	0.58	0.01		0.40	0.30	0.12	0.03	
Control Delay	4.0	22.4		18.1	3.3	0.0		55.5	27.1	48.6	35.7	
Queue Delay	0.0	0.0		0.0	0.1	0.0		0.0	0.0	0.0	0.0	
Total Delay	4.0	22.4		18.1	3.4	0.0		55.5	27.1	48.6	35.7	
LOS	A	C		B	A	A		E	C	D	D	
Approach Delay		22.4			4.4			37.2			45.3	
Approach LOS		C			A			D			D	
Queue Length 50th (ft)	0	483		12	127	0		66	74	18	3	
Queue Length 95th (ft)	2	576		m68	88	m0		115	126	37	15	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	182	2078		280	2632	1184		214	524	207	277	
Starvation Cap Reductn	0	0		0	225	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.01	0.75		0.39	0.64	0.01		0.40	0.30	0.12	0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 3 (2%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 15.1		Intersection LOS: B	
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	120	0	0	182	0	1372	103	0	2032	239
Future Vol, veh/h	0	0	120	0	0	182	0	1372	103	0	2032	239
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	130	0	0	198	0	1491	112	0	2209	260

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1105	-	-	746	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.98	-	-	6.98	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.34	-	-	3.34	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	202	0	0	352	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	202	-	-	352	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	50.5	27.6	0	0
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	202	352	-
HCM Lane V/C Ratio	-	0.646	0.562	-
HCM Control Delay (s)	-	50.5	27.6	-
HCM Lane LOS	-	F	D	-
HCM 95th %tile Q(veh)	-	3.8	3.3	-

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	0	0	0	48	0
Future Vol, veh/h	26	0	0	0	48	0
Peak Hour Factor	0.82	0.92	0.92	0.92	0.86	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	0	0	0	56	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	0	7.5
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	100%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	48	26	0
LT Vol	48	0	0
Through Vol	0	26	0
RT Vol	0	0	0
Lane Flow Rate	56	32	0
Geometry Grp	1	1	1
Degree of Util (X)	0.065	0.036	0
Departure Headway (Hd)	4.189	4.032	4.057
Convergence, Y/N	Yes	Yes	Yes
Cap	857	887	0
Service Time	2.205	2.062	2.093
HCM Lane V/C Ratio	0.065	0.036	0
HCM Control Delay	7.5	7.2	7.1
HCM Lane LOS	A	A	N
HCM 95th-tile Q	0.2	0.1	0

Intersection	
Intersection Delay, s/veh	6.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	42	0	26	0	0
Future Vol, veh/h	6	42	0	26	0	0
Peak Hour Factor	0.86	0.86	0.92	0.82	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	49	0	32	0	0
Number of Lanes	1	0	1	1	0	0

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	2	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	6.7	6.8
HCM LOS	A	A

Lane	NBLn1	NBLn2	WBLn1
Vol Left, %	0%	0%	12%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	100%	88%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	26	48
LT Vol	0	0	6
Through Vol	0	0	0
RT Vol	0	26	42
Lane Flow Rate	0	32	56
Geometry Grp	7	7	2
Degree of Util (X)	0	0.035	0.054
Departure Headway (Hd)	4.633	3.932	3.489
Convergence, Y/N	Yes	Yes	Yes
Cap	0	914	1029
Service Time	2.341	1.64	1.503
HCM Lane V/C Ratio	0	0.035	0.054
HCM Control Delay	7.3	6.8	6.7
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0.1	0.2

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	0	0	0	6
Future Vol, veh/h	0	26	0	0	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	82	92	92	92	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	32	0	0	0	7

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	7	-	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	7	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	1014	0	-	0	0	-
Stage 1	-	0	-	0	0	-
Stage 2	1016	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1014	-	-	-	-	-
Mov Cap-2 Maneuver	1014	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1016	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-

MOVEMENT SUMMARY

Site: 101 [2048 AM Existing (Site Folder: Eastmost Monsanto Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: Monsanto															
1a	L1	All MCs	10	3.0	10	3.0	0.006	3.5	LOS A	0.0	0.0	0.00	0.44	0.00	23.7
6	T1	All MCs	1	3.0	1	3.0	0.006	0.0	LOS A	0.0	0.0	0.00	0.44	0.00	25.5
Approach			11	3.0	11	3.0	0.006	3.2	NA	0.0	0.0	0.00	0.44	0.00	23.8
West: Monsanto															
2	T1	All MCs	28	3.0	28	3.0	0.030	7.2	LOS A	0.1	2.6	0.06	1.06	0.06	20.1
Approach			28	3.0	28	3.0	0.030	7.2	LOS A	0.1	2.6	0.06	1.06	0.06	20.1
SouthWest: NB Ramp															
12ax	R1	All MCs	46	3.0	46	3.0	0.044	7.1	LOS A	0.2	4.8	0.12	0.92	0.12	20.1
Approach			46	3.0	46	3.0	0.044	7.1	LOS A	0.2	4.8	0.12	0.92	0.12	20.1
All Vehicles			85	3.0	85	3.0	0.044	6.6	NA	0.2	4.8	0.08	0.91	0.08	20.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Minor Road Approach LOS values are based on average delay for all movements (v/c not used).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1278	200	198	1841	24	170
Future Volume (vph)	1278	200	198	1841	24	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		128				83
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.94	0.94	0.96	0.96	0.93	0.93
Adj. Flow (vph)	1360	213	206	1918	26	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1360	213	206	1918	26	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	14.5	56.5	44.2	
Total Split (s)	82.0	24.0	24.0	106.0	24.0	
Total Split (%)	63.1%	18.5%	18.5%	81.5%	18.5%	
Maximum Green (s)	75.6	15.8	16.5	99.5	15.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	85.3	101.2	13.1	105.8	9.5	30.1
Actuated g/C Ratio	0.66	0.78	0.10	0.81	0.07	0.23
v/c Ratio	0.59	0.17	0.60	0.67	0.20	0.26
Control Delay	7.8	0.9	61.4	8.7	59.3	21.8
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	0.9	61.4	8.7	59.3	21.8
LOS	A	A	E	A	E	C
Approach Delay	6.9			13.8	26.4	
Approach LOS	A			B	C	
Queue Length 50th (ft)	195	0	89	383	21	38
Queue Length 95th (ft)	283	4	m123	366	51	69
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2322	1331	436	2880	215	738
Starvation Cap Reductn	201	0	0	83	0	0
Spillback Cap Reductn	0	0	0	34	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.16	0.47	0.69	0.12	0.25

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 69.0%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: SB Lindbergh & Olive

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1309	139	14	1832	207	205
Future Volume (vph)	1309	139	14	1832	207	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		146				214
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.96	0.96
Adj. Flow (vph)	1378	146	15	1991	216	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1378	146	15	1991	216	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6				4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	85.0	85.0	22.0	107.0	23.0	23.0
Total Split (%)	65.4%	65.4%	16.9%	82.3%	17.7%	17.7%
Maximum Green (s)	79.0	79.0	15.1	100.9	16.1	16.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	98.3	98.3	7.0	103.7	13.3	13.3
Actuated g/C Ratio	0.76	0.76	0.05	0.80	0.10	0.10
v/c Ratio	0.52	0.12	0.08	0.71	0.62	0.61
Control Delay	3.4	0.4	49.1	12.9	63.6	14.4
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	3.4	0.4	49.1	13.1	63.6	14.4
LOS	A	A	D	B	E	B
Approach Delay	3.1			13.4	39.1	
Approach LOS	A			B	D	
Queue Length 50th (ft)	71	0	6	548	91	0
Queue Length 95th (ft)	103	1	m9	642	130	76
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2675	1232	398	2824	425	383
Starvation Cap Reductn	0	0	0	242	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.12	0.04	0.77	0.51	0.56

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive

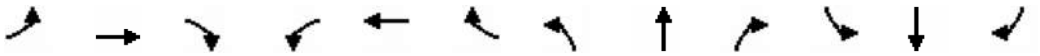
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	31	1483	1684	314	130	162
Future Volume (vph)	31	1483	1684	314	130	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.084				0.950	
Satd. Flow (perm)	156	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				308		144
Link Speed (mph)		40	40		30	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		15.8	
Peak Hour Factor	0.96	0.96	0.97	0.97	0.82	0.82
Adj. Flow (vph)	32	1545	1736	324	159	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	1545	1736	324	159	198
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	2			2		3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	16.0	106.0	90.0	90.0	24.0	24.0
Total Split (%)	12.3%	81.5%	69.2%	69.2%	18.5%	18.5%
Maximum Green (s)	10.2	100.3	84.4	84.4	18.6	18.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	96.7	100.3	93.1	93.1	18.6	18.6
Actuated g/C Ratio	0.74	0.77	0.72	0.72	0.14	0.14
v/c Ratio	0.17	0.57	0.69	0.27	0.63	0.57
Control Delay	4.2	7.2	12.9	1.5	64.5	22.8
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	4.2	7.6	12.9	1.5	64.5	22.8
LOS	A	A	B	A	E	C
Approach Delay		7.5	11.1		41.3	
Approach LOS		A	B		D	
Queue Length 50th (ft)	2	488	441	4	128	41
Queue Length 95th (ft)	m7	116	533	34	184	96
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	245	2730	2534	1221	253	349
Starvation Cap Reductn	0	578	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.72	0.69	0.27	0.63	0.57

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 49 (38%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 12.4		Intersection LOS: B	
Intersection Capacity Utilization 65.7%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Olive & Old Olive St E

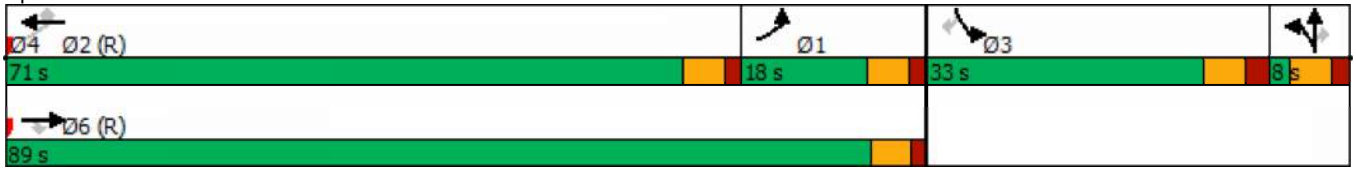


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	1358	0	0	1614	250	0	0	0	121	0	48
Future Volume (vph)	56	1358	0	0	1614	250	0	0	0	121	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	0		210	0		20	150		0
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Flt Permitted	0.053									0.950		
Satd. Flow (perm)	99	3539	1863	0	3539	1583	0	1863	1863	1770	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						154						121
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			176			526	
Travel Time (s)		17.9			13.3			4.0			14.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	60	1460	0	0	1735	269	0	0	0	164	0	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1460	0	0	1735	269	0	0	0	164	0	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2	1	1	2	1	1		1
Detector Template	Left	Thru	Right		Thru	Right	Left	Thru	Right	Left		Right
Leading Detector (ft)	20	100	20		100	20	20	100	20	20		20
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0		0
Detector 1 Size(ft)	20	6	20		6	20	20	6	20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	D.P+P	NA	Perm		NA	Perm			Perm	Prot		Perm
Protected Phases	1	6			2		4	4		3		
Permitted Phases	2		6			2			4			3

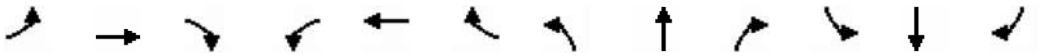
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6		2	2	4	4	4	3		3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0		10.0	10.0	7.0	7.0	7.0	7.0		7.0
Minimum Split (s)	12.8	15.5	15.5		15.6	15.6	13.0	13.0	13.0	13.3		13.3
Total Split (s)	18.0	89.0	89.0		71.0	71.0	8.0	8.0	8.0	33.0		33.0
Total Split (%)	13.8%	68.5%	68.5%		54.6%	54.6%	6.2%	6.2%	6.2%	25.4%		25.4%
Maximum Green (s)	12.2	83.5	83.5		65.4	65.4	2.0	2.0	2.0	26.7		26.7
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.8	1.5	1.5		1.6	1.6	2.0	2.0	2.0	2.3		2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.5	5.5		5.6	5.6		6.0	6.0	6.3		6.3
Lead/Lag	Lag				Lead	Lead	Lag	Lag	Lag	Lead		Lead
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Max	C-Max		C-Max	C-Max	None	None	None	Max		Max
Act Effct Green (s)	86.6	91.5			77.0	77.0				26.7		26.7
Actuated g/C Ratio	0.67	0.70			0.59	0.59				0.21		0.21
v/c Ratio	0.29	0.59			0.83	0.27				0.45		0.15
Control Delay	11.1	2.8			15.9	5.5				49.9		0.8
Queue Delay	0.0	0.0			0.2	0.0				0.0		0.0
Total Delay	11.1	2.8			16.2	5.5				49.9		0.8
LOS	B	A			B	A				D		A
Approach Delay		3.1			14.7						35.9	
Approach LOS		A			B						D	
Queue Length 50th (ft)	5	68			198	24				122		0
Queue Length 95th (ft)	m29	78			323	76				156		0
Internal Link Dist (ft)		972			703			96			446	
Turn Bay Length (ft)	190					210				150		
Base Capacity (vph)	222	2490			2096	1000				363		421
Starvation Cap Reductn	0	0			52	0				0		0
Spillback Cap Reductn	0	0			0	0				0		0
Storage Cap Reductn	0	0			0	0				0		0
Reduced v/c Ratio	0.27	0.59			0.85	0.27				0.45		0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 61.2%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	1257	11	54	1491	117	13	43	60	97	33	424
Future Volume (vph)	322	1257	11	54	1491	117	13	43	60	97	33	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.912			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1699	0	1770	1604	0
Flt Permitted	0.058			0.150			0.199			0.660		
Satd. Flow (perm)	108	3539	1583	279	3539	1583	371	1699	0	1229	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			78		48			334	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			119			409	
Travel Time (s)		8.9			17.9			2.7			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	339	1323	12	62	1714	134	14	45	63	105	36	461
Shared Lane Traffic (%)												
Lane Group Flow (vph)	339	1323	12	62	1714	134	14	108	0	105	497	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2		6	6		2	8			4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	13.1	16.2	16.2	13.1	30.3	30.3	13.2	13.2		13.1	13.1	
Total Split (s)	30.0	82.0	82.0	16.0	68.0	68.0	32.0	32.0		32.0	32.0	
Total Split (%)	23.1%	63.1%	63.1%	12.3%	52.3%	52.3%	24.6%	24.6%		24.6%	24.6%	
Maximum Green (s)	23.9	75.8	75.8	9.9	61.7	61.7	25.8	25.8		25.9	25.9	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.2	2.2	2.1	2.3	2.3	2.2	2.2		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	6.2	6.1	6.3	6.3	6.2	6.2		6.1	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	2.5	4.5	4.5	2.5	4.5	4.5	2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0						
Flash Dont Walk (s)					17.0	17.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	91.5	84.7	84.7	92.7	68.6	68.6	20.1	20.1		20.2	20.2	
Actuated g/C Ratio	0.70	0.65	0.65	0.71	0.53	0.53	0.15	0.15		0.16	0.16	
v/c Ratio	0.93	0.57	0.01	0.20	0.92	0.15	0.25	0.36		0.55	0.94	
Control Delay	79.9	5.6	0.0	3.0	17.0	0.7	56.0	29.4		60.2	43.1	
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	79.9	5.9	0.0	3.0	17.0	0.7	56.0	29.4		60.2	43.1	
LOS	E	A	A	A	B	A	E	C		E	D	
Approach Delay		20.9			15.4			32.4			46.1	
Approach LOS		C			B			C			D	
Queue Length 50th (ft)	227	80	0	3	512	0	10	43		80	145	
Queue Length 95th (ft)	m252	m125	m0	m5	#871	m4	31	97		139	#333	
Internal Link Dist (ft)		375			972			39			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	382	2306	1059	312	1866	872	73	375		244	587	
Starvation Cap Reductn	0	383	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.89	0.69	0.01	0.20	0.92	0.15	0.19	0.29		0.43	0.85	

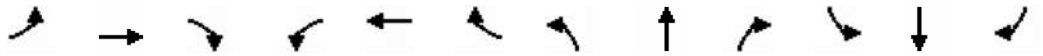
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

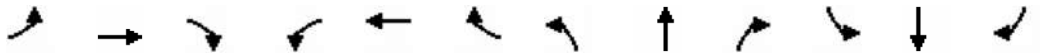
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	1434	122	117	1789	22	107	8	137	19	7	2
Future Volume (vph)	6	1434	122	117	1789	22	107	8	137	19	7	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988				0.850			0.850		0.965	
Flt Protected	0.950			0.950				0.956		0.950		
Satd. Flow (prot)	1770	3497	0	1770	3539	1583	0	1763	1568	1770	1798	0
Flt Permitted	0.065			0.064				0.732		0.575		
Satd. Flow (perm)	121	3497	0	119	3539	1583	0	1350	1568	1071	1798	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				81			80		3	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.81	0.81	0.81	0.72	0.72	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	7	1559	133	119	1826	22	132	10	169	26	10	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	1692	0	119	1826	22	0	142	169	26	13	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			8	5		4	

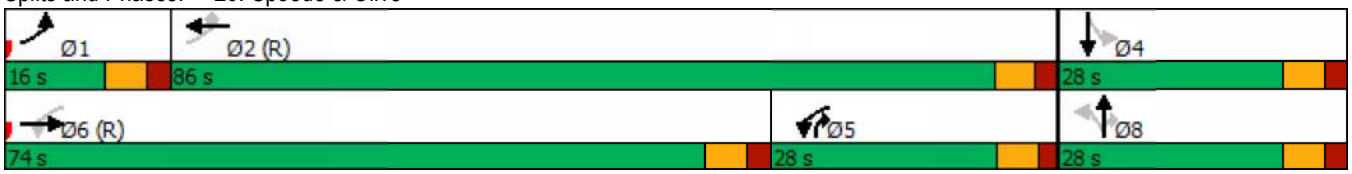


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		2	8		8	4		
Detector Phase	1	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	16.0	74.0		28.0	86.0	86.0	28.0	28.0	28.0	28.0	28.0	
Total Split (%)	12.3%	56.9%		21.5%	66.2%	66.2%	21.5%	21.5%	21.5%	21.5%	21.5%	
Maximum Green (s)	9.7	67.8		22.0	79.7	79.7	21.7	21.7	22.0	21.7	21.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag	Lead	Lead		Lag	Lag	Lag			Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	2.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max	C-Max	Max	Max	None	None	None	
Walk Time (s)		7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)		23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)		0			0	0	0	0				
Act Effct Green (s)	94.4	67.8		90.0	93.0	93.0		21.7	50.0	21.7	21.7	
Actuated g/C Ratio	0.73	0.52		0.69	0.72	0.72		0.17	0.38	0.17	0.17	
v/c Ratio	0.04	0.93		0.33	0.72	0.02		0.63	0.26	0.15	0.04	
Control Delay	5.2	38.6		11.0	4.4	0.0		64.1	15.2	48.7	38.8	
Queue Delay	0.0	0.0		0.0	0.2	0.0		0.0	0.0	0.0	0.0	
Total Delay	5.2	38.6		11.0	4.6	0.0		64.1	15.2	48.7	38.8	
LOS	A	D		B	A	A		E	B	D	D	
Approach Delay		38.4			5.0			37.5			45.4	
Approach LOS		D			A			D			D	
Queue Length 50th (ft)	1	669		27	95	0		113	49	19	7	
Queue Length 95th (ft)	5	#810		m33	132	m0		165	85	37	21	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	211	1828		361	2533	1155		225	652	178	302	
Starvation Cap Reductn	0	0		0	182	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.03	0.93		0.33	0.78	0.02		0.63	0.26	0.15	0.04	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 119 (92%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 84.1%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive



Intersection	
Int Delay, s/veh	26.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	114	0	0	450	0	1355	23	0	1708	285
Future Vol, veh/h	0	0	114	0	0	450	0	1355	23	0	1708	285
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	124	0	0	489	0	1473	25	0	1857	310

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	929	-	-	737	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	269	0	0	~ 361	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	269	-	-	~ 361	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.3	206.4	0	0
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	269	361	-
HCM Lane V/C Ratio	-	0.461	1.355	-
HCM Control Delay (s)	-	29.3	206.4	-
HCM Lane LOS	-	D	F	-
HCM 95th %tile Q(veh)	-	2.3	23.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	16	0	0	11	17	0
Future Vol, veh/h	16	0	0	11	17	0
Peak Hour Factor	0.58	0.92	0.92	0.92	0.53	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	0	0	12	32	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.1	7.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	100%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	17	16	11
LT Vol	17	0	0
Through Vol	0	16	11
RT Vol	0	0	0
Lane Flow Rate	32	28	12
Geometry Grp	1	1	1
Degree of Util (X)	0.037	0.031	0.013
Departure Headway (Hd)	4.204	4.001	4.012
Convergence, Y/N	Yes	Yes	Yes
Cap	854	896	893
Service Time	2.22	2.018	2.033
HCM Lane V/C Ratio	0.037	0.031	0.013
HCM Control Delay	7.4	7.1	7.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	28	0	16	0	0
Future Vol, veh/h	0	28	0	16	0	0
Peak Hour Factor	0.92	0.78	0.92	0.58	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	36	0	28	0	0
Number of Lanes	1	0	1	1	0	0

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	2	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	6.5	6.7
HCM LOS	A	A

Lane	NBLn1	NBLn2	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	100%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	16	28
LT Vol	0	0	0
Through Vol	0	0	0
RT Vol	0	16	28
Lane Flow Rate	0	28	36
Geometry Grp	7	7	2
Degree of Util (X)	0	0.03	0.034
Departure Headway (Hd)	4.597	3.897	3.383
Convergence, Y/N	Yes	Yes	Yes
Cap	0	923	1061
Service Time	2.301	1.601	1.393
HCM Lane V/C Ratio	0	0.03	0.034
HCM Control Delay	7.3	6.7	6.5
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0.1	0.1

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	0	0	0	0
Future Vol, veh/h	0	16	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	58	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	28	0	0	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1	-	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	1022	0	-	0	0	-
Stage 1	-	0	-	0	0	-
Stage 2	1022	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1022	-	-	-	-	-
Mov Cap-2 Maneuver	1022	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1022	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-

MOVEMENT SUMMARY

Site: 101 [2048 PM Existing (Site Folder: Eastmost Monsanto Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: Monsanto															
1a	L1	All MCs	22	3.0	22	3.0	0.019	3.5	LOS A	0.0	0.0	0.00	0.31	0.00	24.6
6	T1	All MCs	12	3.0	12	3.0	0.019	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	26.6
Approach			34	3.0	34	3.0	0.019	2.3	NA	0.0	0.0	0.00	0.31	0.00	25.3
West: Monsanto															
2	T1	All MCs	17	3.0	17	3.0	0.019	7.3	LOS A	0.1	1.6	0.10	1.03	0.10	20.1
Approach			17	3.0	17	3.0	0.019	7.3	LOS A	0.1	1.6	0.10	1.03	0.10	20.1
SouthWest: NB Ramp															
12ax	R1	All MCs	11	3.0	11	3.0	0.010	7.0	LOS A	0.0	1.1	0.09	0.94	0.09	20.1
Approach			11	3.0	11	3.0	0.010	7.0	LOS A	0.0	1.1	0.09	0.94	0.09	20.1
All Vehicles			62	3.0	62	3.0	0.019	4.5	NA	0.1	1.6	0.04	0.62	0.04	22.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Minor Road Approach LOS values are based on average delay for all movements (v/c not used).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: M:\JackMatthewsDev\22005028-00_CreveCoeurTIS\Eng_Study\Comps\Synchro\05-2023 Updated Models\Monsanto Interchange.sip9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1420	220	135	1377	100	271
Future Volume (vph)	1420	220	135	1377	100	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		159				62
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.91	0.91	0.89	0.89	0.90	0.90
Adj. Flow (vph)	1560	242	152	1547	111	301
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1560	242	152	1547	111	301
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	20.0	56.5	44.2	
Total Split (s)	86.0	23.0	21.0	107.0	23.0	
Total Split (%)	66.2%	17.7%	16.2%	82.3%	17.7%	
Maximum Green (s)	79.6	14.8	13.5	100.5	14.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	81.9	100.8	13.5	102.8	12.5	33.5
Actuated g/C Ratio	0.63	0.78	0.10	0.79	0.10	0.26
v/c Ratio	0.70	0.19	0.43	0.55	0.65	0.39
Control Delay	7.5	0.7	58.3	6.2	74.2	32.5
Queue Delay	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	0.7	58.3	6.2	74.2	32.5
LOS	A	A	E	A	E	C
Approach Delay	6.8			10.9	43.7	
Approach LOS	A			B	D	
Queue Length 50th (ft)	126	6	57	161	91	93
Queue Length 95th (ft)	148	m7	89	216	154	138
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2228	1234	356	2797	201	812
Starvation Cap Reductn	204	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.20	0.43	0.55	0.55	0.37

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 1 (1%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: SB Lindbergh & Olive

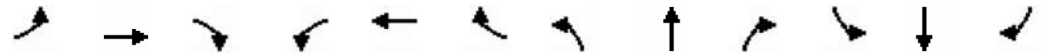
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1524	167	3	1260	251	211
Future Volume (vph)	1524	167	3	1260	251	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3400	3505	3433	1583
Flt Permitted			0.095		0.950	
Satd. Flow (perm)	3539	1583	340	3505	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		153				158
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	1693	186	3	1370	285	240
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1693	186	3	1370	285	240
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	D.P+P	NA	Prot	Perm
Protected Phases	6		5	2	4	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		6	6			4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	20.0	37.9	37.9
Total Split (s)	82.0	82.0	18.0	100.0	30.0	30.0
Total Split (%)	63.1%	63.1%	13.8%	76.9%	23.1%	23.1%
Maximum Green (s)	76.0	76.0	11.1	93.9	23.1	23.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	97.9	97.9	98.4	100.6	16.4	16.4
Actuated g/C Ratio	0.75	0.75	0.76	0.77	0.13	0.13
v/c Ratio	0.64	0.15	0.01	0.51	0.66	0.71
Control Delay	4.4	0.8	5.3	6.6	61.2	30.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	0.8	5.3	6.6	61.2	30.9
LOS	A	A	A	A	E	C
Approach Delay	4.1			6.6	47.3	
Approach LOS	A			A	D	
Queue Length 50th (ft)	114	3	0	190	120	65
Queue Length 95th (ft)	175	m9	m1	283	155	144
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2665	1230	520	2711	610	411
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.15	0.01	0.51	0.47	0.58

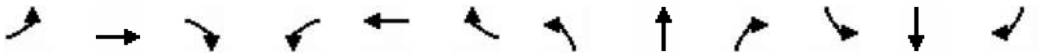
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBWB, Start of 1st Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	108	5	5	165	15	1361	93	50	2004	216
Future Volume (vph)	5	5	108	5	5	165	15	1361	93	50	2004	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	200		200	200		300
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.856			0.854				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1564	0	1736	1560	0	1736	3471	1553	1736	3471	1553
Flt Permitted	0.385			0.436			0.950			0.950		
Satd. Flow (perm)	703	1564	0	797	1560	0	1736	3471	1553	1736	3471	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68			121				101			235
Link Speed (mph)		30			40			40			40	
Link Distance (ft)		510			490			3486			497	
Travel Time (s)		11.6			8.4			59.4			8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	5	5	117	5	5	179	16	1479	101	54	2178	235
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	122	0	5	184	0	16	1479	101	54	2178	235
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	20.0	20.0		20.0	20.0		8.0	87.0	87.0	13.0	92.0	92.0
Total Split (%)	16.7%	16.7%		16.7%	16.7%		6.7%	72.5%	72.5%	10.8%	76.7%	76.7%
Maximum Green (s)	16.0	16.0		16.0	16.0		4.0	83.0	83.0	9.0	88.0	88.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	0
Act Effct Green (s)	10.4	10.4		10.4	10.4		4.0	85.7	85.7	8.0	92.6	92.6
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.04	0.75	0.75	0.07	0.81	0.81
v/c Ratio	0.08	0.60		0.07	0.73		0.27	0.57	0.08	0.45	0.77	0.18
Control Delay	49.2	36.1		48.4	36.0		66.4	8.3	1.3	63.9	9.6	0.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	36.1		48.4	36.0		66.4	8.3	1.3	63.9	9.6	0.9
LOS	D	D		D	D		E	A	A	E	A	A
Approach Delay		36.6			36.3			8.5			10.0	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	3	38		3	45		12	237	0	38	263	0
Queue Length 95th (ft)	16	100		16	121		37	353	16	84	681	20
Internal Link Dist (ft)		430			410			3406			417	
Turn Bay Length (ft)	200			200			200		200	200		300
Base Capacity (vph)	98	278		111	322		60	2608	1192	137	2817	1304
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.44		0.05	0.57		0.27	0.57	0.08	0.39	0.77	0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 114.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: Lindbergh & Old Olive

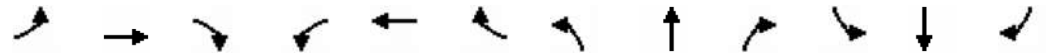
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	91	1645	1218	244	38	45
Future Volume (vph)	91	1645	1218	244	38	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3505	1568	1656	1482
Flt Permitted	0.181				0.950	
Satd. Flow (perm)	337	3539	3505	1568	1656	1482
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				262		54
Link Speed (mph)		40	40		40	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		11.8	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.84	0.84
Heavy Vehicles (%)	2%	2%	3%	3%	9%	9%
Adj. Flow (vph)	101	1828	1310	262	45	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	1828	1310	262	45	54
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			2		3
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	17.0	113.0	96.0	96.0	17.0	17.0
Total Split (%)	13.1%	86.9%	73.8%	73.8%	13.1%	13.1%
Maximum Green (s)	11.2	107.3	90.4	90.4	11.6	11.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	106.4	113.5	99.8	99.8	9.1	9.1
Actuated g/C Ratio	0.82	0.87	0.77	0.77	0.07	0.07
v/c Ratio	0.29	0.59	0.49	0.21	0.39	0.35
Control Delay	3.4	3.1	7.0	1.0	67.2	20.8
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	3.4	3.5	7.0	1.0	67.2	20.8
LOS	A	A	A	A	E	C
Approach Delay		3.5	6.0		41.8	
Approach LOS		A	A		D	
Queue Length 50th (ft)	8	84	202	0	37	0
Queue Length 95th (ft)	m4	251	277	23	72	36
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	410	3088	2691	1264	147	181
Starvation Cap Reductn	0	629	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.74	0.49	0.21	0.31	0.30

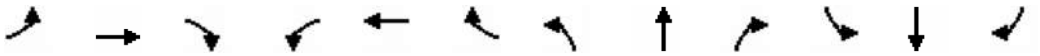
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 32 (25%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 60.6%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Olive & Old Olive St E



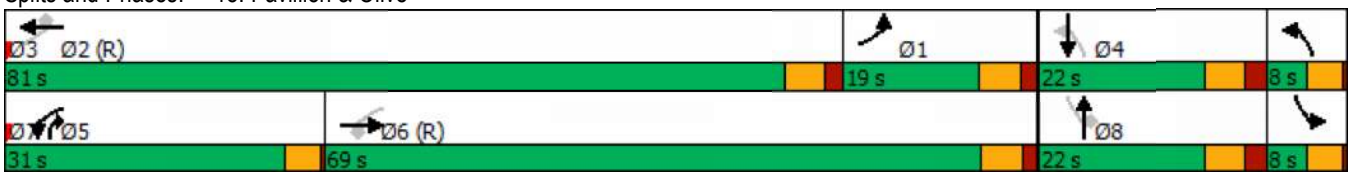
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1286	146	369	1004	104	118	24	298	56	30	7
Future Volume (vph)	14	1286	146	369	1004	104	118	24	298	56	30	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1812	0
Flt Permitted	0.229			0.062			0.728			0.740		
Satd. Flow (perm)	427	3539	1583	115	3539	1583	1356	1863	1583	1378	1812	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			152			109			104		7	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	16	1495	170	388	1057	109	128	26	324	67	36	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1495	170	388	1057	109	128	26	324	67	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

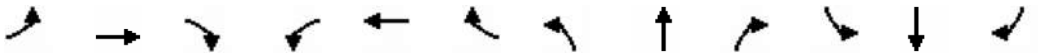


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	19.0	69.0	69.0	31.0	81.0	81.0	8.0	22.0	31.0	8.0	22.0	
Total Split (%)	14.6%	53.1%	53.1%	23.8%	62.3%	62.3%	6.2%	16.9%	23.8%	6.2%	16.9%	
Maximum Green (s)	13.2	63.5	63.5	27.0	75.4	75.4	4.0	16.0	27.0	4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	98.1	69.1	69.1	98.2	93.0	93.0	16.6	7.8	36.5	17.4	8.5	
Actuated g/C Ratio	0.75	0.53	0.53	0.76	0.72	0.72	0.13	0.06	0.28	0.13	0.07	
v/c Ratio	0.04	0.80	0.19	0.89	0.42	0.09	0.65	0.23	0.63	0.31	0.35	
Control Delay	3.9	16.5	0.8	59.9	6.7	1.9	66.3	63.0	28.9	50.9	57.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.9	16.5	0.8	59.9	6.7	1.9	66.3	63.0	28.9	50.9	57.9	
LOS	A	B	A	E	A	A	E	E	C	D	E	
Approach Delay		14.8			19.7			40.8			53.7	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	2	257	0	277	5	0	99	21	123	50	30	
Queue Length 95th (ft)	m4	235	9	#465	300	18	156	52	204	84	63	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	458	1880	912	451	2532	1163	197	229	529	215	229	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.03	0.80	0.19	0.86	0.42	0.09	0.65	0.11	0.61	0.31	0.19	

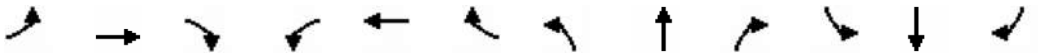
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 98 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 21.1		Intersection LOS: C	
Intersection Capacity Utilization 82.1%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	1318	78	20	1059	51	62	27	22	106	35	311
Future Volume (vph)	158	1318	78	20	1059	51	62	27	22	106	35	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.933			0.865	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1453	0	1770	1611	0
Flt Permitted	0.181			0.110			0.252			0.719		
Satd. Flow (perm)	337	3539	1583	205	3539	1583	392	1453	0	1339	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			60		25			278	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	174	1448	86	21	1103	53	74	32	26	108	36	317
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1448	86	21	1103	53	74	58	0	108	353	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	1	6	3	5	2	7	3	8		7	4	

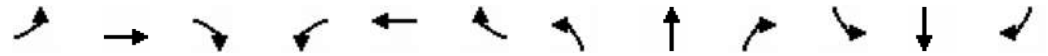


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	4			8		
Detector Phase	1	6	3	5	2	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	
Total Split (s)	24.0	81.0	16.0	11.0	68.0	18.0	16.0	20.0		18.0	22.0	
Total Split (%)	18.5%	62.3%	12.3%	8.5%	52.3%	13.8%	12.3%	15.4%		13.8%	16.9%	
Maximum Green (s)	17.9	74.8	12.0	4.9	61.7	14.0	12.0	13.8		14.0	15.9	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max		None	Max	
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	81.8	81.2	95.0	84.2	71.5	85.9	28.0	13.8		28.0	15.9	
Actuated g/C Ratio	0.63	0.62	0.73	0.65	0.55	0.66	0.22	0.11		0.22	0.12	
v/c Ratio	0.54	0.66	0.07	0.11	0.57	0.05	0.44	0.33		0.33	0.80	
Control Delay	17.1	11.0	0.3	4.7	16.2	3.1	46.9	39.2		42.9	27.6	
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	17.1	11.3	0.3	4.7	16.2	3.1	46.9	39.2		42.9	27.6	
LOS	B	B	A	A	B	A	D	D		D	C	
Approach Delay		11.3			15.4			43.5			31.2	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	24	227	0	2	245	4	49	26		73	59	
Queue Length 95th (ft)	66	183	m3	m5	377	m25	85	64		124	#207	
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	423	2210	1200	191	1947	1088	189	176		355	441	
Starvation Cap Reductn	0	225	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.41	0.73	0.07	0.11	0.57	0.05	0.39	0.33		0.30	0.80	

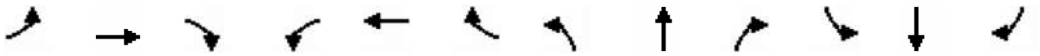
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 118 (91%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1415	65	88	1338	6	66	1	122	16	3	3
Future Volume (vph)	1	1415	65	88	1338	6	66	1	122	16	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850			0.850		0.925	
Flt Protected	0.950			0.950				0.953		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	0	1775	1583	1770	1723	0
Flt Permitted	0.150			0.113				0.724		0.706		
Satd. Flow (perm)	279	3514	0	210	3539	1583	0	1349	1583	1315	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				28			27		4	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			9.3	
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.86	0.86	0.86	0.75	0.75	0.75
Adj. Flow (vph)	1	1522	70	100	1520	7	77	1	142	21	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1592	0	100	1520	7	0	78	142	21	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.Pm	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		6		5	2			8	5		4	
Permitted Phases	2			6		2	8		8	4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	91.6	78.0		13.6	91.6	91.6	38.4	38.4	13.6	38.4	38.4	
Total Split (%)	70.5%	60.0%		10.5%	70.5%	70.5%	29.5%	29.5%	10.5%	29.5%	29.5%	
Maximum Green (s)	85.3	71.8		7.6	85.3	85.3	32.1	32.1	7.6	32.1	32.1	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag		Lead		Lag					Lag			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)	4.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)	17.0	23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	108.8	94.1		101.9	108.8	108.8		12.5	23.7	12.5	12.5	
Actuated g/C Ratio	0.84	0.72		0.78	0.84	0.84		0.10	0.18	0.10	0.10	
v/c Ratio	0.00	0.63		0.39	0.51	0.01		0.60	0.46	0.17	0.05	
Control Delay	3.0	11.6		11.3	2.8	0.0		74.7	40.9	54.8	38.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	3.0	11.7		11.3	2.8	0.0		74.7	40.9	54.8	38.8	
LOS	A	B		B	A	A		E	D	D	D	
Approach Delay		11.6			3.3			52.9			50.4	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	0	344		9	94	0		64	85	17	3	
Queue Length 95th (ft)	2	482		m28	134	m0		108	134	35	15	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	233	2544		255	2963	1329		333	310	324	428	
Starvation Cap Reductn	0	0		0	140	0		0	0	0	0	
Spillback Cap Reductn	0	47		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.00	0.64		0.39	0.54	0.01		0.23	0.46	0.06	0.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 3 (2%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	163	0	30	210	0
Future Vol, veh/h	48	163	0	30	210	0
Peak Hour Factor	0.82	0.92	0.92	0.92	0.86	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	177	0	33	244	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.7	8	9.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	23%	100%
Vol Right, %	0%	77%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	210	211	30
LT Vol	210	0	0
Through Vol	0	48	30
RT Vol	0	163	0
Lane Flow Rate	244	236	33
Geometry Grp	1	1	1
Degree of Util (X)	0.319	0.27	0.043
Departure Headway (Hd)	4.71	4.123	4.798
Convergence, Y/N	Yes	Yes	Yes
Cap	764	874	747
Service Time	2.739	2.138	2.825
HCM Lane V/C Ratio	0.319	0.27	0.044
HCM Control Delay	9.9	8.7	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.4	1.1	0.1

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	215	175	59	152	0
Future Vol, veh/h	25	215	175	59	152	0
Peak Hour Factor	0.86	0.86	0.92	0.82	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	250	190	72	165	0
Number of Lanes	1	0	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.8	9.6	9.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1
Vol Left, %	0%	0%	10%	100%
Vol Thru, %	100%	0%	0%	0%
Vol Right, %	0%	100%	90%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	175	59	240	152
LT Vol	0	0	25	152
Through Vol	175	0	0	0
RT Vol	0	59	215	0
Lane Flow Rate	190	72	279	165
Geometry Grp	7	7	2	5
Degree of Util (X)	0.282	0.093	0.345	0.238
Departure Headway (Hd)	5.34	4.634	4.45	5.191
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	670	767	807	687
Service Time	3.106	2.4	2.493	3.262
HCM Lane V/C Ratio	0.284	0.094	0.346	0.24
HCM Control Delay	10.2	7.9	9.8	9.9
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.2	0.3	1.5	0.9

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	185	49	0	0	25
Future Vol, veh/h	40	185	49	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	82	92	92	92	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	226	53	0	0	29

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	82	-	0	-	-	-
Stage 1	53	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	920	0	-	0	0	-
Stage 1	970	0	-	0	0	-
Stage 2	994	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	920	-	-	-	-	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	994	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	920	-	-
HCM Lane V/C Ratio	-	0.047	-	-
HCM Control Delay (s)	-	9.1	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	NBL	NBR	SEL	SER	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	338	52	121	152	0	0
Future Vol, veh/h	338	52	121	152	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	367	57	132	165	0	0
Number of Lanes	0	1	1	0	0	0

Approach	NB	SE
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SE	
Conflicting Lanes Left	1	0
Conflicting Approach Right		NB
Conflicting Lanes Right	0	1
HCM Control Delay	13.7	10.8
HCM LOS	B	B

Lane	NBLn1	SELn1
Vol Left, %	87%	44%
Vol Thru, %	0%	0%
Vol Right, %	13%	56%
Sign Control	Stop	Stop
Traffic Vol by Lane	390	273
LT Vol	338	121
Through Vol	0	0
RT Vol	52	152
Lane Flow Rate	424	297
Geometry Grp	1	1
Degree of Util (X)	0.559	0.391
Departure Headway (Hd)	4.746	4.738
Convergence, Y/N	Yes	Yes
Cap	759	757
Service Time	2.797	2.785
HCM Lane V/C Ratio	0.559	0.392
HCM Control Delay	13.7	10.8
HCM Lane LOS	B	B
HCM 95th-tile Q	3.5	1.9

MOVEMENT SUMMARY

Site: 101 [2028 AM Build (Site Folder: Eastmost Monsanto Intersection)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Monsanto														
1a	L1	8	3.0	9	3.0	0.023	3.5	LOS A	0.0	0.0	0.00	0.10	0.00	27.5
6	T1	30	3.0	33	3.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	28.8
Approach		38	3.0	41	3.0	0.023	0.7	NA	0.0	0.0	0.00	0.10	0.00	28.5
West: Monsanto														
2	T1	48	3.0	52	3.0	0.056	7.3	LOS A	0.2	5.0	0.10	1.03	0.10	20.7
Approach		48	3.0	52	3.0	0.056	7.3	LOS A	0.2	5.0	0.10	1.03	0.10	20.7
SouthWest: NB Ramp														
12ax	R1	38	3.0	41	3.0	0.041	7.2	LOS A	0.2	4.4	0.17	0.90	0.17	20.6
Approach		38	3.0	41	3.0	0.041	7.2	LOS A	0.2	4.4	0.17	0.90	0.17	20.6
All Vehicles		124	3.0	135	3.0	0.056	5.3	NA	0.2	5.0	0.09	0.71	0.09	22.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Minor Road Approach LOS values are based on average delay for all movements (v/c not used).
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1267	258	210	1798	104	154
Future Volume (vph)	1267	258	210	1798	104	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		111				86
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.94	0.94	0.96	0.96	0.93	0.93
Adj. Flow (vph)	1348	274	219	1873	112	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1348	274	219	1873	112	166
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	38.4	44.2	14.5	56.5	44.2	
Total Split (s)	82.0	24.0	24.0	106.0	24.0	
Total Split (%)	63.1%	18.5%	18.5%	81.5%	18.5%	
Maximum Green (s)	75.6	15.8	16.5	99.5	15.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	81.5	100.9	13.4	102.4	12.9	33.9
Actuated g/C Ratio	0.63	0.78	0.10	0.79	0.10	0.26
v/c Ratio	0.61	0.22	0.62	0.67	0.64	0.21
Control Delay	14.2	2.4	60.3	10.9	72.2	17.6
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	2.4	60.3	10.9	72.2	17.6
LOS	B	A	E	B	E	B
Approach Delay	12.2			16.1	39.6	
Approach LOS	B			B	D	
Queue Length 50th (ft)	245	20	90	406	92	28
Queue Length 95th (ft)	303	19	130	396	154	57
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2219	1285	435	2786	215	776
Starvation Cap Reductn	102	0	0	73	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.21	0.50	0.69	0.52	0.21

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 16.2	Intersection LOS: B
Intersection Capacity Utilization 67.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: SB Lindbergh & Olive

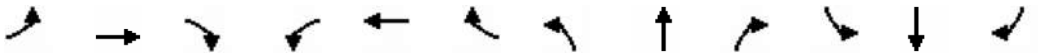
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1220	201	12	1740	268	214
Future Volume (vph)	1220	201	12	1740	268	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		212				223
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.96	0.96
Adj. Flow (vph)	1284	212	13	1891	279	223
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1284	212	13	1891	279	223
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6				4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	85.0	85.0	22.0	107.0	23.0	23.0
Total Split (%)	65.4%	65.4%	16.9%	82.3%	17.7%	17.7%
Maximum Green (s)	79.0	79.0	15.1	100.9	16.1	16.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	96.8	96.8	7.0	102.3	14.7	14.7
Actuated g/C Ratio	0.74	0.74	0.05	0.79	0.11	0.11
v/c Ratio	0.49	0.17	0.07	0.68	0.72	0.59
Control Delay	5.8	1.1	49.0	10.4	66.4	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	1.1	49.0	10.4	66.4	13.5
LOS	A	A	D	B	E	B
Approach Delay	5.2			10.7	42.9	
Approach LOS	A			B	D	
Queue Length 50th (ft)	98	2	5	338	117	0
Queue Length 95th (ft)	151	13	m8	531	165	76
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2635	1232	398	2783	425	391
Starvation Cap Reductn	0	0	0	40	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.17	0.03	0.69	0.66	0.57

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive

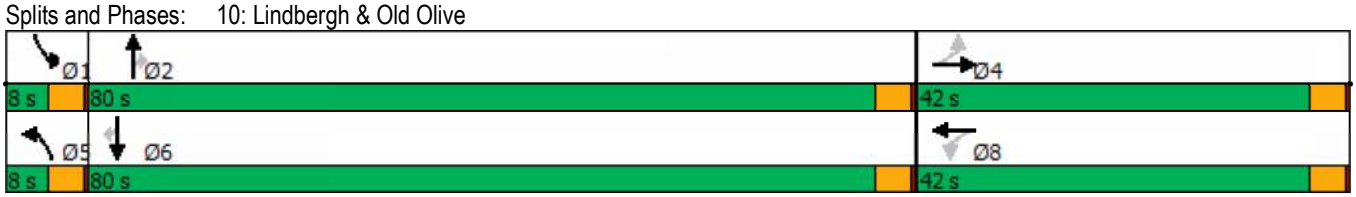


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	103	40	15	407	30	1289	21	5	1627	258
Future Volume (vph)	15	10	103	40	15	407	30	1289	21	5	1627	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	200		200	200		300
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.863			0.855				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1608	0	1770	1593	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.120			0.619			0.950			0.950		
Satd. Flow (perm)	224	1608	0	1153	1593	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71			96				42			261
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			490			3486			497	
Travel Time (s)		11.6			11.1			79.2			11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	11	112	43	16	442	33	1401	23	5	1768	280
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	123	0	43	458	0	33	1401	23	5	1768	280
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60		60	60		60	60		60	60		60
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	42.0	42.0		42.0	42.0		8.0	80.0	80.0	8.0	80.0	80.0
Total Split (%)	32.3%	32.3%		32.3%	32.3%		6.2%	61.5%	61.5%	6.2%	61.5%	61.5%
Maximum Green (s)	38.0	38.0		38.0	38.0		4.0	76.0	76.0	4.0	76.0	76.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	33.2	33.2		33.2	33.2		4.0	81.1	81.1	4.0	76.5	76.5
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.03	0.65	0.65	0.03	0.62	0.62
v/c Ratio	0.27	0.26		0.14	0.92		0.58	0.60	0.02	0.09	0.81	0.26
Control Delay	48.9	17.5		35.6	60.2		98.4	14.8	1.2	64.6	23.6	2.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	17.5		35.6	60.2		98.4	14.8	1.2	64.6	23.6	2.5
LOS	D	B		D	E		F	B	A	E	C	A
Approach Delay		21.1			58.1			16.4			20.8	
Approach LOS		C			E			B			C	
Queue Length 50th (ft)	10	32		27	298		28	339	0	4	620	6
Queue Length 95th (ft)	35	83		58	#487		#84	486	6	19	735	44
Internal Link Dist (ft)		430			410			3406			417	
Turn Bay Length (ft)	200			200			200		200	200		300
Base Capacity (vph)	69	545		356	557		57	2317	1050	57	2184	1076
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.23		0.12	0.82		0.58	0.60	0.02	0.09	0.81	0.26

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 123.9			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 23.8		Intersection LOS: C	
Intersection Capacity Utilization 77.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 10: Lindbergh & Old Olive



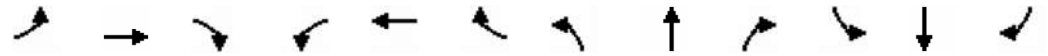
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	1406	1606	284	117	146
Future Volume (vph)	28	1406	1606	284	117	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.103				0.950	
Satd. Flow (perm)	192	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				293		108
Link Speed (mph)		40	40		30	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		15.8	
Peak Hour Factor	0.96	0.96	0.97	0.97	0.82	0.82
Adj. Flow (vph)	29	1465	1656	293	143	178
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	1465	1656	293	143	178
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	2			2		3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	12.0	103.0	91.0	91.0	27.0	27.0
Total Split (%)	9.2%	79.2%	70.0%	70.0%	20.8%	20.8%
Maximum Green (s)	6.2	97.3	85.4	85.4	21.6	21.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	99.6	103.2	96.1	96.1	15.7	15.7
Actuated g/C Ratio	0.77	0.79	0.74	0.74	0.12	0.12
v/c Ratio	0.13	0.52	0.63	0.24	0.67	0.62
Control Delay	6.7	6.7	11.3	1.3	69.3	31.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	6.7	11.3	1.3	69.3	31.3
LOS	A	A	B	A	E	C
Approach Delay		6.7	9.8		48.2	
Approach LOS		A	A		D	
Queue Length 50th (ft)	1	31	373	0	117	55
Queue Length 95th (ft)	m12	456	520	30	163	106
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	222	2808	2615	1246	294	353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.52	0.63	0.24	0.49	0.50

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 58 (45%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 62.6%	ICU Level of Service B
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Olive & Old Olive St E



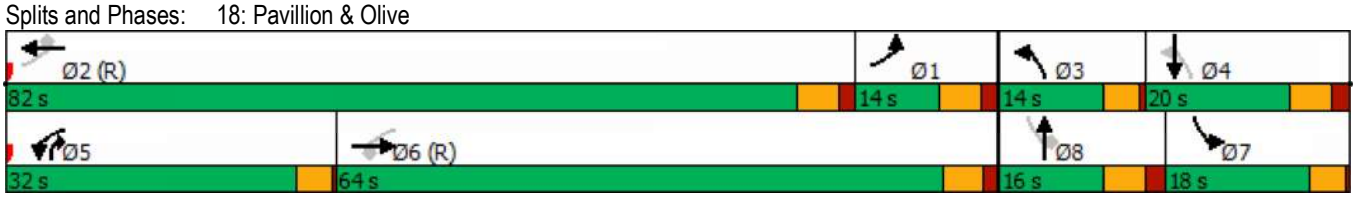
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1126	125	319	1356	227	114	15	290	109	15	43
Future Volume (vph)	50	1126	125	319	1356	227	114	15	290	109	15	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.888	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1654	0
Flt Permitted	0.105			0.119			0.706			0.747		
Satd. Flow (perm)	196	3539	1583	222	3539	1583	1315	1863	1583	1391	1654	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			134			201			121		58	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	54	1211	134	343	1458	244	124	16	315	147	20	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	1211	134	343	1458	244	124	16	315	147	78	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

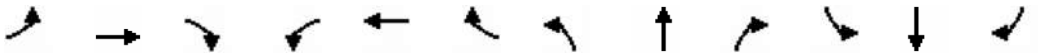
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	14.0	64.0	64.0	32.0	82.0	82.0	14.0	16.0	32.0	18.0	20.0	
Total Split (%)	10.8%	49.2%	49.2%	24.6%	63.1%	63.1%	10.8%	12.3%	24.6%	13.8%	15.4%	
Maximum Green (s)	8.2	58.5	58.5	28.0	76.4	76.4	10.0	10.0	28.0	14.0	14.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None	Max	
Act Effct Green (s)	85.9	63.6	63.6	88.3	79.5	79.5	25.7	10.0	35.2	25.7	14.0	
Actuated g/C Ratio	0.66	0.49	0.49	0.68	0.61	0.61	0.20	0.08	0.27	0.20	0.11	
v/c Ratio	0.24	0.70	0.16	0.80	0.67	0.23	0.42	0.11	0.61	0.47	0.34	
Control Delay	9.1	16.4	1.4	38.5	10.5	0.8	46.8	57.9	22.1	49.4	23.9	
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	9.1	16.4	1.4	38.5	10.7	0.8	46.8	57.9	22.1	49.4	23.9	
LOS	A	B	A	D	B	A	D	E	C	D	C	
Approach Delay		14.7			14.2			30.1			40.6	
Approach LOS		B			B			C			D	
Queue Length 50th (ft)	9	121	0	129	377	4	87	13	104	105	15	
Queue Length 95th (ft)	m20	393	13	252	184	0	146	37	170	136	44	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	228	1732	843	488	2165	1046	298	143	570	319	229	
Starvation Cap Reductn	0	0	0	0	143	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.70	0.16	0.70	0.72	0.23	0.42	0.11	0.55	0.46	0.34	

Intersection Summary

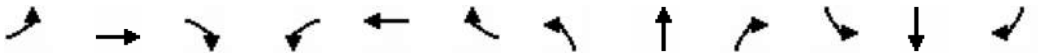
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 11 (8%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 17.5 Intersection LOS: B
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Pavillion & Olive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	1158	72	48	1357	108	67	52	55	89	43	383
Future Volume (vph)	292	1158	72	48	1357	108	67	52	55	89	43	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.923			0.865	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1719	0	1770	1611	0
Flt Permitted	0.067			0.156			0.175			0.643		
Satd. Flow (perm)	125	3539	1583	291	3539	1583	326	1719	0	1198	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			85		34			297	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	307	1219	76	55	1560	124	71	55	58	97	47	416
Shared Lane Traffic (%)												
Lane Group Flow (vph)	307	1219	76	55	1560	124	71	113	0	97	463	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases	2		6	6		2	4			8		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	
Total Split (s)	26.0	79.9	8.0	13.1	67.0	11.0	8.0	26.0		11.0	29.0	
Total Split (%)	20.0%	61.5%	6.2%	10.1%	51.5%	8.5%	6.2%	20.0%		8.5%	22.3%	
Maximum Green (s)	19.9	73.7	4.0	7.0	60.7	7.0	4.0	19.8		7.0	22.9	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	
Recall Mode	Max	C-Max	None	None	C-Max	None	None	Max		None	Max	
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	80.8	76.3	86.5	82.0	60.7	70.0	29.0	19.8		29.0	22.9	
Actuated g/C Ratio	0.62	0.59	0.67	0.63	0.47	0.54	0.22	0.15		0.22	0.18	
v/c Ratio	0.93	0.59	0.07	0.21	0.94	0.14	0.61	0.39		0.33	0.88	
Control Delay	54.3	5.0	0.2	3.8	29.3	2.2	62.2	38.8		42.2	37.1	
Queue Delay	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0		0.0	0.0	
Total Delay	54.3	5.5	0.2	3.8	29.7	2.2	62.2	38.8		42.2	37.1	
LOS	D	A	A	A	C	A	E	D		D	D	
Approach Delay		14.6			26.9			47.9			38.0	
Approach LOS		B			C			D			D	
Queue Length 50th (ft)	207	62	1	5	208	1	47	60		65	146	
Queue Length 95th (ft)	m#318	75	m0	m8	#551	m29	#100	121		114	#340	
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	329	2077	1079	263	1652	891	117	290		298	528	
Starvation Cap Reductn	0	379	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	10	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.93	0.72	0.07	0.21	0.95	0.14	0.61	0.39		0.33	0.88	

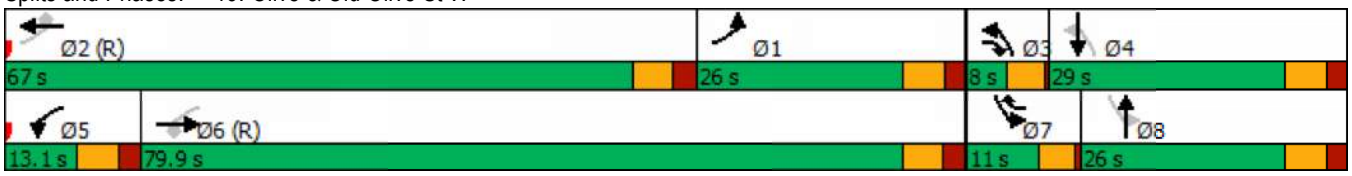
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 12 (9%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 102.1%		ICU Level of Service G	
Analysis Period (min) 15			

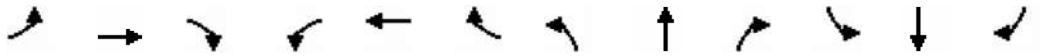
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

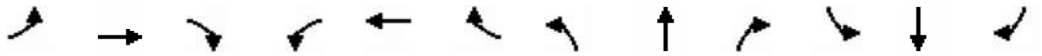
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1380	110	106	1682	20	97	7	124	18	6	2
Future Volume (vph)	5	1380	110	106	1682	20	97	7	124	18	6	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989				0.850			0.850		0.959	
Flt Protected	0.950			0.950				0.956		0.950		
Satd. Flow (prot)	1770	3500	0	1770	3539	1583	0	1763	1568	1770	1786	0
Flt Permitted	0.054			0.058				0.733		0.649		
Satd. Flow (perm)	101	3500	0	108	3539	1583	0	1352	1568	1209	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				81			81		3	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.81	0.81	0.81	0.72	0.72	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	5	1500	120	108	1716	20	120	9	153	25	8	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1620	0	108	1716	20	0	129	153	25	11	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			8	5		4	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		2	8		8	4		
Detector Phase	1	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	13.0	79.0		12.0	78.0	78.0	39.0	39.0	12.0	39.0	39.0	
Total Split (%)	10.0%	60.8%		9.2%	60.0%	60.0%	30.0%	30.0%	9.2%	30.0%	30.0%	
Maximum Green (s)	6.7	72.8		6.0	71.7	71.7	32.7	32.7	6.0	32.7	32.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag	Lag	Lag		Lead	Lead	Lead			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	2.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max	C-Max	Max	Max	None	Max	Max	
Walk Time (s)		7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)		23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)		0			0	0	0	0				
Act Effct Green (s)	83.4	72.8		79.0	82.1	82.1		32.7	45.0	32.7	32.7	
Actuated g/C Ratio	0.64	0.56		0.61	0.63	0.63		0.25	0.35	0.25	0.25	
v/c Ratio	0.03	0.82		0.76	0.77	0.02		0.38	0.26	0.08	0.02	
Control Delay	9.8	27.8		48.1	4.8	0.0		44.2	15.6	38.3	30.8	
Queue Delay	0.0	0.0		0.0	1.6	0.0		0.0	0.0	0.0	0.0	
Total Delay	9.8	27.8		48.1	6.4	0.0		44.2	15.6	38.3	30.8	
LOS	A	C		D	A	A		D	B	D	C	
Approach Delay		27.8			8.8			28.7			36.0	
Approach LOS		C			A			C			D	
Queue Length 50th (ft)	1	560		41	126	0		90	41	16	5	
Queue Length 95th (ft)	6	666		m48	m166	m0		135	79	32	17	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	150	1964		142	2234	1029		340	595	304	451	
Starvation Cap Reductn	0	0		0	322	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.03	0.82		0.76	0.90	0.02		0.38	0.26	0.08	0.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 9 (7%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 80.5%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	29	159	0	25	159	0
Future Vol, veh/h	29	159	0	25	159	0
Peak Hour Factor	0.58	0.92	0.92	0.92	0.53	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	173	0	27	300	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.7	8.2	10.7
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	15%	100%
Vol Right, %	0%	85%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	159	188	25
LT Vol	159	0	0
Through Vol	0	29	25
RT Vol	0	159	0
Lane Flow Rate	300	223	27
Geometry Grp	1	1	1
Degree of Util (X)	0.39	0.26	0.037
Departure Headway (Hd)	4.678	4.207	4.928
Convergence, Y/N	Yes	Yes	Yes
Cap	768	856	726
Service Time	2.709	2.229	2.963
HCM Lane V/C Ratio	0.391	0.261	0.037
HCM Control Delay	10.7	8.7	8.2
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.9	1	0.1

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	169	153	48	140	0
Future Vol, veh/h	16	169	153	48	140	0
Peak Hour Factor	0.92	0.78	0.92	0.58	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	217	166	83	152	0
Number of Lanes	1	0	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.1	9	9.5
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1
Vol Left, %	0%	0%	9%	100%
Vol Thru, %	100%	0%	0%	0%
Vol Right, %	0%	100%	91%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	48	185	140
LT Vol	0	0	16	140
Through Vol	153	0	0	0
RT Vol	0	48	169	0
Lane Flow Rate	166	83	234	152
Geometry Grp	7	7	2	5
Degree of Util (X)	0.24	0.103	0.283	0.213
Departure Headway (Hd)	5.205	4.5	4.352	5.049
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	689	793	824	708
Service Time	2.954	2.249	2.382	3.1
HCM Lane V/C Ratio	0.241	0.105	0.284	0.215
HCM Control Delay	9.6	7.8	9.1	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.3	1.2	0.8

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	154	46	0	0	16
Future Vol, veh/h	35	154	46	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	58	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	266	50	0	0	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	67	-	0	-	-	-
Stage 1	50	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	938	0	-	0	0	-
Stage 1	972	0	-	0	0	-
Stage 2	1006	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	938	-	-	-	-	-
Mov Cap-2 Maneuver	938	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	938	-	-
HCM Lane V/C Ratio	-	0.041	-	-
HCM Control Delay (s)	-	9	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	NBL	NBR	SEL	SER	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	283	39	118	140	0	0
Future Vol, veh/h	283	39	118	140	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	308	42	128	152	0	0
Number of Lanes	0	1	1	0	0	0

Approach	NB	SE
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SE	
Conflicting Lanes Left	1	0
Conflicting Approach Right		NB
Conflicting Lanes Right	0	1
HCM Control Delay	11.7	10.1
HCM LOS	B	B

Lane	NBLn1	SELn1
Vol Left, %	88%	46%
Vol Thru, %	0%	0%
Vol Right, %	12%	54%
Sign Control	Stop	Stop
Traffic Vol by Lane	322	258
LT Vol	283	118
Through Vol	0	0
RT Vol	39	140
Lane Flow Rate	350	280
Geometry Grp	1	1
Degree of Util (X)	0.457	0.355
Departure Headway (Hd)	4.698	4.563
Convergence, Y/N	Yes	Yes
Cap	766	788
Service Time	2.736	2.597
HCM Lane V/C Ratio	0.457	0.355
HCM Control Delay	11.7	10.1
HCM Lane LOS	B	B
HCM 95th-tile Q	2.4	1.6

MOVEMENT SUMMARY

Site: 101 [2028 PM Build (Site Folder: Eastmost Monsanto Intersection)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Monsanto														
1a	L1	19	3.0	21	3.0	0.026	3.5	LOS A	0.0	0.0	0.00	0.21	0.00	26.4
6	T1	25	3.0	27	3.0	0.026	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	27.6
Approach		44	3.0	48	3.0	0.026	1.5	NA	0.0	0.0	0.00	0.21	0.00	27.1
West: Monsanto														
2	T1	29	3.0	32	3.0	0.034	7.4	LOS A	0.1	3.0	0.12	1.02	0.12	20.7
Approach		29	3.0	32	3.0	0.034	7.4	LOS A	0.1	3.0	0.12	1.02	0.12	20.7
SouthWest: NB Ramp														
12ax	R1	9	3.0	10	3.0	0.010	7.1	LOS A	0.0	1.0	0.12	0.92	0.12	20.6
Approach		9	3.0	10	3.0	0.010	7.1	LOS A	0.0	1.0	0.12	0.92	0.12	20.6
All Vehicles		82	3.0	89	3.0	0.034	4.2	NA	0.1	3.0	0.05	0.57	0.05	23.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Minor Road Approach LOS values are based on average delay for all movements (v/c not used).
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1552	234	145	1498	101	299
Future Volume (vph)	1552	234	145	1498	101	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		137				44
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.91	0.91	0.89	0.89	0.90	0.90
Adj. Flow (vph)	1705	257	163	1683	112	332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1705	257	163	1683	112	332
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	10.0	7.0	7.0	10.0	7.0	
Minimum Split (s)	38.4	44.2	20.0	56.5	44.2	
Total Split (s)	86.0	23.0	21.0	107.0	23.0	
Total Split (%)	66.2%	17.7%	16.2%	82.3%	17.7%	
Maximum Green (s)	79.6	14.8	13.5	100.5	14.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	81.8	100.8	13.5	102.7	12.6	33.6
Actuated g/C Ratio	0.63	0.78	0.10	0.79	0.10	0.26
v/c Ratio	0.77	0.20	0.46	0.60	0.65	0.44
Control Delay	7.4	0.8	58.9	6.9	74.3	36.4
Queue Delay	0.6	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	0.8	58.9	6.9	74.3	36.4
LOS	A	A	E	A	E	D
Approach Delay	7.1			11.5	46.0	
Approach LOS	A			B	D	
Queue Length 50th (ft)	129	6	59	173	92	114
Queue Length 95th (ft)	151	m6	96	225	156	163
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2227	1228	356	2796	201	799
Starvation Cap Reductn	202	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.21	0.46	0.60	0.56	0.42

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 1 (1%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 73.0%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: SB Lindbergh & Olive

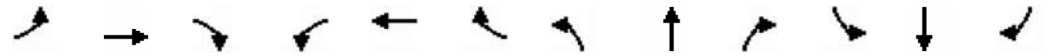
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1675	176	3	1375	268	230
Future Volume (vph)	1675	176	3	1375	268	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3400	3505	3433	1583
Flt Permitted			0.068		0.950	
Satd. Flow (perm)	3539	1583	243	3505	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		147				151
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	1861	196	3	1495	305	261
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1861	196	3	1495	305	261
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	D.P+P	NA	Prot	Perm
Protected Phases	6		5	2	4	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		6	6			4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	20.0	37.9	37.9
Total Split (s)	82.0	82.0	18.0	100.0	30.0	30.0
Total Split (%)	63.1%	63.1%	13.8%	76.9%	23.1%	23.1%
Maximum Green (s)	76.0	76.0	11.1	93.9	23.1	23.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	97.0	97.0	97.5	99.7	17.3	17.3
Actuated g/C Ratio	0.75	0.75	0.75	0.77	0.13	0.13
v/c Ratio	0.70	0.16	0.01	0.56	0.67	0.77
Control Delay	5.7	1.0	6.3	8.1	60.6	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	1.0	6.3	8.1	60.6	37.2
LOS	A	A	A	A	E	D
Approach Delay	5.2			8.1	49.8	
Approach LOS	A			A	D	
Queue Length 50th (ft)	137	5	0	227	128	91
Queue Length 95th (ft)	197	m9	m1	394	163	174
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2640	1218	453	2687	610	405
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	45	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.16	0.01	0.56	0.50	0.65

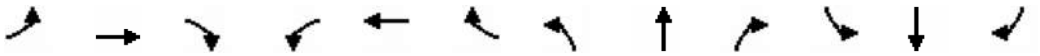
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBWB, Start of 1st Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 12.4		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	120	5	5	182	15	1491	102	50	2197	239
Future Volume (vph)	5	5	120	5	5	182	15	1491	102	50	2197	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	200		200	200		300
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.856			0.854				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1564	0	1736	1560	0	1736	3471	1553	1736	3471	1553
Flt Permitted	0.336			0.414			0.950			0.950		
Satd. Flow (perm)	614	1564	0	756	1560	0	1736	3471	1553	1736	3471	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			106				111			260
Link Speed (mph)		30			40			40			40	
Link Distance (ft)		510			490			3486			497	
Travel Time (s)		11.6			8.4			59.4			8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	5	5	130	5	5	198	16	1621	111	54	2388	260
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	135	0	5	203	0	16	1621	111	54	2388	260
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	20.0	20.0		20.0	20.0		8.0	87.0	87.0	13.0	92.0	92.0
Total Split (%)	16.7%	16.7%		16.7%	16.7%		6.7%	72.5%	72.5%	10.8%	76.7%	76.7%
Maximum Green (s)	16.0	16.0		16.0	16.0		4.0	83.0	83.0	9.0	88.0	88.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	0
Act Effct Green (s)	11.9	11.9		11.9	11.9		4.0	85.3	85.3	8.0	92.1	92.1
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.03	0.74	0.74	0.07	0.80	0.80
v/c Ratio	0.08	0.62		0.06	0.79		0.27	0.63	0.09	0.45	0.86	0.20
Control Delay	48.8	40.1		47.8	46.3		67.4	10.0	1.3	64.9	13.8	0.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	40.1		47.8	46.3		67.4	10.0	1.3	64.9	13.8	0.9
LOS	D	D		D	D		E	A	A	E	B	A
Approach Delay		40.4			46.3			9.9			13.5	
Approach LOS		D			D			A			B	
Queue Length 50th (ft)	4	52		3	71		12	313	0	40	426	0
Queue Length 95th (ft)	16	118		16	156		37	417	17	84	909	20
Internal Link Dist (ft)		430			410			3406			417	
Turn Bay Length (ft)	200			200			200		200	200		300
Base Capacity (vph)	85	271		105	308		60	2571	1179	136	2777	1294
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.50		0.05	0.66		0.27	0.63	0.09	0.40	0.86	0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 115.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: Lindbergh & Old Olive

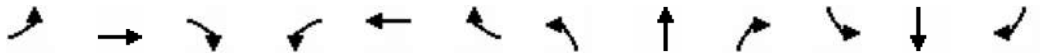
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	1805	1328	270	42	50
Future Volume (vph)	100	1805	1328	270	42	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3505	1568	1656	1482
Flt Permitted	0.154				0.950	
Satd. Flow (perm)	287	3539	3505	1568	1656	1482
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				290		60
Link Speed (mph)		40	40		40	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		11.8	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.84	0.84
Heavy Vehicles (%)	2%	2%	3%	3%	9%	9%
Adj. Flow (vph)	111	2006	1428	290	50	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	111	2006	1428	290	50	60
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			2		3
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	17.0	113.0	96.0	96.0	17.0	17.0
Total Split (%)	13.1%	86.9%	73.8%	73.8%	13.1%	13.1%
Maximum Green (s)	11.2	107.3	90.4	90.4	11.6	11.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	106.2	113.2	99.5	99.5	9.3	9.3
Actuated g/C Ratio	0.82	0.87	0.77	0.77	0.07	0.07
v/c Ratio	0.35	0.65	0.53	0.23	0.42	0.37
Control Delay	4.9	4.4	7.7	1.0	68.2	20.0
Queue Delay	0.0	0.7	0.0	0.0	0.0	0.0
Total Delay	4.9	5.0	7.7	1.0	68.2	20.0
LOS	A	A	A	A	E	C
Approach Delay		5.0	6.5		41.9	
Approach LOS		A	A		D	
Queue Length 50th (ft)	11	114	237	0	41	0
Queue Length 95th (ft)	m2	120	321	23	77	38
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	371	3082	2681	1267	147	186
Starvation Cap Reductn	0	634	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.82	0.53	0.23	0.34	0.32

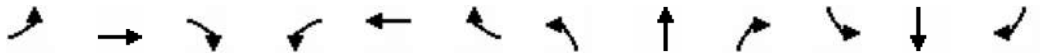
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 32 (25%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 65.0%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Olive & Old Olive St E



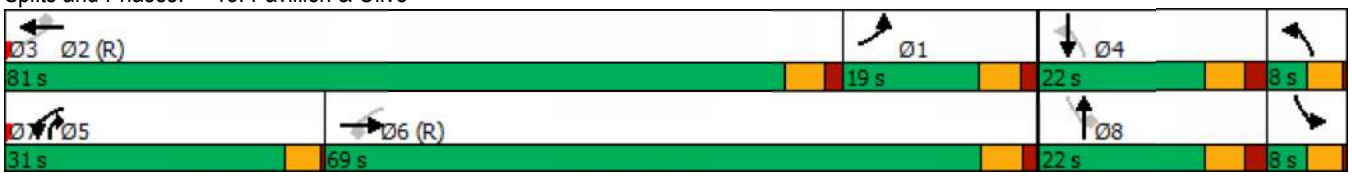
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1426	146	369	1115	115	118	24	298	61	30	8
Future Volume (vph)	16	1426	146	369	1115	115	118	24	298	61	30	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1801	0
Flt Permitted	0.195			0.060			0.727			0.740		
Satd. Flow (perm)	363	3539	1583	112	3539	1583	1354	1863	1583	1378	1801	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			121			104		9	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	19	1658	170	388	1174	121	128	26	324	73	36	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1658	170	388	1174	121	128	26	324	73	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

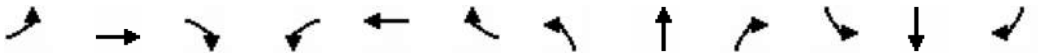


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	19.0	69.0	69.0	31.0	81.0	81.0	8.0	22.0	31.0	8.0	22.0	
Total Split (%)	14.6%	53.1%	53.1%	23.8%	62.3%	62.3%	6.2%	16.9%	23.8%	6.2%	16.9%	
Maximum Green (s)	13.2	63.5	63.5	27.0	75.4	75.4	4.0	16.0	27.0	4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	98.1	69.1	69.1	98.2	93.0	93.0	16.6	7.8	36.5	17.4	8.6	
Actuated g/C Ratio	0.75	0.53	0.53	0.76	0.72	0.72	0.13	0.06	0.28	0.13	0.07	
v/c Ratio	0.05	0.88	0.19	0.89	0.46	0.10	0.65	0.23	0.63	0.34	0.37	
Control Delay	4.6	21.2	1.7	59.4	8.5	2.7	66.4	63.0	28.9	51.7	56.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.6	21.2	1.7	59.4	8.5	2.7	66.4	63.0	28.9	51.7	56.4	
LOS	A	C	A	E	A	A	E	E	C	D	E	
Approach Delay		19.3			19.8			40.8			53.5	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	2	508	1	263	6	0	99	21	123	54	30	
Queue Length 95th (ft)	m5	#596	m19	#468	351	28	156	52	204	89	64	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	416	1880	905	449	2532	1167	197	229	529	216	229	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.05	0.88	0.19	0.86	0.46	0.10	0.65	0.11	0.61	0.34	0.20	

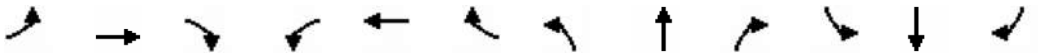
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 98 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	1447	78	22	1163	56	62	27	24	117	36	344
Future Volume (vph)	174	1447	78	22	1163	56	62	27	24	117	36	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.929			0.864	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1447	0	1770	1609	0
Flt Permitted	0.143			0.081			0.252			0.717		
Satd. Flow (perm)	266	3539	1583	151	3539	1583	392	1447	0	1336	1609	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			60		28			299	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	191	1590	86	23	1211	58	74	32	29	119	37	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	1590	86	23	1211	58	74	61	0	119	388	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	1	6	3	5	2	7	3	8		7	4	

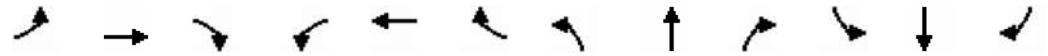


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	4			8		
Detector Phase	1	6	3	5	2	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	
Total Split (s)	24.0	81.0	16.0	11.0	68.0	18.0	16.0	20.0		18.0	22.0	
Total Split (%)	18.5%	62.3%	12.3%	8.5%	52.3%	13.8%	12.3%	15.4%		13.8%	16.9%	
Maximum Green (s)	17.9	74.8	12.0	4.9	61.7	14.0	12.0	13.8		14.0	15.9	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max		None	Max	
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	81.8	81.2	95.0	84.2	69.7	84.0	28.0	13.8		28.0	15.9	
Actuated g/C Ratio	0.63	0.62	0.73	0.65	0.54	0.65	0.22	0.11		0.22	0.12	
v/c Ratio	0.63	0.72	0.07	0.15	0.64	0.06	0.44	0.34		0.36	0.85	
Control Delay	27.6	10.9	0.3	5.9	18.6	3.6	46.9	38.1		43.8	31.3	
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.6	11.3	0.3	5.9	18.6	3.6	46.9	38.1		43.8	31.3	
LOS	C	B	A	A	B	A	D	D		D	C	
Approach Delay		12.5			17.7			43.0			34.3	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	31	280	0	2	272	5	49	26		81	72	
Queue Length 95th (ft)	m110	200	m2	m4	548	m30	85	65		135	#243	
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	383	2210	1200	158	1897	1067	189	178		355	459	
Starvation Cap Reductn	0	220	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	0.80	0.07	0.15	0.64	0.05	0.39	0.34		0.34	0.85	

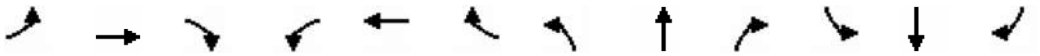
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 118 (91%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 18.2		Intersection LOS: B	
Intersection Capacity Utilization 91.1%		ICU Level of Service F	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1547	72	97	1466	7	73	1	134	18	3	3
Future Volume (vph)	1	1547	72	97	1466	7	73	1	134	18	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850			0.850		0.925	
Flt Protected	0.950			0.950				0.953		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	0	1775	1583	1770	1723	0
Flt Permitted	0.121			0.084				0.723		0.701		
Satd. Flow (perm)	225	3514	0	156	3539	1583	0	1347	1583	1306	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				28			27		4	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			9.3	
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.86	0.86	0.86	0.75	0.75	0.75
Adj. Flow (vph)	1	1663	77	110	1666	8	85	1	156	24	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1740	0	110	1666	8	0	86	156	24	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.Pm	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		6		5	2			8	5		4	
Permitted Phases	2			6		2	8		8	4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	91.6	78.0		13.6	91.6	91.6	38.4	38.4	13.6	38.4	38.4	
Total Split (%)	70.5%	60.0%		10.5%	70.5%	70.5%	29.5%	29.5%	10.5%	29.5%	29.5%	
Maximum Green (s)	85.3	71.8		7.6	85.3	85.3	32.1	32.1	7.6	32.1	32.1	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag		Lead		Lag					Lag			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)	4.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)	17.0	23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	104.2	90.7		98.5	104.2	104.2		13.2	27.1	13.2	13.2	
Actuated g/C Ratio	0.80	0.70		0.76	0.80	0.80		0.10	0.21	0.10	0.10	
v/c Ratio	0.01	0.71		0.52	0.59	0.01		0.63	0.44	0.18	0.04	
Control Delay	4.0	14.4		20.1	3.4	0.0		75.3	40.1	54.2	38.0	
Queue Delay	0.0	0.1		0.0	0.1	0.0		0.0	0.0	0.0	0.0	
Total Delay	4.0	14.5		20.1	3.5	0.0		75.3	40.1	54.2	38.0	
LOS	A	B		C	A	A		E	D	D	D	
Approach Delay		14.5			4.5			52.6			50.2	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	0	417		10	106	0		71	95	19	3	
Queue Length 95th (ft)	2	588		m55	143	m0		116	146	38	15	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	180	2453		212	2836	1274		332	351	322	428	
Starvation Cap Reductn	0	0		0	140	0		0	0	0	0	
Spillback Cap Reductn	0	63		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.01	0.73		0.52	0.62	0.01		0.26	0.44	0.07	0.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 3 (2%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	50	163	0	30	214	0
Future Vol, veh/h	50	163	0	30	214	0
Peak Hour Factor	0.82	0.92	0.92	0.92	0.86	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	177	0	33	249	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.7	8.1	10
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	23%	100%
Vol Right, %	0%	77%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	214	213	30
LT Vol	214	0	0
Through Vol	0	50	30
RT Vol	0	163	0
Lane Flow Rate	249	238	33
Geometry Grp	1	1	1
Degree of Util (X)	0.326	0.274	0.044
Departure Headway (Hd)	4.716	4.139	4.813
Convergence, Y/N	Yes	Yes	Yes
Cap	761	869	744
Service Time	2.748	2.158	2.843
HCM Lane V/C Ratio	0.327	0.274	0.044
HCM Control Delay	10	8.7	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.4	1.1	0.1

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	219	175	61	152	0
Future Vol, veh/h	25	219	175	61	152	0
Peak Hour Factor	0.86	0.86	0.92	0.82	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	255	190	74	165	0
Number of Lanes	1	0	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.9	9.6	9.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1
Vol Left, %	0%	0%	10%	100%
Vol Thru, %	100%	0%	0%	0%
Vol Right, %	0%	100%	90%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	175	61	244	152
LT Vol	0	0	25	152
Through Vol	175	0	0	0
RT Vol	0	61	219	0
Lane Flow Rate	190	74	284	165
Geometry Grp	7	7	2	5
Degree of Util (X)	0.283	0.096	0.351	0.239
Departure Headway (Hd)	5.353	4.647	4.455	5.208
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	668	765	806	684
Service Time	3.12	2.414	2.499	3.278
HCM Lane V/C Ratio	0.284	0.097	0.352	0.241
HCM Control Delay	10.2	7.9	9.9	9.9
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.2	0.3	1.6	0.9

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	188	49	0	0	25
Future Vol, veh/h	40	188	49	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	82	92	92	92	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	229	53	0	0	29

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	82	-	0	-	-	-
Stage 1	53	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	920	0	-	0	0	-
Stage 1	970	0	-	0	0	-
Stage 2	994	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	920	-	-	-	-	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	994	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	920	-	-
HCM Lane V/C Ratio	-	0.047	-	-
HCM Control Delay (s)	-	9.1	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	NBL	NBR	SEL	SER	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	338	56	121	152	0	0
Future Vol, veh/h	338	56	121	152	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	367	61	132	165	0	0
Number of Lanes	0	1	1	0	0	0

Approach	NB	SE
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SE	
Conflicting Lanes Left	1	0
Conflicting Approach Right		NB
Conflicting Lanes Right	0	1
HCM Control Delay	13.8	10.8
HCM LOS	B	B

Lane	NBLn1	SELn1
Vol Left, %	86%	44%
Vol Thru, %	0%	0%
Vol Right, %	14%	56%
Sign Control	Stop	Stop
Traffic Vol by Lane	394	273
LT Vol	338	121
Through Vol	0	0
RT Vol	56	152
Lane Flow Rate	428	297
Geometry Grp	1	1
Degree of Util (X)	0.564	0.391
Departure Headway (Hd)	4.74	4.748
Convergence, Y/N	Yes	Yes
Cap	758	757
Service Time	2.79	2.795
HCM Lane V/C Ratio	0.565	0.392
HCM Control Delay	13.8	10.8
HCM Lane LOS	B	B
HCM 95th-tile Q	3.6	1.9

MOVEMENT SUMMARY

Site: 101 [2048 AM Build (Site Folder: Eastmost Monsanto Intersection)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Monsanto														
1a	L1	9	3.0	10	3.0	0.023	3.5	LOS A	0.0	0.0	0.00	0.11	0.00	27.4
6	T1	30	3.0	33	3.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	28.7
Approach		39	3.0	42	3.0	0.023	0.8	NA	0.0	0.0	0.00	0.11	0.00	28.4
West: Monsanto														
2	T1	50	3.0	54	3.0	0.059	7.3	LOS A	0.2	5.3	0.10	1.03	0.10	20.7
Approach		50	3.0	54	3.0	0.059	7.3	LOS A	0.2	5.3	0.10	1.03	0.10	20.7
SouthWest: NB Ramp														
12ax	R1	42	3.0	46	3.0	0.046	7.2	LOS A	0.2	4.9	0.18	0.90	0.18	20.6
Approach		42	3.0	46	3.0	0.046	7.2	LOS A	0.2	4.9	0.18	0.90	0.18	20.6
All Vehicles		131	3.0	142	3.0	0.059	5.4	NA	0.2	5.3	0.10	0.71	0.10	22.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Minor Road Approach LOS values are based on average delay for all movements (v/c not used).
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1389	277	229	1972	106	170
Future Volume (vph)	1389	277	229	1972	106	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		450	450		0	0
Storage Lanes		1	2		1	2
Taper Length (ft)			100		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	0.88
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	1770	2787
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	1770	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		89				62
Link Speed (mph)	40			40	40	
Link Distance (ft)	783			1095	517	
Travel Time (s)	13.3			18.7	8.8	
Peak Hour Factor	0.94	0.94	0.96	0.96	0.93	0.93
Adj. Flow (vph)	1478	295	239	2054	114	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1478	295	239	2054	114	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			32	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	pm+ov	Prot	NA	Prot	pt+ov
Protected Phases	6	4	5	2	4	4 5
Permitted Phases		6				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	4	5	2	4	4 5
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	38.4	44.2	14.5	56.5	44.2	
Total Split (s)	82.0	24.0	24.0	106.0	24.0	
Total Split (%)	63.1%	18.5%	18.5%	81.5%	18.5%	
Maximum Green (s)	75.6	15.8	16.5	99.5	15.8	
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0	
All-Red Time (s)	2.1	4.2	3.5	2.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	8.2	7.5	6.5	8.2	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	None	C-Max	None	
Walk Time (s)	8.0	10.0			10.0	
Flash Dont Walk (s)	24.0	26.0			26.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	80.9	100.3	14.0	102.3	13.0	34.5
Actuated g/C Ratio	0.62	0.77	0.11	0.79	0.10	0.27
v/c Ratio	0.67	0.24	0.65	0.74	0.64	0.23
Control Delay	16.5	2.5	60.8	11.3	72.5	24.0
Queue Delay	0.1	0.0	0.0	0.1	0.0	0.0
Total Delay	16.6	2.5	60.8	11.3	72.5	24.0
LOS	B	A	E	B	E	C
Approach Delay	14.2			16.5	42.6	
Approach LOS	B			B	D	
Queue Length 50th (ft)	271	22	98	414	93	44
Queue Length 95th (ft)	368	m18	m135	436	155	75
Internal Link Dist (ft)	703			1015	437	
Turn Bay Length (ft)		450	450			
Base Capacity (vph)	2201	1273	435	2783	215	758
Starvation Cap Reductn	98	0	0	73	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.23	0.55	0.76	0.53	0.24

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: SB Lindbergh & Olive

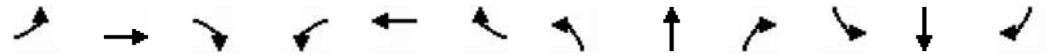
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1344	214	14	1914	288	233
Future Volume (vph)	1344	214	14	1914	288	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	350		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			80		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	3433	3539	3433	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3539	1583	3433	3539	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		225				215
Link Speed (mph)	40			40	40	
Link Distance (ft)	1095			928	634	
Travel Time (s)	18.7			15.8	10.8	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.96	0.96
Adj. Flow (vph)	1415	225	15	2080	300	243
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1415	225	15	2080	300	243
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	32			32	32	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		60	60		60	60
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6				4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	10.0	7.0	7.0
Minimum Split (s)	32.0	32.0	13.9	59.1	37.9	37.9
Total Split (s)	85.0	85.0	22.0	107.0	23.0	23.0
Total Split (%)	65.4%	65.4%	16.9%	82.3%	17.7%	17.7%
Maximum Green (s)	79.0	79.0	15.1	100.9	16.1	16.1
Yellow Time (s)	4.3	4.3	4.0	4.3	4.0	4.0
All-Red Time (s)	1.7	1.7	2.9	1.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.1	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	96.5	96.5	7.0	101.9	15.1	15.1
Actuated g/C Ratio	0.74	0.74	0.05	0.78	0.12	0.12
v/c Ratio	0.54	0.18	0.08	0.75	0.76	0.65
Control Delay	6.4	1.1	47.9	13.0	68.3	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	1.1	47.9	13.1	68.3	18.8
LOS	A	A	D	B	E	B
Approach Delay	5.7			13.3	46.1	
Approach LOS	A			B	D	
Queue Length 50th (ft)	124	5	6	482	126	21
Queue Length 95th (ft)	164	12	m9	613	177	108
Internal Link Dist (ft)	1015			848	554	
Turn Bay Length (ft)		250	350			
Base Capacity (vph)	2626	1232	398	2774	425	384
Starvation Cap Reductn	0	0	0	40	0	0
Spillback Cap Reductn	0	0	0	10	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.18	0.04	0.76	0.71	0.63

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 72.0%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: NB Lindbergh & Olive



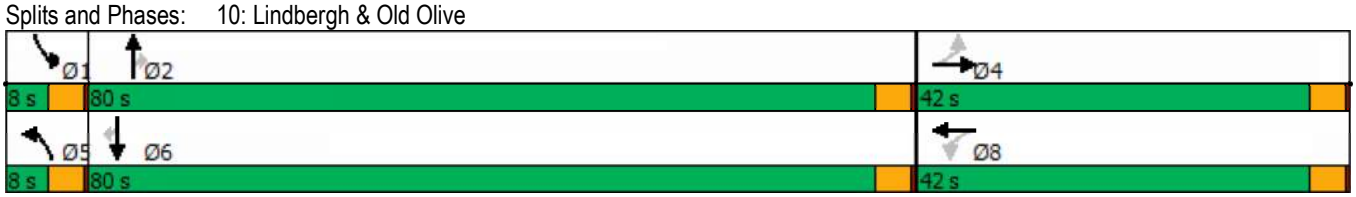
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	114	40	15	450	30	1418	23	5	1790	285
Future Volume (vph)	15	10	114	40	15	450	30	1418	23	5	1790	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	200		200	200		300
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.862			0.855				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1606	0	1770	1593	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.109			0.605			0.950			0.950		
Satd. Flow (perm)	203	1606	0	1127	1593	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65			84				42			262
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			490			3486			497	
Travel Time (s)		11.6			11.1			79.2			11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	11	124	43	16	489	33	1541	25	5	1946	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	135	0	43	505	0	33	1541	25	5	1946	310
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60		60	60		60	60		60	60		60
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	42.0	42.0		42.0	42.0		8.0	80.0	80.0	8.0	80.0	80.0
Total Split (%)	32.3%	32.3%		32.3%	32.3%		6.2%	61.5%	61.5%	6.2%	61.5%	61.5%
Maximum Green (s)	38.0	38.0		38.0	38.0		4.0	76.0	76.0	4.0	76.0	76.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	36.8	36.8		36.8	36.8		4.0	80.9	80.9	4.0	76.2	76.2
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.03	0.64	0.64	0.03	0.60	0.60
v/c Ratio	0.28	0.26		0.13	0.97		0.60	0.69	0.02	0.09	0.92	0.29
Control Delay	49.9	20.0		35.3	70.4		102.0	17.6	1.5	64.8	32.0	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	20.0		35.3	70.4		102.0	17.6	1.5	64.8	32.0	3.2
LOS	D	B		D	E		F	B	A	E	C	A
Approach Delay		23.1			67.6			19.1			28.2	
Approach LOS		C			E			B			C	
Queue Length 50th (ft)	10	44		27	363		28	398	0	4	759	17
Queue Length 95th (ft)	36	98		58	#593		#84	570	6	19	#930	57
Internal Link Dist (ft)		430			410			3406			417	
Turn Bay Length (ft)	200			200			200		200	200		300
Base Capacity (vph)	60	526		337	535		55	2248	1020	55	2117	1052
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.26		0.13	0.94		0.60	0.69	0.02	0.09	0.92	0.29

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 127.3			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 29.5		Intersection LOS: C	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Lindbergh & Old Olive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	31	1547	1766	314	130	162
Future Volume (vph)	31	1547	1766	314	130	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.076				0.950	
Satd. Flow (perm)	142	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				300		98
Link Speed (mph)		40	40		30	
Link Distance (ft)		928	392		695	
Travel Time (s)		15.8	6.7		15.8	
Peak Hour Factor	0.96	0.96	0.97	0.97	0.82	0.82
Adj. Flow (vph)	32	1611	1821	324	159	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	1611	1821	324	159	198
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		16	16		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	D.P+P	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	2			2		3

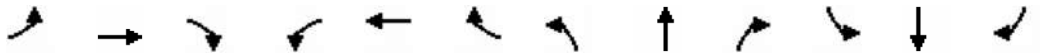
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	3
Switch Phase						
Minimum Initial (s)	6.0	12.0	12.0	12.0	7.0	7.0
Minimum Split (s)	11.8	17.7	32.7	32.7	12.4	12.4
Total Split (s)	12.0	103.0	91.0	91.0	27.0	27.0
Total Split (%)	9.2%	79.2%	70.0%	70.0%	20.8%	20.8%
Maximum Green (s)	6.2	97.3	85.4	85.4	21.6	21.6
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.8	1.7	1.6	1.6	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.7	5.6	5.6	5.4	5.4
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)			7.0	7.0		
Flash Dont Walk (s)			20.0	20.0		
Pedestrian Calls (#/hr)			0	0		
Act Effct Green (s)	98.7	102.3	95.2	95.2	16.6	16.6
Actuated g/C Ratio	0.76	0.79	0.73	0.73	0.13	0.13
v/c Ratio	0.17	0.58	0.70	0.26	0.70	0.69
Control Delay	10.0	8.3	13.2	1.7	70.4	39.1
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	10.0	8.7	13.2	1.7	70.4	39.1
LOS	A	A	B	A	E	D
Approach Delay		8.8	11.5		53.1	
Approach LOS		A	B		D	
Queue Length 50th (ft)	3	311	464	6	130	80
Queue Length 95th (ft)	m11	556	627	39	179	135
Internal Link Dist (ft)		848	312		615	
Turn Bay Length (ft)	220					
Base Capacity (vph)	185	2784	2590	1239	294	344
Starvation Cap Reductn	0	575	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.73	0.70	0.26	0.54	0.58

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 58 (45%), Referenced to phase 2:EBWB and 6:EBT, Start of 1st Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Olive & Old Olive St E

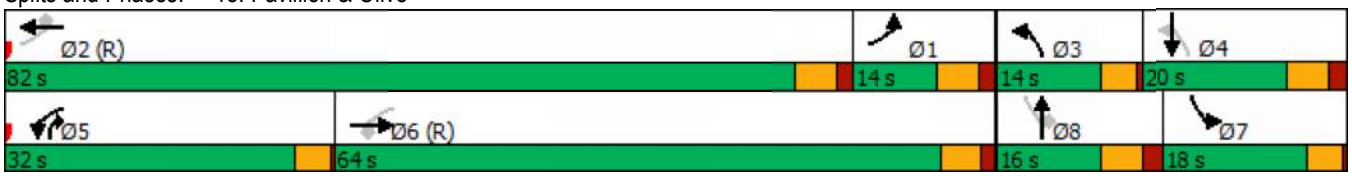
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	1255	125	319	1509	250	114	15	290	121	15	48
Future Volume (vph)	56	1255	125	319	1509	250	114	15	290	121	15	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1649	0
Flt Permitted	0.073			0.077			0.702			0.747		
Satd. Flow (perm)	136	3539	1583	143	3539	1583	1308	1863	1583	1391	1649	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			199			121		65	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	60	1349	134	343	1623	269	124	16	315	164	20	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1349	134	343	1623	269	124	16	315	164	85	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

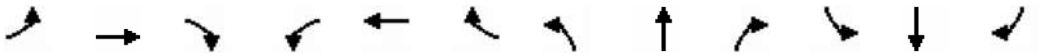


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	14.0	64.0	64.0	32.0	82.0	82.0	14.0	16.0	32.0	18.0	20.0	
Total Split (%)	10.8%	49.2%	49.2%	24.6%	63.1%	63.1%	10.8%	12.3%	24.6%	13.8%	15.4%	
Maximum Green (s)	8.2	58.5	58.5	28.0	76.4	76.4	10.0	10.0	28.0	14.0	14.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None	Max	
Act Effct Green (s)	85.9	62.3	62.3	88.3	79.5	79.5	25.7	10.0	36.5	25.7	14.0	
Actuated g/C Ratio	0.66	0.48	0.48	0.68	0.61	0.61	0.20	0.08	0.28	0.20	0.11	
v/c Ratio	0.32	0.80	0.16	0.85	0.75	0.26	0.42	0.11	0.59	0.52	0.36	
Control Delay	14.5	20.9	2.1	50.9	11.2	0.8	46.8	57.9	21.2	51.4	22.9	
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	14.5	20.9	2.1	50.9	11.6	0.8	46.8	57.9	21.2	51.4	22.9	
LOS	B	C	A	D	B	A	D	E	C	D	C	
Approach Delay		19.0			16.3			29.5			41.6	
Approach LOS		B			B			C			D	
Queue Length 50th (ft)	11	307	0	180	380	2	87	13	101	118	15	
Queue Length 95th (ft)	m20	524	m13	#321	311	m0	146	37	170	151	45	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	193	1696	823	449	2165	1045	297	143	570	319	235	
Starvation Cap Reductn	0	0	0	0	135	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.31	0.80	0.16	0.76	0.80	0.26	0.42	0.11	0.55	0.51	0.36	

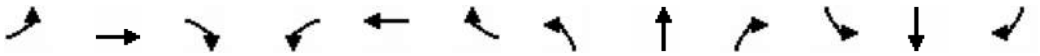
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 11 (8%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 20.0		Intersection LOS: B	
Intersection Capacity Utilization 78.7%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	1277	73	54	1499	119	69	56	60	98	46	424
Future Volume (vph)	322	1277	73	54	1499	119	69	56	60	98	46	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.923			0.865	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1719	0	1770	1611	0
Flt Permitted	0.067			0.124			0.175			0.617		
Satd. Flow (perm)	125	3539	1583	231	3539	1583	326	1719	0	1149	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			85		35			293	
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	339	1344	77	62	1723	137	73	59	63	107	50	461
Shared Lane Traffic (%)												
Lane Group Flow (vph)	339	1344	77	62	1723	137	73	122	0	107	511	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases	2		6	6		2	4			8		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	
Total Split (s)	26.0	79.9	8.0	13.1	67.0	11.0	8.0	26.0		11.0	29.0	
Total Split (%)	20.0%	61.5%	6.2%	10.1%	51.5%	8.5%	6.2%	20.0%		8.5%	22.3%	
Maximum Green (s)	19.9	73.7	4.0	7.0	60.7	7.0	4.0	19.8		7.0	22.9	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	
Recall Mode	Max	C-Max	None	None	C-Max	None	None	Max		None	Max	
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	80.8	76.3	86.5	82.0	60.7	70.0	29.0	19.8		29.0	22.9	
Actuated g/C Ratio	0.62	0.59	0.67	0.63	0.47	0.54	0.22	0.15		0.22	0.18	
v/c Ratio	1.03	0.65	0.07	0.27	1.04	0.15	0.62	0.42		0.37	0.97	
Control Delay	72.5	5.5	0.1	5.0	53.8	2.8	63.8	40.2		43.4	56.1	
Queue Delay	0.0	0.7	0.0	0.0	5.4	0.0	0.0	0.0		0.0	0.3	
Total Delay	72.5	6.2	0.1	5.0	59.2	2.8	63.8	40.2		43.4	56.4	
LOS	E	A	A	A	E	A	E	D		D	E	
Approach Delay		18.7			53.5			49.0			54.2	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	~254	70	1	6	~806	7	48	66		72	206	
Queue Length 95th (ft)	m#320	m98	m0	m10	#893	m29	#104	130		124	#439	
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						
Base Capacity (vph)	329	2077	1079	228	1652	891	117	291		289	525	
Starvation Cap Reductn	0	375	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	22	0	0	0		0	1	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.03	0.79	0.07	0.27	1.06	0.15	0.62	0.42		0.37	0.98	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 12 (9%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 39.8	Intersection LOS: D
Intersection Capacity Utilization 110.5%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.

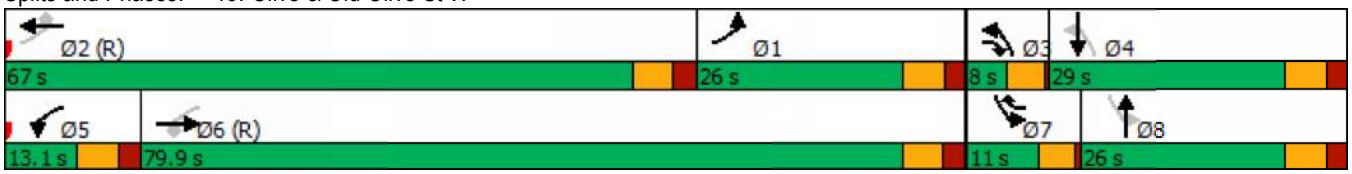
Queue shown is maximum after two cycles.

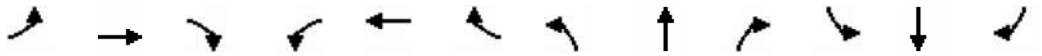
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

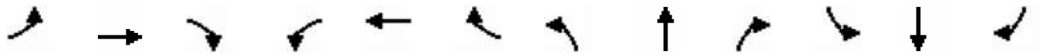
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	1516	122	117	1852	22	107	8	137	19	7	2
Future Volume (vph)	6	1516	122	117	1852	22	107	8	137	19	7	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	150		0	0		70	0		0
Storage Lanes	1		0	0		1	0		1	1		0
Taper Length (ft)	230			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989				0.850			0.850		0.965	
Flt Protected	0.950			0.950				0.956		0.950		
Satd. Flow (prot)	1770	3500	0	1770	3539	1583	0	1763	1568	1770	1798	0
Flt Permitted	0.052			0.055				0.732		0.625		
Satd. Flow (perm)	97	3500	0	102	3539	1583	0	1350	1568	1164	1798	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				81			81		3	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		581			455			494			341	
Travel Time (s)		11.3			8.9			11.2			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.81	0.81	0.81	0.72	0.72	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	7	1648	133	119	1890	22	132	10	169	26	10	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	1781	0	119	1890	22	0	142	169	26	13	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			16			0			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA		D.P+P	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			8	5		4	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		2	8		8	4		
Detector Phase	1	6		5	2	2	8	8	5	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.3	36.2		13.0	30.3	30.3	38.3	38.3	13.0	13.3	13.3	
Total Split (s)	13.0	79.0		12.0	78.0	78.0	39.0	39.0	12.0	39.0	39.0	
Total Split (%)	10.0%	60.8%		9.2%	60.0%	60.0%	30.0%	30.0%	9.2%	30.0%	30.0%	
Maximum Green (s)	6.7	72.8		6.0	71.7	71.7	32.7	32.7	6.0	32.7	32.7	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.3	2.2		2.0	2.3	2.3	2.3	2.3	2.0	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.2		6.0	6.3	6.3		6.3	6.0	6.3	6.3	
Lead/Lag	Lag	Lag		Lead	Lead	Lead			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	2.5	4.5		2.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max	C-Max	Max	Max	None	Max	Max	
Walk Time (s)		7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)		23.0			17.0	17.0	25.0	25.0				
Pedestrian Calls (#/hr)		0			0	0	0	0				
Act Effct Green (s)	83.4	72.8		79.0	82.1	82.1		32.7	45.0	32.7	32.7	
Actuated g/C Ratio	0.64	0.56		0.61	0.63	0.63		0.25	0.35	0.25	0.25	
v/c Ratio	0.05	0.91		0.86	0.85	0.02		0.42	0.28	0.09	0.03	
Control Delay	10.5	33.5		44.6	5.4	0.0		45.2	17.1	38.4	31.2	
Queue Delay	0.0	0.0		0.0	7.8	0.0		0.0	0.0	0.0	0.0	
Total Delay	10.5	33.5		44.6	13.2	0.0		45.2	17.1	38.4	31.2	
LOS	B	C		D	B	A		D	B	D	C	
Approach Delay		33.4			14.9			29.9			36.0	
Approach LOS		C			B			C			D	
Queue Length 50th (ft)	2	674		52	148	0		101	51	17	6	
Queue Length 95th (ft)	8	802		m50	m167	m0		147	91	33	19	
Internal Link Dist (ft)		501			375			414			261	
Turn Bay Length (ft)	70			150					70			
Base Capacity (vph)	148	1964		138	2234	1029		339	595	292	454	
Starvation Cap Reductn	0	0		0	324	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.05	0.91		0.86	0.99	0.02		0.42	0.28	0.09	0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 9 (7%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 85.8%		ICU Level of Service E	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Spoede & Olive

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	159	0	26	161	0
Future Vol, veh/h	31	159	0	26	161	0
Peak Hour Factor	0.58	0.92	0.92	0.92	0.53	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	173	0	28	304	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.8	8.2	10.8
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	16%	100%
Vol Right, %	0%	84%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	161	190	26
LT Vol	161	0	0
Through Vol	0	31	26
RT Vol	0	159	0
Lane Flow Rate	304	226	28
Geometry Grp	1	1	1
Degree of Util (X)	0.396	0.266	0.039
Departure Headway (Hd)	4.691	4.226	4.946
Convergence, Y/N	Yes	Yes	Yes
Cap	766	851	723
Service Time	2.724	2.248	2.982
HCM Lane V/C Ratio	0.397	0.266	0.039
HCM Control Delay	10.8	8.8	8.2
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.9	1.1	0.1

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	171	153	49	140	0
Future Vol, veh/h	16	171	153	49	140	0
Peak Hour Factor	0.92	0.78	0.92	0.58	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	219	166	84	152	0
Number of Lanes	1	0	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.1	9	9.5
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1
Vol Left, %	0%	0%	9%	100%
Vol Thru, %	100%	0%	0%	0%
Vol Right, %	0%	100%	91%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	49	187	140
LT Vol	0	0	16	140
Through Vol	153	0	0	0
RT Vol	0	49	171	0
Lane Flow Rate	166	84	237	152
Geometry Grp	7	7	2	5
Degree of Util (X)	0.241	0.106	0.286	0.214
Departure Headway (Hd)	5.212	4.507	4.354	5.057
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	687	792	823	708
Service Time	2.961	2.256	2.388	3.109
HCM Lane V/C Ratio	0.242	0.106	0.288	0.215
HCM Control Delay	9.6	7.8	9.1	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.4	1.2	0.8

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	156	46	0	0	16
Future Vol, veh/h	35	156	46	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	58	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	269	50	0	0	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	67	-	0	-	-	-
Stage 1	50	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	938	0	-	0	0	-
Stage 1	972	0	-	0	0	-
Stage 2	1006	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	938	-	-	-	-	-
Mov Cap-2 Maneuver	938	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	938	-	-
HCM Lane V/C Ratio	-	0.041	-	-
HCM Control Delay (s)	-	9	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	NBL	NBR	SEL	SER	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	283	42	118	140	0	0
Future Vol, veh/h	283	42	118	140	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	308	46	128	152	0	0
Number of Lanes	0	1	1	0	0	0

Approach	NB	SE
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SE	
Conflicting Lanes Left	1	0
Conflicting Approach Right		NB
Conflicting Lanes Right	0	1
HCM Control Delay	11.7	10.1
HCM LOS	B	B

Lane	NBLn1	SELn1
Vol Left, %	87%	46%
Vol Thru, %	0%	0%
Vol Right, %	13%	54%
Sign Control	Stop	Stop
Traffic Vol by Lane	325	258
LT Vol	283	118
Through Vol	0	0
RT Vol	42	140
Lane Flow Rate	353	280
Geometry Grp	1	1
Degree of Util (X)	0.46	0.356
Departure Headway (Hd)	4.692	4.571
Convergence, Y/N	Yes	Yes
Cap	767	785
Service Time	2.731	2.602
HCM Lane V/C Ratio	0.46	0.357
HCM Control Delay	11.7	10.1
HCM Lane LOS	B	B
HCM 95th-tile Q	2.4	1.6

MOVEMENT SUMMARY

Site: 101 [2048 PM Build (Site Folder: Eastmost Monsanto Intersection)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Monsanto														
1a	L1	20	3.0	22	3.0	0.028	3.5	LOS A	0.0	0.0	0.00	0.21	0.00	26.4
6	T1	26	3.0	28	3.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	27.6
Approach		46	3.0	50	3.0	0.028	1.5	NA	0.0	0.0	0.00	0.21	0.00	27.1
West: Monsanto														
2	T1	31	3.0	34	3.0	0.037	7.4	LOS A	0.1	3.2	0.12	1.02	0.12	20.7
Approach		31	3.0	34	3.0	0.037	7.4	LOS A	0.1	3.2	0.12	1.02	0.12	20.7
SouthWest: NB Ramp														
12ax	R1	10	3.0	11	3.0	0.011	7.1	LOS A	0.0	1.1	0.13	0.91	0.13	20.6
Approach		10	3.0	11	3.0	0.011	7.1	LOS A	0.0	1.1	0.13	0.91	0.13	20.6
All Vehicles		87	3.0	95	3.0	0.037	4.3	NA	0.1	3.2	0.06	0.58	0.06	23.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Minor Road Approach LOS values are based on average delay for all movements (v/c not used).
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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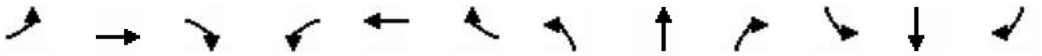
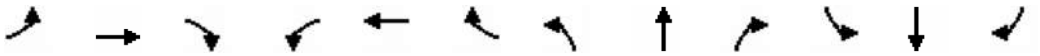


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	1318	78	20	1059	51	62	27	22	106	35	311
Future Volume (vph)	158	1318	78	20	1059	51	62	27	22	106	35	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.933				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1453	0	1770	1863	1583
Flt Permitted	0.181			0.110			0.734			0.719		
Satd. Flow (perm)	337	3539	1583	205	3539	1583	1143	1453	0	1339	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			60		25				317
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	174	1448	86	21	1103	53	74	32	26	108	36	317
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1448	86	21	1103	53	74	58	0	108	36	317
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	



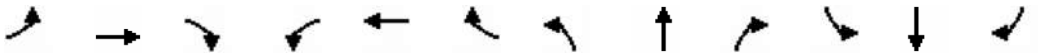
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	4			8		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	24.0	81.0	16.0	11.0	68.0	18.0	16.0	20.0		18.0	22.0	22.0
Total Split (%)	18.5%	62.3%	12.3%	8.5%	52.3%	13.8%	12.3%	15.4%		13.8%	16.9%	16.9%
Maximum Green (s)	17.9	74.8	12.0	4.9	61.7	14.0	12.0	13.8		14.0	15.9	15.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	81.8	81.2	95.0	84.2	71.5	85.9	28.0	13.8		28.0	15.9	15.9
Actuated g/C Ratio	0.63	0.62	0.73	0.65	0.55	0.66	0.22	0.11		0.22	0.12	0.12
v/c Ratio	0.54	0.66	0.07	0.11	0.57	0.05	0.27	0.33		0.33	0.16	0.67
Control Delay	17.1	11.0	0.3	4.7	16.2	3.1	41.2	39.2		42.9	53.1	13.3
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	17.1	11.3	0.3	4.7	16.2	3.1	41.2	39.2		42.9	53.1	13.3
LOS	B	B	A	A	B	A	D	D		D	D	B
Approach Delay		11.3			15.4			40.3			23.3	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	24	227	0	2	245	4	49	26		73	28	0
Queue Length 95th (ft)	66	183	m3	m5	377	m25	85	64		124	62	92
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						200
Base Capacity (vph)	423	2210	1200	191	1947	1088	292	176		355	227	471
Starvation Cap Reductn	0	225	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.41	0.73	0.07	0.11	0.57	0.05	0.25	0.33		0.30	0.16	0.67

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 118 (91%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	1158	72	48	1357	108	67	52	55	89	43	383
Future Volume (vph)	292	1158	72	48	1357	108	67	52	55	89	43	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.923				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1719	0	1770	1863	1583
Flt Permitted	0.067			0.156			0.726			0.643		
Satd. Flow (perm)	125	3539	1583	291	3539	1583	1352	1719	0	1198	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			85		34				317
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	307	1219	76	55	1560	124	71	55	58	97	47	416
Shared Lane Traffic (%)												
Lane Group Flow (vph)	307	1219	76	55	1560	124	71	113	0	97	47	416
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases	2		6	6		2	4			8		4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	26.0	79.9	8.0	13.1	67.0	11.0	8.0	26.0		11.0	29.0	29.0
Total Split (%)	20.0%	61.5%	6.2%	10.1%	51.5%	8.5%	6.2%	20.0%		8.5%	22.3%	22.3%
Maximum Green (s)	19.9	73.7	4.0	7.0	60.7	7.0	4.0	19.8		7.0	22.9	22.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	Max	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	80.8	76.3	86.5	82.0	60.7	70.0	29.0	19.8		29.0	22.9	22.9
Actuated g/C Ratio	0.62	0.59	0.67	0.63	0.47	0.54	0.22	0.15		0.22	0.18	0.18
v/c Ratio	0.93	0.59	0.07	0.21	0.94	0.14	0.23	0.39		0.33	0.14	0.77
Control Delay	54.3	5.0	0.2	3.8	29.3	2.2	40.8	38.8		42.2	46.7	23.3
Queue Delay	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	54.3	5.5	0.2	3.8	29.6	2.2	40.8	38.8		42.2	46.7	23.3
LOS	D	A	A	A	C	A	D	D		D	D	C
Approach Delay		14.6			26.9			39.6			28.5	
Approach LOS		B			C			D			C	
Queue Length 50th (ft)	207	62	1	5	208	1	47	60		65	34	76
Queue Length 95th (ft)	m#318	75	m0	m8	#551	m29	89	121		114	70	210
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						200
Base Capacity (vph)	329	2077	1079	263	1652	891	314	290		298	328	540
Starvation Cap Reductn	0	379	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	9	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.93	0.72	0.07	0.21	0.95	0.14	0.23	0.39		0.33	0.14	0.77

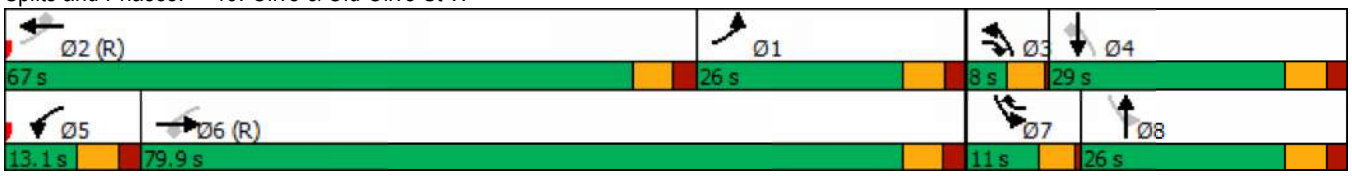
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 12 (9%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

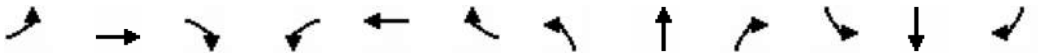
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

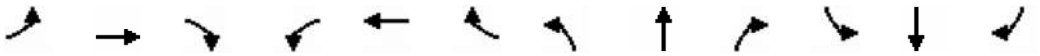
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	1447	78	22	1163	56	62	27	24	117	36	344
Future Volume (vph)	174	1447	78	22	1163	56	62	27	24	117	36	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1447	0	1770	1863	1583
Flt Permitted	0.143			0.081			0.733			0.717		
Satd. Flow (perm)	266	3539	1583	151	3539	1583	1142	1447	0	1336	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			60		28				346
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	191	1590	86	23	1211	58	74	32	29	119	37	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	1590	86	23	1211	58	74	61	0	119	37	351
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	



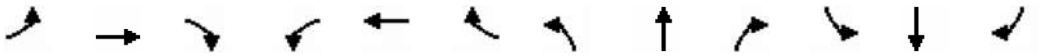
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	4			8		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	24.0	81.0	16.0	11.0	68.0	18.0	16.0	20.0		18.0	22.0	22.0
Total Split (%)	18.5%	62.3%	12.3%	8.5%	52.3%	13.8%	12.3%	15.4%		13.8%	16.9%	16.9%
Maximum Green (s)	17.9	74.8	12.0	4.9	61.7	14.0	12.0	13.8		14.0	15.9	15.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	81.8	81.2	95.0	84.2	69.7	84.0	28.0	13.8		28.0	15.9	15.9
Actuated g/C Ratio	0.63	0.62	0.73	0.65	0.54	0.65	0.22	0.11		0.22	0.12	0.12
v/c Ratio	0.63	0.72	0.07	0.15	0.64	0.06	0.27	0.34		0.36	0.16	0.71
Control Delay	27.6	10.9	0.3	5.9	18.6	3.6	41.2	38.1		43.8	53.2	14.2
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	27.6	11.3	0.3	5.9	18.6	3.6	41.2	38.1		43.8	53.2	14.2
LOS	C	B	A	A	B	A	D	D		D	D	B
Approach Delay		12.5			17.7			39.8			24.0	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	31	280	0	2	272	5	49	26		81	28	4
Queue Length 95th (ft)	m110	200	m2	m4	548	m30	85	65		135	64	103
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						200
Base Capacity (vph)	383	2210	1200	158	1897	1067	292	178		355	227	497
Starvation Cap Reductn	0	220	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.50	0.80	0.07	0.15	0.64	0.05	0.25	0.34		0.34	0.16	0.71

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 118 (91%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 74.3%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	1277	73	54	1499	119	69	56	60	98	46	424
Future Volume (vph)	322	1277	73	54	1499	119	69	56	60	98	46	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.923				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1719	0	1770	1863	1583
Flt Permitted	0.067			0.124			0.724			0.617		
Satd. Flow (perm)	125	3539	1583	231	3539	1583	1349	1719	0	1149	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			85		35				313
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	339	1344	77	62	1723	137	73	59	63	107	50	461
Shared Lane Traffic (%)												
Lane Group Flow (vph)	339	1344	77	62	1723	137	73	122	0	107	50	461
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases	2		6	6		2	4			8		4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	26.0	79.9	8.0	13.1	67.0	11.0	8.0	26.0		11.0	29.0	29.0
Total Split (%)	20.0%	61.5%	6.2%	10.1%	51.5%	8.5%	6.2%	20.0%		8.5%	22.3%	22.3%
Maximum Green (s)	19.9	73.7	4.0	7.0	60.7	7.0	4.0	19.8		7.0	22.9	22.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	Max	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	80.8	76.3	86.5	82.0	60.7	70.0	29.0	19.8		29.0	22.9	22.9
Actuated g/C Ratio	0.62	0.59	0.67	0.63	0.47	0.54	0.22	0.15		0.22	0.18	0.18
v/c Ratio	1.03	0.65	0.07	0.27	1.04	0.15	0.23	0.42		0.37	0.15	0.86
Control Delay	72.5	5.5	0.1	5.0	53.8	2.8	41.0	40.2		43.4	46.8	33.2
Queue Delay	0.0	0.7	0.0	0.0	5.2	0.0	0.0	0.0		0.0	0.0	0.1
Total Delay	72.5	6.2	0.1	5.0	59.0	2.8	41.0	40.2		43.4	46.8	33.3
LOS	E	A	A	A	E	A	D	D		D	D	C
Approach Delay		18.7			53.2			40.5			36.1	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	~254	70	1	6	~806	7	48	66		72	36	129
Queue Length 95th (ft)	m#320	m98	m0	m10	#893	m29	90	130		124	74	#318
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						200
Base Capacity (vph)	329	2077	1079	228	1652	891	313	291		289	328	536
Starvation Cap Reductn	0	375	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	21	0	0	0		0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.03	0.79	0.07	0.27	1.06	0.15	0.23	0.42		0.37	0.15	0.86

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 12 (9%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 36.8		Intersection LOS: D	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

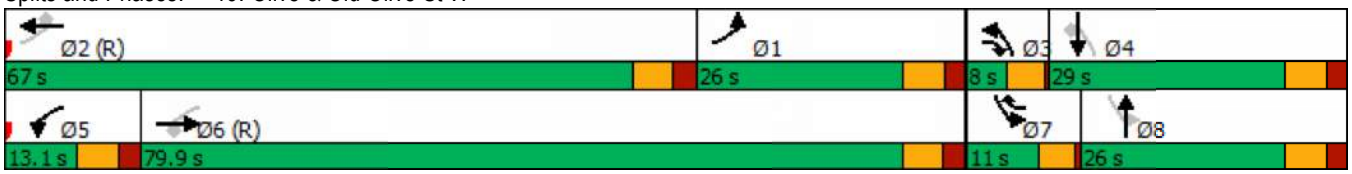
Queue shown is maximum after two cycles.

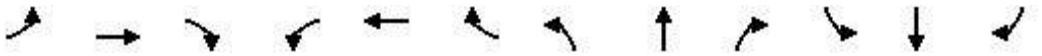
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



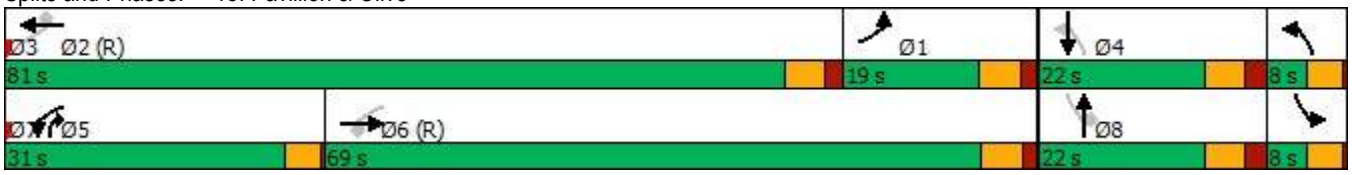


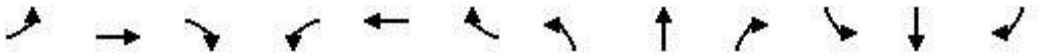
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1306	146	369	1012	104	118	24	298	56	30	7
Future Volume (vph)	14	1306	146	369	1012	104	118	24	298	56	30	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1812	0
Flt Permitted	0.227			0.060			0.728			0.740		
Satd. Flow (perm)	423	3539	1583	112	3539	1583	1356	1863	1583	1378	1812	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			109			104		7	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	16	1519	170	388	1065	109	128	26	324	67	36	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1519	170	388	1065	109	128	26	324	67	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	19.0	69.0	69.0	31.0	81.0	81.0	8.0	22.0	31.0	8.0	22.0	
Total Split (%)	14.6%	53.1%	53.1%	23.8%	62.3%	62.3%	6.2%	16.9%	23.8%	6.2%	16.9%	
Maximum Green (s)	13.2	63.5	63.5	27.0	75.4	75.4	4.0	16.0	27.0	4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	98.1	69.1	69.1	98.2	93.0	93.0	16.6	7.8	36.5	17.4	8.5	
Actuated g/C Ratio	0.75	0.53	0.53	0.76	0.72	0.72	0.13	0.06	0.28	0.13	0.07	
v/c Ratio	0.04	0.81	0.19	0.89	0.42	0.09	0.65	0.23	0.63	0.31	0.35	
Control Delay	3.9	17.4	0.8	60.6	6.8	1.9	66.3	63.0	28.9	50.9	57.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.9	17.4	0.8	60.6	6.8	1.9	66.3	63.0	28.9	50.9	57.9	
LOS	A	B	A	E	A	A	E	E	C	D	E	
Approach Delay		15.6			19.8			40.8			53.7	
Approach LOS		B			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 98 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 21.5		Intersection LOS: C	
Intersection Capacity Utilization 82.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 18: Pavillion & Olive



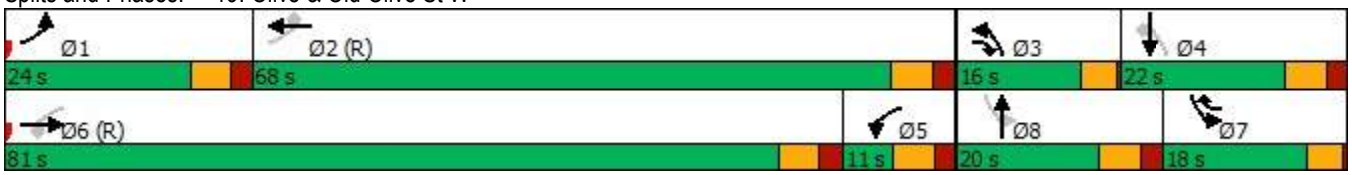


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	1318	78	20	1059	59	62	27	22	126	35	331
Future Volume (vph)	166	1318	78	20	1059	59	62	27	22	126	35	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.933				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1453	0	1770	1863	1583
Flt Permitted	0.180			0.110			0.734			0.719		
Satd. Flow (perm)	335	3539	1583	205	3539	1583	1143	1453	0	1339	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			61		25				338
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	182	1448	86	21	1103	61	74	32	26	129	36	338
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	1448	86	21	1103	61	74	58	0	129	36	338
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	4			8		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	24.0	81.0	16.0	11.0	68.0	18.0	16.0	20.0		18.0	22.0	22.0
Total Split (%)	18.5%	62.3%	12.3%	8.5%	52.3%	13.8%	12.3%	15.4%		13.8%	16.9%	16.9%
Maximum Green (s)	17.9	74.8	12.0	4.9	61.7	14.0	12.0	13.8		14.0	15.9	15.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	81.8	81.2	95.0	84.2	71.3	85.6	28.0	13.8		28.0	15.9	15.9
Actuated g/C Ratio	0.63	0.62	0.73	0.65	0.55	0.66	0.22	0.11		0.22	0.12	0.12
v/c Ratio	0.56	0.66	0.07	0.11	0.57	0.06	0.27	0.33		0.39	0.16	0.69
Control Delay	18.4	11.0	0.3	4.6	16.3	3.4	41.2	39.2		44.6	53.1	13.4
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	18.4	11.3	0.3	4.6	16.3	3.4	41.2	39.2		44.6	53.1	13.4
LOS	B	B	A	A	B	A	D	D		D	D	B
Approach Delay		11.5			15.5			40.3			24.2	
Approach LOS		B			B			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 118 (91%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 71.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 19: Olive & Old Olive St W

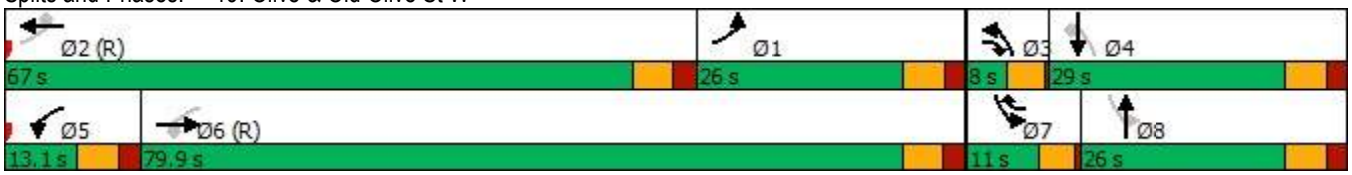


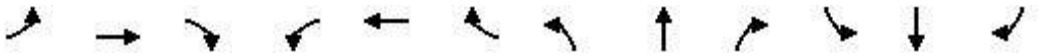
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	1158	72	48	1357	116	67	52	55	95	43	389
Future Volume (vph)	300	1158	72	48	1357	116	67	52	55	95	43	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.923				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1719	0	1770	1863	1583
Flt Permitted	0.067			0.156			0.726			0.643		
Satd. Flow (perm)	125	3539	1583	291	3539	1583	1352	1719	0	1198	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			91		34				317
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	316	1219	76	55	1560	133	71	55	58	103	47	423
Shared Lane Traffic (%)												
Lane Group Flow (vph)	316	1219	76	55	1560	133	71	113	0	103	47	423
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases	2		6	6		2	4			8		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	26.0	79.9	8.0	13.1	67.0	11.0	8.0	26.0		11.0	29.0	29.0
Total Split (%)	20.0%	61.5%	6.2%	10.1%	51.5%	8.5%	6.2%	20.0%		8.5%	22.3%	22.3%
Maximum Green (s)	19.9	73.7	4.0	7.0	60.7	7.0	4.0	19.8		7.0	22.9	22.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	Max	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	80.8	76.3	86.5	82.0	60.7	70.0	29.0	19.8		29.0	22.9	22.9
Actuated g/C Ratio	0.62	0.59	0.67	0.63	0.47	0.54	0.22	0.15		0.22	0.18	0.18
v/c Ratio	0.96	0.59	0.07	0.21	0.94	0.15	0.23	0.39		0.35	0.14	0.78
Control Delay	59.7	5.0	0.2	3.8	29.2	2.2	40.8	38.8		42.7	46.7	24.5
Queue Delay	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	59.7	5.5	0.2	3.8	29.6	2.2	40.8	38.8		42.7	46.7	24.5
LOS	E	A	A	A	C	A	D	D		D	D	C
Approach Delay		15.9			26.7			39.6			29.6	
Approach LOS		B			C			D			C	

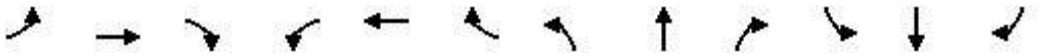
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 12 (9%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 23.4		Intersection LOS: C	
Intersection Capacity Utilization 81.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 19: Olive & Old Olive St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	1447	78	22	1163	64	62	27	24	137	36	364
Future Volume (vph)	186	1447	78	22	1163	64	62	27	24	137	36	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1480	1447	0	1770	1863	1583
Flt Permitted	0.141			0.081			0.733			0.717		
Satd. Flow (perm)	263	3539	1583	151	3539	1583	1142	1447	0	1336	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			67		28				346
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.84	0.84	0.84	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	22%	22%	22%	2%	2%	2%
Adj. Flow (vph)	204	1590	86	23	1211	67	74	32	29	140	37	371
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	1590	86	23	1211	67	74	61	0	140	37	371
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	

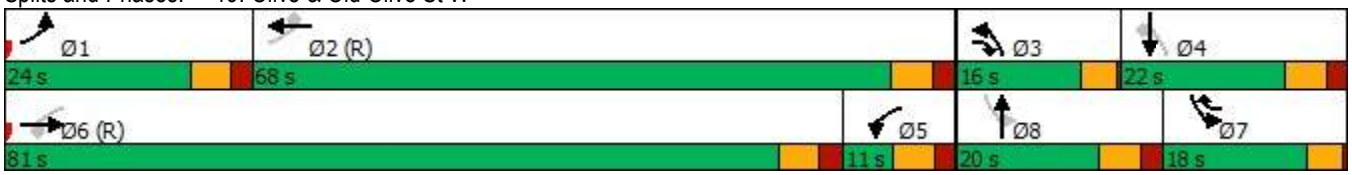


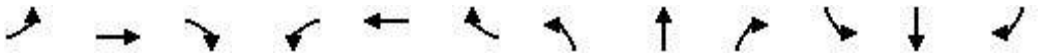
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6	6		2	4			8		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	24.0	81.0	16.0	11.0	68.0	18.0	16.0	20.0		18.0	22.0	22.0
Total Split (%)	18.5%	62.3%	12.3%	8.5%	52.3%	13.8%	12.3%	15.4%		13.8%	16.9%	16.9%
Maximum Green (s)	17.9	74.8	12.0	4.9	61.7	14.0	12.0	13.8		14.0	15.9	15.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	81.8	81.2	95.0	84.2	69.1	83.5	28.0	13.8		28.0	15.9	15.9
Actuated g/C Ratio	0.63	0.62	0.73	0.65	0.53	0.64	0.22	0.11		0.22	0.12	0.12
v/c Ratio	0.66	0.72	0.07	0.15	0.64	0.06	0.27	0.34		0.43	0.16	0.75
Control Delay	30.7	10.9	0.3	5.9	18.9	3.8	41.2	38.1		45.6	53.2	17.5
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.7	11.4	0.3	5.9	18.9	3.8	41.2	38.1		45.6	53.2	17.5
LOS	C	B	A	A	B	A	D	D		D	D	B
Approach Delay		13.0			17.9			39.8			27.1	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	43	281	0	2	273	6	49	26		97	28	19
Queue Length 95th (ft)	m127	202	m2	m4	548	m33	85	65		155	64	129
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						200
Base Capacity (vph)	381	2210	1200	158	1882	1063	292	178		355	227	497
Starvation Cap Reductn	0	223	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.54	0.80	0.07	0.15	0.64	0.06	0.25	0.34		0.39	0.16	0.75

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 118 (91%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 75.4%		ICU Level of Service D	
Analysis Period (min) 15			

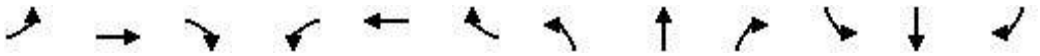
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	1277	73	54	1499	127	69	56	60	104	46	430
Future Volume (vph)	330	1277	73	54	1499	127	69	56	60	104	46	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		130	150		210	0		0	0		200
Storage Lanes	0		1	1		1	1		0	1		1
Taper Length (ft)	25			100			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.923				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1719	0	1770	1863	1583
Flt Permitted	0.067			0.124			0.724			0.617		
Satd. Flow (perm)	125	3539	1583	231	3539	1583	1349	1719	0	1149	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			91		35				313
Link Speed (mph)		35			40			30			30	
Link Distance (ft)		455			1052			211			409	
Travel Time (s)		8.9			17.9			4.8			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	347	1344	77	62	1723	146	73	59	63	113	50	467
Shared Lane Traffic (%)												
Lane Group Flow (vph)	347	1344	77	62	1723	146	73	122	0	113	50	467
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases	2		6	6		2	4			8		4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	4.0	7.0	10.0	4.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	13.1	16.2	8.0	13.1	30.3	8.0	8.0	13.2		8.0	13.1	13.1
Total Split (s)	26.0	79.9	8.0	13.1	67.0	11.0	8.0	26.0		11.0	29.0	29.0
Total Split (%)	20.0%	61.5%	6.2%	10.1%	51.5%	8.5%	6.2%	20.0%		8.5%	22.3%	22.3%
Maximum Green (s)	19.9	73.7	4.0	7.0	60.7	7.0	4.0	19.8		7.0	22.9	22.9
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	2.1	2.2	0.5	2.1	2.3	0.5	0.5	2.2		0.5	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	4.0	6.1	6.3	4.0	4.0	6.2		4.0	6.1	6.1
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.5	4.5	3.0	2.5	4.5	3.0	3.0	2.5		3.0	2.5	2.5
Recall Mode	Max	C-Max	None	None	C-Max	None	None	Max		None	Max	Max
Walk Time (s)					7.0							
Flash Dont Walk (s)					17.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	80.8	76.3	86.5	82.0	60.7	70.0	29.0	19.8		29.0	22.9	22.9
Actuated g/C Ratio	0.62	0.59	0.67	0.63	0.47	0.54	0.22	0.15		0.22	0.18	0.18
v/c Ratio	1.05	0.65	0.07	0.27	1.04	0.16	0.23	0.42		0.39	0.15	0.87
Control Delay	79.6	5.5	0.1	5.0	53.9	2.8	41.0	40.2		43.9	46.8	34.8
Queue Delay	0.0	0.7	0.0	0.0	5.2	0.0	0.0	0.0		0.0	0.0	0.1
Total Delay	79.6	6.2	0.1	5.0	59.1	2.8	41.0	40.2		43.9	46.8	34.9
LOS	E	A	A	A	E	A	D	D		D	D	C
Approach Delay		20.4			53.1			40.5			37.5	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	~268	70	1	6	~805	8	48	66		76	36	135
Queue Length 95th (ft)	m#337	m98	m0	m10	#893	m31	90	130		131	74	#330
Internal Link Dist (ft)		375			972			131			329	
Turn Bay Length (ft)	75		130	150		210						200
Base Capacity (vph)	329	2077	1079	228	1652	894	313	291		289	328	536
Starvation Cap Reductn	0	375	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	21	0	0	0		0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.79	0.07	0.27	1.06	0.16	0.23	0.42		0.39	0.15	0.87

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 12 (9%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 37.6		Intersection LOS: D	
Intersection Capacity Utilization 87.6%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

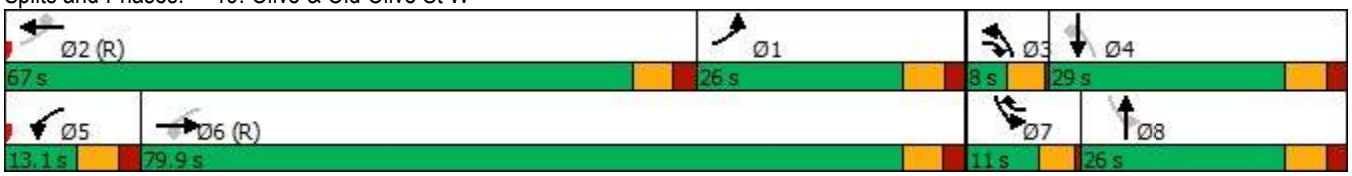
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

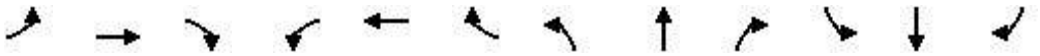
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Olive & Old Olive St W



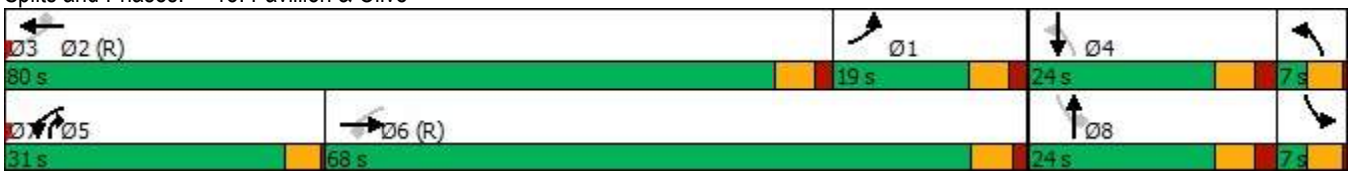
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1286	146	369	1004	104	118	24	298	56	30	7
Future Volume (vph)	14	1286	146	369	1004	104	118	24	298	56	30	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1812	0
Flt Permitted	0.229			0.060			0.728			0.740		
Satd. Flow (perm)	427	3539	1583	112	3539	1583	1356	1863	1583	1378	1812	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			109			104		7	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	16	1495	170	388	1057	109	128	26	324	67	36	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1495	170	388	1057	109	128	26	324	67	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

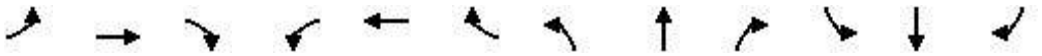


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	19.0	68.0	68.0	31.0	80.0	80.0	7.0	24.0	31.0	7.0	24.0	
Total Split (%)	14.6%	52.3%	52.3%	23.8%	61.5%	61.5%	5.4%	18.5%	23.8%	5.4%	18.5%	
Maximum Green (s)	13.2	62.5	62.5	27.0	74.4	74.4	3.0	18.0	27.0	3.0	18.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	97.9	68.7	68.7	98.0	92.8	92.8	16.8	7.8	36.7	17.6	8.5	
Actuated g/C Ratio	0.75	0.53	0.53	0.75	0.71	0.71	0.13	0.06	0.28	0.14	0.07	
v/c Ratio	0.04	0.80	0.19	0.88	0.42	0.09	0.64	0.23	0.62	0.31	0.35	
Control Delay	4.1	17.2	0.9	59.5	7.1	2.1	65.3	63.0	28.6	50.5	57.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.1	17.2	0.9	59.5	7.1	2.1	65.3	63.0	28.6	50.5	57.9	
LOS	A	B	A	E	A	A	E	E	C	D	E	
Approach Delay		15.4			19.8			40.3			53.4	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	2	201	1	277	5	0	99	21	123	50	30	
Queue Length 95th (ft)	m4	284	10	#469	308	20	155	52	201	83	63	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	457	1869	906	452	2527	1161	200	257	532	218	256	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.04	0.80	0.19	0.86	0.42	0.09	0.64	0.10	0.61	0.31	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 98 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 82.1%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive





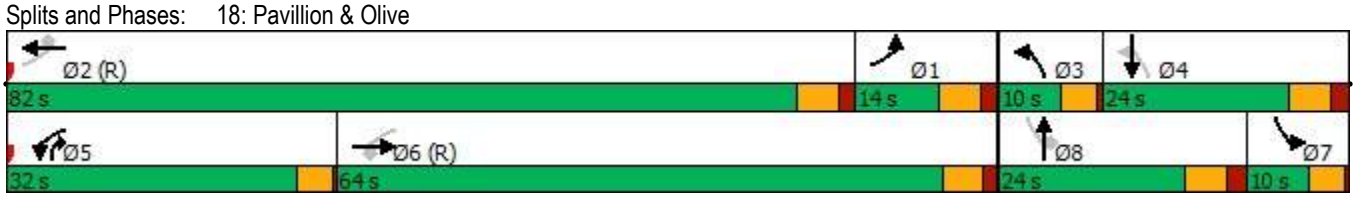
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1126	125	319	1356	227	114	15	290	109	15	43
Future Volume (vph)	50	1126	125	319	1356	227	114	15	290	109	15	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.888	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1654	0
Flt Permitted	0.104			0.118			0.706			0.747		
Satd. Flow (perm)	194	3539	1583	220	3539	1583	1315	1863	1583	1391	1654	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			201			121		58	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	54	1211	134	343	1458	244	124	16	315	147	20	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	1211	134	343	1458	244	124	16	315	147	78	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

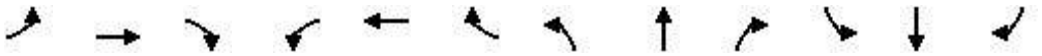
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	14.0	64.0	64.0	32.0	82.0	82.0	10.0	24.0	32.0	10.0	24.0	
Total Split (%)	10.8%	49.2%	49.2%	24.6%	63.1%	63.1%	7.7%	18.5%	24.6%	7.7%	18.5%	
Maximum Green (s)	8.2	58.5	58.5	28.0	76.4	76.4	6.0	18.0	28.0	6.0	18.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None	Max	
Act Effct Green (s)	85.6	63.3	63.3	88.0	79.2	79.2	26.0	18.0	43.2	26.0	18.0	
Actuated g/C Ratio	0.66	0.49	0.49	0.68	0.61	0.61	0.20	0.14	0.33	0.20	0.14	
v/c Ratio	0.24	0.70	0.16	0.81	0.68	0.23	0.44	0.06	0.52	0.50	0.28	
Control Delay	9.2	16.5	1.2	39.1	10.7	0.8	48.1	49.5	17.8	49.8	21.0	
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	9.2	16.5	1.2	39.1	10.8	0.8	48.1	49.5	17.8	49.8	21.0	
LOS	A	B	A	D	B	A	D	D	B	D	C	
Approach Delay		14.7			14.4			27.2			39.8	
Approach LOS		B			B			C			D	
Queue Length 50th (ft)	9	121	0	131	377	4	87	12	104	105	15	
Queue Length 95th (ft)	m20	393	13	253	184	0	146	35	170	136	43	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	227	1723	844	486	2155	1043	284	257	660	295	278	
Starvation Cap Reductn	0	0	0	0	143	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.70	0.16	0.71	0.72	0.23	0.44	0.06	0.48	0.50	0.28	

Intersection Summary

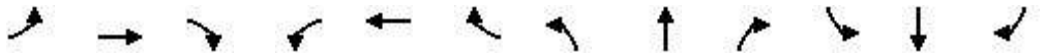
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 11 (8%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 17.3 Intersection LOS: B
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Pavillion & Olive





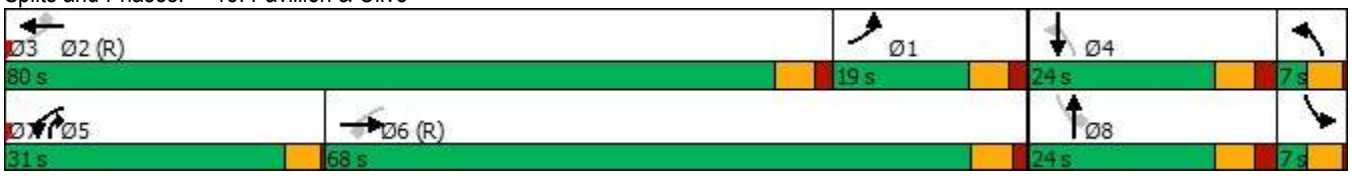
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1426	146	369	1115	115	118	24	298	61	30	8
Future Volume (vph)	16	1426	146	369	1115	115	118	24	298	61	30	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1801	0
Flt Permitted	0.195			0.060			0.727			0.740		
Satd. Flow (perm)	363	3539	1583	112	3539	1583	1354	1863	1583	1378	1801	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			135			119			104		9	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	19	1658	170	388	1174	121	128	26	324	73	36	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1658	170	388	1174	121	128	26	324	73	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		

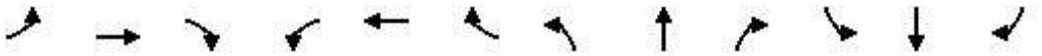


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	15.5	15.5	8.0	15.6	15.6	8.0	13.0	8.0	8.0	13.0	
Total Split (s)	19.0	68.0	68.0	31.0	80.0	80.0	7.0	24.0	31.0	7.0	24.0	
Total Split (%)	14.6%	52.3%	52.3%	23.8%	61.5%	61.5%	5.4%	18.5%	23.8%	5.4%	18.5%	
Maximum Green (s)	13.2	62.5	62.5	27.0	74.4	74.4	3.0	18.0	27.0	3.0	18.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	97.9	68.7	68.7	98.0	92.8	92.8	16.8	7.8	36.7	17.6	8.6	
Actuated g/C Ratio	0.75	0.53	0.53	0.75	0.71	0.71	0.13	0.06	0.28	0.14	0.07	
v/c Ratio	0.05	0.89	0.19	0.88	0.46	0.10	0.64	0.23	0.62	0.33	0.36	
Control Delay	4.8	22.1	1.9	58.3	8.9	3.0	65.3	63.0	28.6	51.2	56.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.8	22.1	1.9	58.3	8.9	3.0	65.3	63.0	28.6	51.2	56.4	
LOS	A	C	A	E	A	A	E	E	C	D	E	
Approach Delay		20.0			19.8			40.3			53.2	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	2	446	1	259	6	0	99	21	123	54	30	
Queue Length 95th (ft)	m6	#721	m21	#470	360	30	154	52	201	88	64	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	416	1869	899	452	2527	1164	200	257	532	218	257	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.05	0.89	0.19	0.86	0.46	0.10	0.64	0.10	0.61	0.33	0.18	

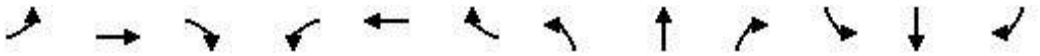
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 98 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 23.2		Intersection LOS: C	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 18: Pavillion & Olive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	1255	125	319	1509	250	114	15	290	121	15	48
Future Volume (vph)	56	1255	125	319	1509	250	114	15	290	121	15	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		300	500		210	0		0	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1649	0
Flt Permitted	0.069			0.071			0.702			0.747		
Satd. Flow (perm)	129	3539	1583	132	3539	1583	1308	1863	1583	1391	1649	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			195			121		65	
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1052			783			400			526	
Travel Time (s)		17.9			13.3			9.1			14.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	60	1349	134	343	1623	269	124	16	315	164	20	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1349	134	343	1623	269	124	16	315	164	85	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	2		6	6		2	4		8	8		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	4.0	10.0	10.0	4.0	7.0	4.0	4.0	7.0	
Minimum Split (s)	12.8	21.5	21.5	8.0	21.6	21.6	8.0	16.0	8.0	8.0	20.0	
Total Split (s)	14.0	63.0	63.0	32.0	81.0	81.0	11.0	24.0	32.0	11.0	24.0	
Total Split (%)	10.8%	48.5%	48.5%	24.6%	62.3%	62.3%	8.5%	18.5%	24.6%	8.5%	18.5%	
Maximum Green (s)	8.2	57.5	57.5	28.0	75.4	75.4	7.0	18.0	28.0	7.0	18.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	
All-Red Time (s)	1.8	1.5	1.5	0.5	1.6	1.6	0.5	2.0	0.5	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.5	5.5	4.0	5.6	5.6	4.0	6.0	4.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None	Max	
Walk Time (s)		5.0	5.0		5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	84.6	61.0	61.0	87.0	78.2	78.2	27.0	18.0	44.5	27.0	18.0	
Actuated g/C Ratio	0.65	0.47	0.47	0.67	0.60	0.60	0.21	0.14	0.34	0.21	0.14	
v/c Ratio	0.33	0.81	0.16	0.86	0.76	0.26	0.42	0.06	0.51	0.53	0.30	
Control Delay	16.2	22.5	1.6	54.2	12.1	0.9	46.4	49.5	16.9	50.1	20.0	
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.2	22.5	1.6	54.2	12.5	0.9	46.4	49.5	16.9	50.1	20.0	
LOS	B	C	A	D	B	A	D	D	B	D	C	
Approach Delay		20.4			17.5			26.1			39.8	
Approach LOS		C			B			C			D	
Queue Length 50th (ft)	12	328	1	188	389	2	86	12	99	117	15	
Queue Length 95th (ft)	m21	544	m12	#349	342	m0	144	35	167	149	44	
Internal Link Dist (ft)		972			703			320			446	
Turn Bay Length (ft)	190		300	500		210				150		
Base Capacity (vph)	187	1659	818	443	2128	1030	296	257	660	309	284	
Starvation Cap Reductn	0	0	0	0	127	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.81	0.16	0.77	0.81	0.26	0.42	0.06	0.48	0.53	0.30	

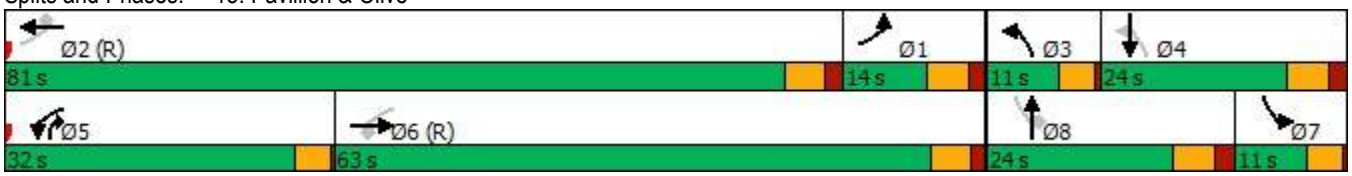
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 11 (8%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 78.7%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Pavillion & Olive



Appendix D

HCS Freeways Analysis Results

2022 AM Existing D-1
2022 PM Existing D-11
2028 AM No-Build D-21
2028 PM No-Build D-31
2048 AM No-Build D-41
2048 PM No-Build D-51
2028 AM Build D-61
2028 PM Build D-71
2048 AM Build D-81
2048 PM Build D-91

HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1609	79
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1801	88
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.47	0.05

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1801	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (NO), ln	0	Average Density (D), pc/mi/ln	20.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.6

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1197	8	0	333
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1340	9	0	373
Weaving Flow Rate (v_W), pc/h	382	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1340	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5546
Total Flow Rate (v), pc/h	1722	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		10497
Volume Ratio (VR)	0.222	Weaving Area Capacity (c_W), veh/h		5546
Minimum Lane Change Rate (LC_{MIN}), lc/h	382	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5546
Maximum Weaving Length (L_{MAX}), ft	4762	Demand-to-Capacity Ratio (v/c)		0.30

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	120	Average Weaving Speed (S_W), mi/h	40.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	183	Average Non-Weaving Speed (S_{NW}), mi/h	39.5
Weaving Lane Change Rate (LC_W), lc/h	531	Average Speed (S), mi/h	39.7
Weaving Lane Change Rate (LC_{All}), lc/h	714	Density (D), pc/mi/ln	14.5

Weaving Intensity Factor (W)	0.189	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1205	90
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1349	101
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.38	0.05

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1349	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1450	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	16.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.5

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	20.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1890	268
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2116	300
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.56	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2116	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	24.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.8

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1622	230
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1816	257
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.13

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1816	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2073	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.9

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	AM Peak HOur
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1829	37	0	23
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2047	41	0	26
Weaving Flow Rate (v_W), pc/h	67	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2047	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5843
Total Flow Rate (v), pc/h	2114	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		72825
Volume Ratio (VR)	0.032	Weaving Area Capacity (c_W), veh/h		5843
Minimum Lane Change Rate (LC_{MIN}), lc/h	67	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5843
Maximum Weaving Length (L_{MAX}), ft	2892	Demand-to-Capacity Ratio (v/c)		0.35

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	74	Average Weaving Speed (S_W), mi/h	41.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	39	Average Non-Weaving Speed (S_{NW}), mi/h	41.1
Weaving Lane Change Rate (LC_W), lc/h	114	Average Speed (S), mi/h	41.1
Weaving Lane Change Rate (LC_{All}), lc/h	153	Density (D), pc/mi/ln	17.1
Weaving Intensity Factor (W)	0.115	Level of Service (LOS)	B

HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1444	24
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1616	27
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.43	0.01

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1616	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.0

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1058	18	0	362
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1184	20	0	405
Weaving Flow Rate (v_W), pc/h	425	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1184	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5450
Total Flow Rate (v), pc/h	1609	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		8827
Volume Ratio (VR)	0.264	Weaving Area Capacity (c_W), veh/h		5450
Minimum Lane Change Rate (LC_{MIN}), lc/h	425	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5450
Maximum Weaving Length (L_{MAX}), ft	5201	Demand-to-Capacity Ratio (v/c)		0.29

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	106	Average Weaving Speed (S_W), mi/h	40.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	151	Average Non-Weaving Speed (S_{NW}), mi/h	39.4
Weaving Lane Change Rate (LC_W), lc/h	574	Average Speed (S), mi/h	39.6
Weaving Lane Change Rate (LC_{All}), lc/h	725	Density (D), pc/mi/ln	13.5

Weaving Intensity Factor (W)	0.191	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1076	134
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1204	150
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.36	0.08

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1204	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1354	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	15.4
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	13.7

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	20.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1600	170
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1791	190
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.47	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1791	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.1

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive On Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1430	350
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1601	392
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1601	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1993	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	22.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.2

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2022
Jurisdiction	MoDOT	Time Analyzed	PM Peak HOur
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1766	25	0	14
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1977	28	0	16
Weaving Flow Rate (v_W), pc/h	44	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1977	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5864
Total Flow Rate (v), pc/h	2021	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		105927
Volume Ratio (VR)	0.022	Weaving Area Capacity (c_W), veh/h		5864
Minimum Lane Change Rate (LC_{MIN}), lc/h	44	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5864
Maximum Weaving Length (L_{MAX}), ft	2799	Demand-to-Capacity Ratio (v/c)		0.33

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	71	Average Weaving Speed (S_W), mi/h	42.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	25	Average Non-Weaving Speed (S_{NW}), mi/h	41.4
Weaving Lane Change Rate (LC_W), lc/h	91	Average Speed (S), mi/h	41.4
Weaving Lane Change Rate (LC_{All}), lc/h	116	Density (D), pc/mi/ln	16.3
Weaving Intensity Factor (W)	0.092	Level of Service (LOS)	B

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1658	81
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1856	91
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.49	0.05

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1856	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	21.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.1

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1234	8	0	343
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1381	9	0	384
Weaving Flow Rate (v_W), pc/h	393	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1381	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5546
Total Flow Rate (v), pc/h	1774	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		10497
Volume Ratio (VR)	0.222	Weaving Area Capacity (c_W), veh/h		5546
Minimum Lane Change Rate (LC_{MIN}), lc/h	393	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5546
Maximum Weaving Length (L_{MAX}), ft	4762	Demand-to-Capacity Ratio (v/c)		0.31

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	124	Average Weaving Speed (S_W), mi/h	40.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	192	Average Non-Weaving Speed (S_{NW}), mi/h	39.3
Weaving Lane Change Rate (LC_W), lc/h	542	Average Speed (S), mi/h	39.5
Weaving Lane Change Rate (LC_{All}), lc/h	734	Density (D), pc/mi/ln	15.0

Weaving Intensity Factor (W)	0.193	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1242	93
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1390	104
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.39	0.05

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1390	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1494	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	17.0
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.8

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	20.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1947	276
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2180	309
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.57	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2180	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	25.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.4

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive On Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1671	237
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1871	265
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.56	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1871	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2136	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	20.4

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak HOur
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1884	38	0	24
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2109	43	0	27
Weaving Flow Rate (v_W), pc/h	70	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2109	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5843
Total Flow Rate (v), pc/h	2179	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		72825
Volume Ratio (VR)	0.032	Weaving Area Capacity (c_W), veh/h		5843
Minimum Lane Change Rate (LC_{MIN}), lc/h	70	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5843
Maximum Weaving Length (L_{MAX}), ft	2892	Demand-to-Capacity Ratio (v/c)		0.36

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	76	Average Weaving Speed (S_W), mi/h	41.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	52	Average Non-Weaving Speed (S_{NW}), mi/h	41.0
Weaving Lane Change Rate (LC_W), lc/h	117	Average Speed (S), mi/h	41.0
Weaving Lane Change Rate (LC_{All}), lc/h	169	Density (D), pc/mi/ln	17.7
Weaving Intensity Factor (W)	0.124	Level of Service (LOS)	B

HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1488	25
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1666	28
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.44	0.01

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1666	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.4

HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1090	19	0	373
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1220	21	0	418
Weaving Flow Rate (v_W), pc/h	439	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1220	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5447
Total Flow Rate (v), pc/h	1659	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		8794
Volume Ratio (VR)	0.265	Weaving Area Capacity (c_W), veh/h		5447
Minimum Lane Change Rate (LC_{MIN}), lc/h	439	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5447
Maximum Weaving Length (L_{MAX}), ft	5211	Demand-to-Capacity Ratio (v/c)		0.30

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	109	Average Weaving Speed (S_W), mi/h	40.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	159	Average Non-Weaving Speed (S_{NW}), mi/h	39.2
Weaving Lane Change Rate (LC_W), lc/h	588	Average Speed (S), mi/h	39.4
Weaving Lane Change Rate (LC_{All}), lc/h	747	Density (D), pc/mi/ln	14.0

Weaving Intensity Factor (W)	0.196	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1109	138
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1241	154
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.37	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1241	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1395	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	15.9
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.0

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1821	26	0	14
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2038	29	0	16
Weaving Flow Rate (v_W), pc/h	45	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2038	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5864
Total Flow Rate (v), pc/h	2083	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		105927
Volume Ratio (VR)	0.022	Weaving Area Capacity (c_W), veh/h		5864
Minimum Lane Change Rate (LC_{MIN}), lc/h	45	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5864
Maximum Weaving Length (L_{MAX}), ft	2799	Demand-to-Capacity Ratio (v/c)		0.34

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	73	Average Weaving Speed (S_W), mi/h	42.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	37	Average Non-Weaving Speed (S_{NW}), mi/h	41.3
Weaving Lane Change Rate (LC_W), lc/h	92	Average Speed (S), mi/h	41.3
Weaving Lane Change Rate (LC_{All}), lc/h	129	Density (D), pc/mi/ln	16.8
Weaving Intensity Factor (W)	0.101	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive On Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1474	361
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1650	404
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.54	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1650	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2054	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	23.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.7

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1821	26	0	14
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2038	29	0	16
Weaving Flow Rate (v_W), pc/h	45	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2038	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5864
Total Flow Rate (v), pc/h	2083	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		105927
Volume Ratio (VR)	0.022	Weaving Area Capacity (c_W), veh/h		5864
Minimum Lane Change Rate (LC_{MIN}), lc/h	45	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5864
Maximum Weaving Length (L_{MAX}), ft	2799	Demand-to-Capacity Ratio (v/c)		0.34

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	73	Average Weaving Speed (S_W), mi/h	42.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	37	Average Non-Weaving Speed (S_{NW}), mi/h	41.3
Weaving Lane Change Rate (LC_W), lc/h	92	Average Speed (S), mi/h	41.3
Weaving Lane Change Rate (LC_{All}), lc/h	129	Density (D), pc/mi/ln	16.8
Weaving Intensity Factor (W)	0.101	Level of Service (LOS)	B

HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1832	90
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2051	101
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.54	0.05

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2051	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.7

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1363	9	0	379
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1526	10	0	424
Weaving Flow Rate (v_W), pc/h	434	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1526	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5549
Total Flow Rate (v), pc/h	1960	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		10545
Volume Ratio (VR)	0.221	Weaving Area Capacity (c_W), veh/h		5549
Minimum Lane Change Rate (LC_{MIN}), lc/h	434	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5549
Maximum Weaving Length (L_{MAX}), ft	4752	Demand-to-Capacity Ratio (v/c)		0.34

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	137	Average Weaving Speed (S_W), mi/h	39.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	222	Average Non-Weaving Speed (S_{NW}), mi/h	38.7
Weaving Lane Change Rate (LC_W), lc/h	583	Average Speed (S), mi/h	38.9
Weaving Lane Change Rate (LC_{All}), lc/h	805	Density (D), pc/mi/ln	16.8

Weaving Intensity Factor (W)	0.208	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1372	102
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1536	114
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.43	0.06

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1536	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1650	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.0

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2083	42	0	26
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2332	47	0	29
Weaving Flow Rate (v_W), pc/h	76	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2332	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5843
Total Flow Rate (v), pc/h	2408	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		72825
Volume Ratio (VR)	0.032	Weaving Area Capacity (c_W), veh/h		5843
Minimum Lane Change Rate (LC_{MIN}), lc/h	76	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5843
Maximum Weaving Length (L_{MAX}), ft	2892	Demand-to-Capacity Ratio (v/c)		0.40

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	84	Average Weaving Speed (S_W), mi/h	41.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	98	Average Non-Weaving Speed (S_{NW}), mi/h	40.6
Weaving Lane Change Rate (LC_W), lc/h	123	Average Speed (S), mi/h	40.6
Weaving Lane Change Rate (LC_{All}), lc/h	221	Density (D), pc/mi/ln	19.8
Weaving Intensity Factor (W)	0.154	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive On Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1847	262
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2068	293
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.62	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2068	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2361	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	26.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.1

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2083	42	0	26
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2332	47	0	29
Weaving Flow Rate (v_W), pc/h	76	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2332	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5843
Total Flow Rate (v), pc/h	2408	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		72825
Volume Ratio (VR)	0.032	Weaving Area Capacity (c_W), veh/h		5843
Minimum Lane Change Rate (LC_{MIN}), lc/h	76	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5843
Maximum Weaving Length (L_{MAX}), ft	2892	Demand-to-Capacity Ratio (v/c)		0.40

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	84	Average Weaving Speed (S_W), mi/h	41.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	98	Average Non-Weaving Speed (S_{NW}), mi/h	40.6
Weaving Lane Change Rate (LC_W), lc/h	123	Average Speed (S), mi/h	40.6
Weaving Lane Change Rate (LC_{All}), lc/h	221	Density (D), pc/mi/ln	19.8
Weaving Intensity Factor (W)	0.154	Level of Service (LOS)	B

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1644	27
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1840	30
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.48	0.02

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1840	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.9

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1205	20	0	412
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1349	22	0	461
Weaving Flow Rate (v_W), pc/h	483	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1349	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5450
Total Flow Rate (v), pc/h	1832	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		8827
Volume Ratio (VR)	0.264	Weaving Area Capacity (c_W), veh/h		5450
Minimum Lane Change Rate (LC_{MIN}), lc/h	483	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5450
Maximum Weaving Length (L_{MAX}), ft	5201	Demand-to-Capacity Ratio (v/c)		0.33

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	121	Average Weaving Speed (S_W), mi/h	39.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	185	Average Non-Weaving Speed (S_{NW}), mi/h	38.6
Weaving Lane Change Rate (LC_W), lc/h	632	Average Speed (S), mi/h	38.9
Weaving Lane Change Rate (LC_{All}), lc/h	817	Density (D), pc/mi/ln	15.7

Weaving Intensity Factor (W)	0.210	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1225	153
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1371	171
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.41	0.09

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1371	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1542	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	17.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.1

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2010	28	0	16
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2250	31	0	18
Weaving Flow Rate (v_W), pc/h	49	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2250	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5867
Total Flow Rate (v), pc/h	2299	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		110971
Volume Ratio (VR)	0.021	Weaving Area Capacity (c_W), veh/h		5867
Minimum Lane Change Rate (LC_{MIN}), lc/h	49	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5867
Maximum Weaving Length (L_{MAX}), ft	2790	Demand-to-Capacity Ratio (v/c)		0.38

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	81	Average Weaving Speed (S_W), mi/h	41.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	81	Average Non-Weaving Speed (S_{NW}), mi/h	41.0
Weaving Lane Change Rate (LC_W), lc/h	96	Average Speed (S), mi/h	41.0
Weaving Lane Change Rate (LC_{All}), lc/h	177	Density (D), pc/mi/ln	18.7
Weaving Intensity Factor (W)	0.129	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive On Ramp - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1628	398
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1822	446
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.60	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1822	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2268	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	25.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.3

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - No Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2010	28	0	16
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2250	31	0	18
Weaving Flow Rate (v_W), pc/h	49	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2250	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5867
Total Flow Rate (v), pc/h	2299	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		110971
Volume Ratio (VR)	0.021	Weaving Area Capacity (c_W), veh/h		5867
Minimum Lane Change Rate (LC_{MIN}), lc/h	49	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5867
Maximum Weaving Length (L_{MAX}), ft	2790	Demand-to-Capacity Ratio (v/c)		0.38

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	81	Average Weaving Speed (S_W), mi/h	41.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	81	Average Non-Weaving Speed (S_{NW}), mi/h	41.0
Weaving Lane Change Rate (LC_W), lc/h	96	Average Speed (S), mi/h	41.0
Weaving Lane Change Rate (LC_{All}), lc/h	177	Density (D), pc/mi/ln	18.7
Weaving Intensity Factor (W)	0.129	Level of Service (LOS)	B

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1822	248
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2040	278
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.54	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2040	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	23.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.6

HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1111	172	0	463
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1244	193	0	518
Weaving Flow Rate (v_W), pc/h	711	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1244	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5208
Total Flow Rate (v), pc/h	1955	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		6402
Volume Ratio (VR)	0.364	Weaving Area Capacity (c_W), veh/h		5208
Minimum Lane Change Rate (LC_{MIN}), lc/h	711	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5208
Maximum Weaving Length (L_{MAX}), ft	6281	Demand-to-Capacity Ratio (v/c)		0.36

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	111	Average Weaving Speed (S_W), mi/h	39.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	164	Average Non-Weaving Speed (S_{NW}), mi/h	36.8
Weaving Lane Change Rate (LC_W), lc/h	860	Average Speed (S), mi/h	37.6
Weaving Lane Change Rate (LC_{All}), lc/h	1024	Density (D), pc/mi/ln	17.3
Weaving Intensity Factor (W)	0.251	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1283	170
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1436	190
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.43	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1436	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1626	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.8

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	20.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2112	371
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2364	415
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.62	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2364	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.0

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1741	354
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1949	396
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.62	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1949	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2345	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	26.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.0

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1869	173	0	226
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2092	194	0	253
Weaving Flow Rate (v_W), pc/h	447	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2092	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5532
Total Flow Rate (v), pc/h	2539	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		13241
Volume Ratio (VR)	0.176	Weaving Area Capacity (c_W), veh/h		5532
Minimum Lane Change Rate (LC_{MIN}), lc/h	447	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5532
Maximum Weaving Length (L_{MAX}), ft	4292	Demand-to-Capacity Ratio (v/c)		0.45

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	75	Average Weaving Speed (S_W), mi/h	37.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	48	Average Non-Weaving Speed (S_{NW}), mi/h	37.7
Weaving Lane Change Rate (LC_W), lc/h	494	Average Speed (S), mi/h	37.7
Weaving Lane Change Rate (LC_{All}), lc/h	542	Density (D), pc/mi/ln	22.4
Weaving Intensity Factor (W)	0.312	Level of Service (LOS)	B

HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1570	169
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1757	189
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.46	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1757	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	20.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.2

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	920	178	0	481
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1030	199	0	538
Weaving Flow Rate (v_W), pc/h	737	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1030	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5077
Total Flow Rate (v), pc/h	1767	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		5588
Volume Ratio (VR)	0.417	Weaving Area Capacity (c_W), veh/h		5077
Minimum Lane Change Rate (LC_{MIN}), lc/h	737	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5077
Maximum Weaving Length (L_{MAX}), ft	6872	Demand-to-Capacity Ratio (v/c)		0.34

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	92	Average Weaving Speed (S_W), mi/h	39.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	119	Average Non-Weaving Speed (S_{NW}), mi/h	36.9
Weaving Lane Change Rate (LC_W), lc/h	886	Average Speed (S), mi/h	37.7
Weaving Lane Change Rate (LC_{All}), lc/h	1005	Density (D), pc/mi/ln	15.6
Weaving Intensity Factor (W)	0.248	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1098	213
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1229	238
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.39	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1229	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1467	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	16.7
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.5

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	20.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1730	257
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1937	288
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.51	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1937	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	22.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.3

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1473	468
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1649	524
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.57	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1649	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2173	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	20.6

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2028
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1752	157	0	189
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1961	176	0	212
Weaving Flow Rate (v_W), pc/h	388	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1961	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5558
Total Flow Rate (v), pc/h	2349	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		14124
Volume Ratio (VR)	0.165	Weaving Area Capacity (c_W), veh/h		5558
Minimum Lane Change Rate (LC_{MIN}), lc/h	388	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5558
Maximum Weaving Length (L_{MAX}), ft	4181	Demand-to-Capacity Ratio (v/c)		0.41

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	71	Average Weaving Speed (S_W), mi/h	38.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	21	Average Non-Weaving Speed (S_{NW}), mi/h	38.4
Weaving Lane Change Rate (LC_W), lc/h	435	Average Speed (S), mi/h	38.4
Weaving Lane Change Rate (LC_{All}), lc/h	456	Density (D), pc/mi/ln	20.4
Weaving Intensity Factor (W)	0.272	Level of Service (LOS)	B

HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1996	256
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2234	287
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.59	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2234	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	25.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.3

HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1241	173	0	499
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1389	194	0	559
Weaving Flow Rate (v_W), pc/h	753	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1389	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5238
Total Flow Rate (v), pc/h	2142	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		6620
Volume Ratio (VR)	0.352	Weaving Area Capacity (c_W), veh/h		5238
Minimum Lane Change Rate (LC_{MIN}), lc/h	753	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5238
Maximum Weaving Length (L_{MAX}), ft	6148	Demand-to-Capacity Ratio (v/c)		0.40

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	124	Average Weaving Speed (S_W), mi/h	38.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	193	Average Non-Weaving Speed (S_{NW}), mi/h	36.2
Weaving Lane Change Rate (LC_W), lc/h	902	Average Speed (S), mi/h	37.0
Weaving Lane Change Rate (LC_{All}), lc/h	1095	Density (D), pc/mi/ln	19.3
Weaving Intensity Factor (W)	0.265	Level of Service (LOS)	B

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1414	179
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1583	200
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.47	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1583	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1783	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	20.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.0

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	20.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2316	400
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2593	448
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.68	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2593	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	30.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.0

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak
Project Description	Lindberg SB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1916	379
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2145	424
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.21

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	43.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2145	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2569	Ramp Junction Speed (S), mi/h	43.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	29.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.7

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	AM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2067	177	0	228
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2314	198	0	255
Weaving Flow Rate (v_W), pc/h	453	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2314	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5558
Total Flow Rate (v), pc/h	2767	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		14210
Volume Ratio (VR)	0.164	Weaving Area Capacity (c_W), veh/h		5558
Minimum Lane Change Rate (LC_{MIN}), lc/h	453	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5558
Maximum Weaving Length (L_{MAX}), ft	4171	Demand-to-Capacity Ratio (v/c)		0.48

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	83	Average Weaving Speed (S_W), mi/h	37.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	94	Average Non-Weaving Speed (S_{NW}), mi/h	37.3
Weaving Lane Change Rate (LC_W), lc/h	500	Average Speed (S), mi/h	37.3
Weaving Lane Change Rate (LC_{All}), lc/h	594	Density (D), pc/mi/ln	24.7
Weaving Intensity Factor (W)	0.336	Level of Service (LOS)	C

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Monsanto Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	30.0
Segment Length (L) / Deceleration Length (LD), ft	1500	240
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1726	171
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1932	191
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.51	0.10

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1932	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.5
Number of Outer Lanes on Freeway (NO), ln	0	Average Density (D), pc/mi/ln	22.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.7

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg NB - Monsanto/Olive Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	895	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1034	179	0	521
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	1157	200	0	583
Weaving Flow Rate (v_W), pc/h	783	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	1157	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5109
Total Flow Rate (v), pc/h	1940	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		5768
Volume Ratio (VR)	0.404	Weaving Area Capacity (c_W), veh/h		5109
Minimum Lane Change Rate (LC_{MIN}), lc/h	783	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5109
Maximum Weaving Length (L_{MAX}), ft	6726	Demand-to-Capacity Ratio (v/c)		0.37

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	104	Average Weaving Speed (S_W), mi/h	38.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	146	Average Non-Weaving Speed (S_{NW}), mi/h	36.3
Weaving Lane Change Rate (LC_W), lc/h	932	Average Speed (S), mi/h	37.3
Weaving Lane Change Rate (LC_{All}), lc/h	1078	Density (D), pc/mi/ln	17.3
Weaving Intensity Factor (W)	0.262	Level of Service (LOS)	B

HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg NB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	25.0
Segment Length (L) / Acceleration Length (LA), ft	925	375
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1213	227
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1358	254
Capacity (c_{md}), pc/h	3800	1900
Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.42	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1358	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1612	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	18.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.7

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HCS Freeway Diverge Report

Project Information			
Analyst	BSE	Date	6/17/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive Off Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	20.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1903	276
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	2130	309
Capacity (c_{md}), pc/h	3800	1900
Initial Adjusted Capacity (c_{mda}), pc/h	3800	-
Final Adjusted Capacity (c_{mda}), pc/h	3800	1900
Volume-to-Capacity Ratio (v/c)	0.56	0.16

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	43.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2130	Outer Lanes Freeway Speed (S_O), mi/h	49.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	43.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.0

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HCS Freeway Merge Report

Project Information			
Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak
Project Description	Lindberg SB - Olive On Ramp - Build - Olia Village Development	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Acceleration Length (LA), ft	780	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1627	506
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971
Flow Rate (v_i), pc/h	1821	566
Capacity (c_{md}), pc/h	3800	2000
Adjusted Capacity (c_{mda}), pc/h	3800	2000
Volume-to-Capacity Ratio (v/c)	0.63	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1821	Outer Lanes Freeway Speed (S_O), mi/h	45.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2387	Ramp Junction Speed (S), mi/h	44.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	27.1
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.2

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HCS Freeway Weaving Report

Project Information

Analyst	BSE	Date	6/19/2023
Agency	CMT	Analysis Year	2048
Jurisdiction	MoDOT	Time Analyzed	PM Peak Hour
Project Description	Lindberg SB - Monsanto Weave - Build - Olia Village Development	Units	U.S. Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	360	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1942	159	0	191
Peak Hour Factor (PHF)	0.92	0.92	0.92	0.92
Total Trucks, %	3.00	3.00	3.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.971	0.971	0.971
Flow Rate (v_i), pc/h	2174	178	0	214
Weaving Flow Rate (v_W), pc/h	392	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2200
Non-Weaving Flow Rate (v_{NW}), pc/h	2174	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5584
Total Flow Rate (v), pc/h	2566	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		15231
Volume Ratio (VR)	0.153	Weaving Area Capacity (c_W), veh/h		5584
Minimum Lane Change Rate (LC_{MIN}), lc/h	392	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5584
Maximum Weaving Length (L_{MAX}), ft	4061	Demand-to-Capacity Ratio (v/c)		0.45

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	78	Average Weaving Speed (S_W), mi/h	38.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	65	Average Non-Weaving Speed (S_{NW}), mi/h	38.1
Weaving Lane Change Rate (LC_W), lc/h	439	Average Speed (S), mi/h	38.1
Weaving Lane Change Rate (LC_{All}), lc/h	504	Density (D), pc/mi/ln	22.4
Weaving Intensity Factor (W)	0.295	Level of Service (LOS)	B

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Memorandum

To: Jason Jaggi, AICP (City of Creve Coeur)
Bethany Moore, AICP (City of Creve Coeur)

From: Kyle Evans, PE, PTOE

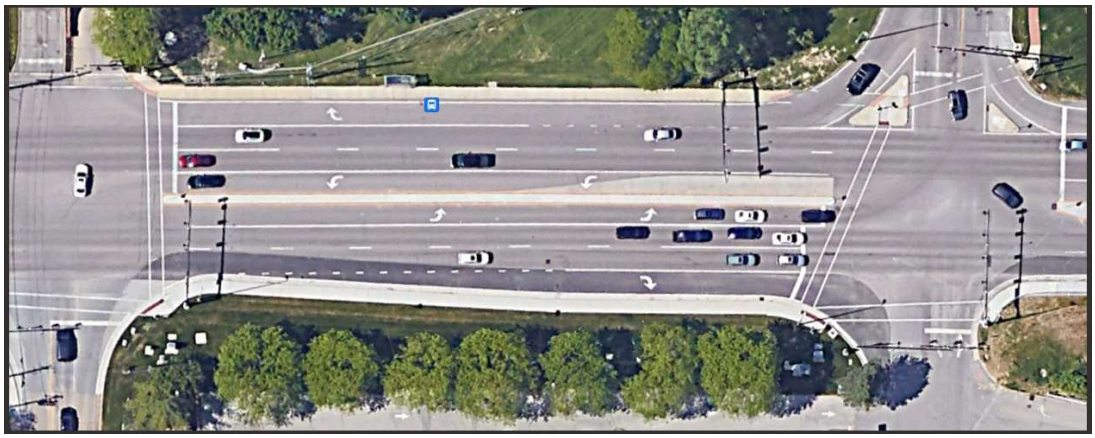
Date: September 13, 2023

Re: Olia Village – Olive Blvd & Spoede Rd/Old Olive West Left Turn Lane Review and Review of September 13, 2023 TIS Revisions
Trekk Project: 23-0384

During the September 5, 2023 Planning and Zoning Commission meeting a question was brought up by the commission related to the current geometric layout along Olive Boulevard between Spoede Rd and Old Olive West. It was mentioned that the revisions to the intersection are confusing and there are some concerns about the correct procedures with regards to the solid white lane near the left turn lane. The following figures capture the previous and current geometrics in that location.

Figure 1: Roadway Geometrics in July 2021

Figure 2: Roadway Geometrics in July 2023



From review of the images, it appears that MoDOT widened the existing segment of roadway between the two intersections in order to allow room to extend the existing storage length of the eastbound and westbound turn lanes. The existing westbound left turn lane had room for approximately six (6) vehicles to queue while waiting to make the left turn. The eastbound approach provided less storage and had room for approximately four (4) vehicles.

The revised layout provides storage for approximately fourteen (14) vehicles in each direction helping to remove them from the through lanes and improving traffic flow along the mainline.

The solid white lines delineate the left turn lane from the through lanes and serve as a deterrent from drivers trying to utilize the turn lane as another through lane on Olive Boulevard.

While this setup may seem counterintuitive, drivers are allowed to enter the left turn lane at any point along the turn lane as long as it is open. For the westbound direction, the various shades of pavements may still present drivers with a visual barrier from entering the left turn lane at the beginning of the block.

September 13, 2023 TIS Revisions Review

The applicant submitted a revision to the June 19, 2023 TIS to address comments from the City to address the following items:

1. Potential residential/commercial redevelopment in the northeast quadrant of Olive Boulevard and Old Olive West in the Creve Coeur Pavilion; and
2. The operational impacts of adding a pedestrian phase to the intersection of Olive Boulevard and Pavilion Drive.

Regarding the potential Altus Development, the revised TIS accounts for the additional trip generation associated with the potential redevelopment. The internal trip capture is applied in the same method that it was done for the Olia Village Development. While the applicant did not go through the full process of developing peak hour internal capture rates for the Altus Development with regards to the NCHRP 684 calculations, it is considered an acceptable assumption considering many of the proposed land use types match respectively with what is existing and proposed within the Creve Coeur Pavilion. When comparing **Tables 16** and **Table 18** from the revised TIS, the impacts to the individual approaches and the intersection, as a whole, are minor. The 2048 Peak Hour calculations do include the exclusive southbound right turn lane improvement.

The revised TIS documents the addition of the pedestrian phase to the intersection of Olive Boulevard and Pavilion Drive to allow pedestrians to cross Olive Boulevard. The document mentions that the pedestrian phase is estimated to be 24 seconds of walk and pedestrian clearance time. **Table 19** provides the results of the analyzed results from Synchro. It would be beneficial to see the revised printouts from Synchro to fully understand the results presented in the table. It would be assumed that the addition of the pedestrian phase would require an increase in phase time for the North/South phases while reducing available green time for Olive Boulevard, thus increasing delays. However, the results shown in **Table 19** show some improvements over the operations presented in **Table 18**, which documents the traffic impacts at Olive Boulevard and Pavilion Drive based on the additional traffic from the proposed Altus Development. The applicant should verify the results and provide an explanation of the results, along with the Synchro Outputs, for the peak hour scenarios with pedestrian accommodations.

10/10/2023

Mr. Mayor, Members of the City Council, Mr. Jaggi, and Members of the Planning and Zoning Commission:

I attended by zoom all of the P&Z meetings regarding the Olia proposal as well as last night's council meeting. My feeling was that the P&Z was asked to make decisions on an extremely large project with only three meetings and the council is asked to approve the project on the same limited basis.

At P&Z the residents were allowed to speak, but their comments were largely ignored. There was little discussion of their requests regarding the retaining wall height, construction, and placement and even less attention was given to really understand the size and composition of the buffer needed by the residents. The only real change that acknowledged the resident's needs was decreasing the size and placement of the nature trail to recognize the privacy concerns expressed by the SunSwept residents.

Last night the presentations by the public in the Spoede Woods location were really well researched and thought out and should be considered, rather than just ignored because the developer is unable to change anything other than agree to change the buffer to 50 feet instead of 35 feet and that under protest and bragging that they had made a large concession. Such a minimal nod to the tax paying and long-time residents is not what would be expected in this city which classifies itself as being a city that is a place to" live, work, play, and retire". The pleas of the resident that described her feelings of peace when coming home to the tree filled environment should be considered to be the natural ecosystem craved by many of the residents of this "Tree City". Even the estimation rather than count of the number of trees to be taken out by the developer shows a lack of respect to the resident's needs.

I did appreciate the mayor's suggestion that all of the council members individually inspect the resident's property in respect to this development in order to see for themselves the problems that were iterated. I would hope that all of this would be a part of the discussion at the next meeting and that some kind of compromise can be reached with the developer so that the plan could be modified to the resident's satisfaction, even if it means delay of development approval.

My other thought is that we, as taxpayers, should be concerned about not having a discussion regarding any developer's expectation of tax relief or outright expenditure from the city to promote and finance this development before there is any approval of Phase I (which includes a complete change of the physical condition of the current site). It seems to me that this should have been a starting point rather than an afterthought of the development process. Once the destruction has occurred, it almost demands that the city agree to the developer's terms. Please do not go along with this. The city and its residents deserve more thoughtful consideration of these matters.

Thank you for considering my point of view. I would request that this be entered into the record and perhaps even read at the next meeting as part of the discussion.

Lynn Berry
626 Graeser Rd.
Creve Coeur, MO 63141

RECEIVED
OCT 19 2023
BY: Kellie
Heike
City Clerk

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

To: Mayor and City Council, City of Creve Coeur, Missouri
From: Affected Property Owners
Date: October 14, 2023

Pursuant to Section 89.060 of the Revised Statutes of Missouri, we, the undersigned, being at least thirty percent of the owners of property that is within an area determined by lines drawn parallel to and one hundred eighty-five feet distant from the former Bayer West campus, do hereby submit this petition as our protest against the application for rezoning proposed by City Council Bill #6089, "An ordinance authorizing a change of Zoning from "RO" Research Office district to the Olia Village "PMD" Planned Mixed-use Development district and approving the site concept plan and phase one site development plan for such development on the approximately 96 acre property located at 10300 Olive Boulevard."

Under the provisions of Missouri Statute 89.060, such a petition requires "the favorable vote of two-thirds of all the members" of City Council for passage of the aforementioned bill.

We support a high-quality mixed-use development on the above-referenced property. However, we believe such a large and impactful project, which is roughly the size of the entire downtown Clayton business district, must be thoughtfully planned to benefit all citizens of Creve Coeur for many years into the future, and it must be carefully designed to avoid adverse impacts to nearby properties today. We oppose the current rezoning proposal because we believe that:

1. Substantial areas of undisturbed green buffer between new high-density developments and adjacent single-family residences are a necessary and appropriate measure in order to offset the inevitable effects of increased density.

2. The height, scale, and massing of new high-density developments should be respectful of nearby single-family neighborhoods in the areas where they are directly adjacent.

3. The City has a responsibility to both upstream and downstream residents to ensure that the new development does not cause increased flooding, runoff, pollution or sewer back-ups for adjacent neighbors, for properties along Dielmann Creek or Monsanto-Sunswept Creek, or further downstream. We believe a peer review of the proposed design by professionals who represent the citizens of Creve Coeur is necessary and appropriate, and stringent oversight should be put in place to ensure proper management of future stormwater and wastewater, both during the construction process and upon completion of the site – after all work is complete. The site design and stormwater management approach on the above-referenced site must be in alignment with the 2023 Deer Creek Watershed Master Plan.

Sincerely, the undersigned residents of streets and neighborhoods adjoining the development:

Allegro Lane
Mission Hills
Spoede Hills
Spoede Woods
Ramblewood

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 850 Mission Hills Ct 63141

Printed Name(s): Alan and Laurel Burke

Signature(s): Alan Burke
Laurel Burke

Address of Affected Property: 10327 N. SUNSWEPT DR, 63141

Printed Name(s): JYOTI BEHURA, FARNOUSH FORGHANI

Signature(s): Jyoti Behura, Farnoush Forghani

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

On the 14 day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

ANGELA BRANDT
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 17196407
My Commission Expires 05-08-2025

Angela Brandt
Notary Public
Angela Brandt

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: #7 Spoede Woods
Printed Name(s): GAIL FRIEDMAN
Signature(s): Gail Friedman

Address of Affected Property: 11 Spoede Hills Drive
Printed Name(s): Benjamin Burke Levinson Sarah Zoller Levinson
Signature(s): Benjamin Levinson Sarah Zoller Levinson

Address of Affected Property: 6 Spoede Woods
Printed Name(s): Danielle Singer + David Singer
Signature(s): Danielle Singer David Singer

Address of Affected Property: 11 Spoede Woods
Printed Name(s): Yiling Mi & Xudong Liang
Signature(s): Yiling Mi Xudong Liang

On the 15th day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

Rachel Schwadron
Notary Public

RACHEL SCHWADRON
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 14631982
My Commission Expires 12-11-2026

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 9 Ramblewood Lane
Printed Name(s): Elizabeth A. David
Signature(s): Elizabeth A David

Address of Affected Property: 12 Spoede Hills Dr.
Printed Name(s): Allan H Ramsey (DECD), Frances R Ramsey
Signature(s): Frances R. Ramsey

Address of Affected Property: 840 mission hills ct.
Printed Name(s): Song Cao Gengsheng Chen.
Signature(s):

Address of Affected Property: 9 SPOEDE WOODS
Printed Name(s): MONICA MOORE-ZIGO TOMISLAV ZIGO
Signature(s):

On the 15th day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

Rachel Schwadron
Notary Public

RACHEL SCHWADRON
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 14631982
My Commission Expires 12-11-2026

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 14 Spoede Woods,
Printed Name(s): Michael Demos, Chiracwan Demos
Signature(s): [signature] Chiracwan D.

Address of Affected Property: 15 Spoede Woods
Printed Name(s): Qianhong Fan Kefeng Pan
Signature(s): [signature] [signature]

Address of Affected Property: 12 Spoede Woods
Printed Name(s): Rachel Protzel, Robert Max Protzel
Signature(s): Rachel Protzel, Robert Max Protzel

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

On the 15th day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

Rachel Schwadron
Notary Public

RACHEL SCHWADRON
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 14631982
My Commission Expires 12-11-2026

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 13 Spoede Woods Dr. St. Louis Mo 63141
Printed Name(s): WEI ZHANG (see page 14 for co-owner)
Signature(s): [signature]

Address of Affected Property: 11 Ramblewood Lane
Printed Name(s): BRANDON Jeffers / Amy Jeffers
Signature(s): [signature] [signature]

Address of Affected Property: 13 Ramblewood lane
Printed Name(s): KANGYUN Wu / Baozhen Ma
Signature(s): [signature] Baozhen

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

On the 15 day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

ANGELA BRANDT
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 17196407
My Commission Expires 05-08-2025

[signature] Angela Brandt
Notary Public

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 8 Spreading Woods St. Louis, MO 63141

Printed Name(s): Weston Manley Amy Manley

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

On the 17 day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

JENNIFER SUE MOSER
MY COMMISSION EXPIRES
6-14-2025
NOTARY SEAL
#13405238
ST. LOUIS COUNTY
NOTARY PUBLIC, STATE OF MISSOURI

Jennifer S. Moser
Notary Public

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 5 Spoede Woods Creve Coeur MO 63141
Printed Name(s): Olga Malkova DMITRY MALKOV
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

On the 19 day of OCTOBER, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

Shalini Kalra
Notary Public

SHALINI KALRA
COMM. # 2414553
NOTARY PUBLIC-CALIFORNIA
COUNTY OF SAN MATEO
MY COMM. EXP. SEP. 3, 2026

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 10 Spoede Woods, Creve Coeur, MO 63141
Printed Name(s): Faye Cohen POA for Frances Cohen
Signature(s): Faye Cohen POA Franklin

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

On the 16 day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

CYNTHIA L. HARTE
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: Aug. 16, 2025
Commission # 21694790

Notary Public

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 14 Spoede Hills Dr.
Printed Name(s): Alvin L. Kauffman (deceased), Natalie Kauffman (deceased), +
Signature(s): Brad Kauffman | Brad Kauffman

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

On the 17 day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

MEGAN A WALLER
My Commission Expires
11-30-2026
NOTARY SEAL
St. Charles
County
Commission # 22153787
NOTARY PUBLIC - STATE OF MISSOURI

Notary Public

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 844 Mission Hills Ct, St. Louis, MO 63141
Printed Name(s): Tamara Marx
Signature(s): Tamara Marx

Address of Affected Property: 4 Spoede Woods, St. Louis, MO 63141
Printed Name(s): Ronald S. Sandler
Signature(s): Ronald S Sandler

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

On the 17th day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

Rachel Schwadron
Notary Public

RACHEL SCHWADRON
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 14631982
My Commission Expires 12-11-2026

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 4 Allegro Lane, St Louis, MO 63141
Printed Name(s): Timothy C Townsend / Peter J. Townsend
Signature(s): Timothy C Townsend / Peter J. Townsend

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

Address of Affected Property: _____
Printed Name(s): _____
Signature(s): _____

On the 18 day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

SANDIN MALKIC
MY COMMISSION EXPIRES 02/16/2027
NOTARY PUBLIC NOTARY SEAL COMMISSION #22304835
ST. LOUIS COUNTY
STATE OF MISSOURI

Sandin Malkic
Notary Public

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 2 ALLEGRO LN

Printed Name(s): STACEY CASSMEYER

Signature(s): [signature]

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

On the 18 day of October, 2023 before me personally appeared the above names knows to me to be the persons described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

MEGAN HAGELSTEIN
Notary Public - Notary Seal
Jefferson County - State of Missouri
Commission Number 23144310
My Commission Expires Jan 22, 2027

[signature]
Notary Public

ZONING PROTEST PETITION
CREVE COEUR CITY COUNCIL BILL #6089

Address of Affected Property: 13 Spoede Woods, Creve Coeur, MO 63141

Printed Name(s): LIDAI WANG

Signature(s): Lidai Wg

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

Address of Affected Property: _____

Printed Name(s): _____

Signature(s): _____

On the 18th day of October, 2023 before me personally appeared Lidai Wang known to me to be the person described and who executed the foregoing instrument; and acknowledged that they executed the same as their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my seal on the day and year first above written.

Myra A. Kosak
Notary Public
State of North Dakota
My Commission Expires June 8, 2025

This notarial act involved the use of communication technology.

Myra A. Kosak

Notary Public
Myra A. Kosak

BILL NO. 6090 **ORDINANCE NO. _____**

AN ORDINANCE FOR THE HOLDING OF A GENERAL ELECTION IN THE CITY OF CREVE COEUR, MISSOURI, ON THE 2ND DAY OF APRIL, 2024, FOR THE ELECTION OF A MAYOR FROM THE CITY AT LARGE FOR A FULL THREE-YEAR TERM AND THE ELECTION OF ONE COUNCIL MEMBER FROM EACH OF THE FOUR WARDS, EACH FOR A FULL TWO-YEAR TERM, AND FOR THE CONDUCT OF SAID ELECTION BY THE BOARD OF ELECTIONS OF ST. LOUIS COUNTY, MISSOURI, AND FOR OTHER MATTERS RELATING AND PERTAINING TO SUCH ELECTION.

WHEREAS, pursuant to the City Charter an election must be held in April 2024 to elect one mayor from the city at large to serve a three-year term and one council member for each of the four wards of the City, each to serve a full two-year term; and

WHEREAS, application procedures regarding such election need to be established;

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

SECTION 1: Pursuant to applicable law, a general municipal election shall be held in the City of Creve Coeur, Missouri on the 2nd day of April, 2024, for the election of one mayor from the city at large for a full three-year term, one council member from the first ward for a full two-year term, one council member from the second ward for a full two-year term, one council member from the third ward for a full two-year term, and one council member from the fourth ward for a full two-year term.

SECTION 2: The general municipal election shall be conducted by the Board of Elections of St. Louis County, Missouri pursuant to the applicable statutes of Missouri and the regulations of said Board of Elections for the conduct of municipal elections.

SECTION 3: Nominating petitions and acceptances of nomination shall be filed with the City Clerk of the City of Creve Coeur after the passage and approval of this ordinance beginning at 8:00 a.m. on December 5, 2023 and ending on December 26, 2023, at 5:00 p.m. The City Clerk shall record the date and time of each filing. Names shall be placed on the ballot and election notice in order of filing for respective offices as provided in section 10.3 of the city charter. Filings shall be accepted at the office of City Clerk, Creve Coeur Government Center, 300 North New Ballas Road, on a first-come, first-served, walk-in basis Monday through Friday 8:00 AM – 5:00 PM except December 22, 2023 where filing hours shall be 8:00 AM until 12:00 PM, all subject to the availability of the City Clerk. The office of the City Clerk will not be open on Saturdays and Sundays, or those days designated a holiday by the City of Creve Coeur. All candidates must provide proof of identity to the City Clerk.

SECTION 4: Notwithstanding the foregoing, in the case of candidates who deliver their nominating petitions and acceptances of nomination to the City Clerk prior to 5:00 p.m. on the first day for filing, the City Clerk shall determine by random drawing the order in which such declarations shall be deemed to have been filed. Any such drawing shall be conducted so that each candidate may draw a number at random at the time of delivery of the petition and acceptance. The City Clerk shall record the number drawn with the candidate's petition and acceptance. If such drawing is conducted, the names of the candidates filing on the first day of filing for each office on each ballot shall be listed in ascending order of the numbers so drawn.

SECTION 5: Candidates filing for office shall present themselves at the reception desk in the main lobby, upper level of the Creve Coeur Government Center, 300 North New Ballas Road to sign a sworn acceptance of nomination before the City Clerk. A filing shall not be accepted without such sworn acceptance.

SECTION 6: The City Clerk shall determine the sufficiency of each submittal as provided in Section 10.2(c) of the City Charter but shall not investigate the qualifications of any candidate.

SECTION 7: Notice of said general municipal election shall be published before December 5, 2023 according to law in a newspaper of general circulation published in the County of St. Louis, Missouri.

SECTION 8: All candidates shall be nominated by petition and acceptance thereof as provided for in Section 10.2 of the City Charter. Nominating petitions and acceptances of nomination shall be substantially in the same form as the "nominating petition" and "acceptance of nomination" forms attached hereto as specimens of designated appropriate forms as required by Section 10.2 (a) of the City Charter.

SECTION 9: Upon the passage and approval of this ordinance, a certified copy thereof shall be promptly transmitted to the Board of Elections by the City Clerk.

SECTION 10: This ordinance shall become effective pursuant to section 3.11(g) of the City Charter.

ADOPTED BY THE CITY COUNCIL 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
ACCEPTANCE OF NOMINATION

NO._____

Date/Time Received _____

STATE OF MISSOURI)
) SS
COUNTY OF ST. LOUIS)

I, _____ BEING DULY SWORN, STATE UPON MY OATH ON THE DATE SET FORTH BELOW THAT I RESIDE AT _____, CITY OF CREVE COEUR, COUNTY OF ST. LOUIS, STATE OF MISSOURI, THAT I AM A QUALIFIED VOTER THEREIN, THAT I ACCEPT NOMINATION AND AM A CANDIDATE FOR THE ELECTION OF MAYOR FOR FULL THREE-YEAR TERM, TO BE VOTED UPON AT THE GENERAL ELECTION TO BE HELD ON TUESDAY, APRIL 2, 2024, THAT I SHALL HAVE RESIDED IN THE CITY OF CREVE COEUR FOR AT LEAST ONE YEAR AS OF THE DATE OF THE ELECTION AND WILL BE A RESIDENT OF THE AFORESAID CITY AT THAT TIME, THAT I HAVE FILED ALL REQUIRED CAMPAIGN DISCLOSURE REPORTS FOR ALL PRIOR ELECTIONS AND PAID ALL FEES ASSESSED BY THE MISSOURI ETHICS COMMISSION, AND THAT I AM OTHERWISE ELIGIBLE FOR SAID OFFICE AND WILL REMAIN SO THROUGH THE ELECTION DATE (OR WILL DISCLOSE OTHERWISE).

I HEREBY REQUEST THAT MY NAME AS FOLLOWS_____ BE PRINTED UPON THE OFFICIAL BALLOT FOR ELECTION BY GENERAL ELECTION AS A CANDIDATE FOR THE OFFICE OF MAYOR FOR THE TERM INDICATED ABOVE AND STATE THAT I WILL SERVE AS SUCH OFFICER, IF ELECTED.

IN FILING FOR PUBLIC OFFICE, I SWEAR AND AFFIRM THAT I WILL UPHOLD AND DEFEND THE CONSTITUTION AND LAWS OF THE UNITED STATES, THE CONSTITUTION AND LAWS OF THE STATE OF MISSOURI AND THE CHARTER AND ORDINANCES OF THE CITY OF CREVE COEUR, MISSOURI.

DATE: _____ TIME: _____

_____
SIGNATURE OF CANDIDATE

Address: _____

Email: _____

Telephone: _____

ATTEST:

_____
KELLIE HENKE
CITY CLERK

NOTE: CANDIDATES ARE NOW REQUIRED TO SUBMIT AN AFFIDAVIT REGARDING PAYMENT OF TAXES TO THE MISSOURI DEPARTMENT OF REVENUE UNDER SECTION 115.306 RSMO. WHILE THE LAW IS UNCLEAR, OUT OF AN ABUNDANCE OF CAUTION CANDIDATES MAY WANT TO FILE A COPY OF THAT AFFIDAVIT WITH THEIR ACCEPTANCE OF NOMINATION.

NOMINATING PETITION

PURSUANT TO SECTION 10.2 OF THE CHARTER OF THE CITY OF CREVE COEUR, WE, THE UNDERSIGNED PETITIONERS, BEING REGISTERED AND QUALIFIED VOTERS OF THE CITY OF CREVE COEUR AND ENTITLED TO VOTE FOR CANDIDATES FOR MAYOR, DO HEREBY NOMINATE _____ FOR THE OFFICE OF MAYOR, FOR A TERM OF THREE (3) YEARS AND RESPECTFULLY REQUEST THAT SUCH PERSON'S NAME BE INCLUDED ON THE BALLOT FOR SAID OFFICE FOR THE GENERAL MUNICIPAL ELECTION TO BE HELD ON TUESDAY, **APRIL 2, 2024**.

NOTICE TO SIGNERS

Please sign in ink or indelible pencil

NAME (SIGNATURE)	NAME PRINTED	REGISTERED VOTING ADDRESS	DATE SIGNED
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

CITY OF CREVE COEUR
ACCEPTANCE OF NOMINATION

NO._____

Date/Time Received _____

STATE OF MISSOURI)
) SS
COUNTY OF ST. LOUIS)

I, _____ BEING DULY SWORN, STATE UPON MY OATH ON THE DATE SET FORTH BELOW THAT I RESIDE AT _____, CITY OF CREVE COEUR, COUNTY OF ST. LOUIS, STATE OF MISSOURI, THAT I AM A QUALIFIED VOTER THEREIN, THAT I ACCEPT NOMINATION AND AM A CANDIDATE FOR THE ELECTION OF COUNCIL MEMBER, WARD _____ FOR FULL TWO-YEAR TERM, TO BE VOTED UPON AT THE GENERAL ELECTION TO BE HELD ON TUESDAY, APRIL 2, 2024, THAT I SHALL HAVE RESIDED IN THE CITY OF CREVE COEUR FOR AT LEAST ONE YEAR AS OF THE DATE OF THE ELECTION AND WILL BE A RESIDENT OF THE AFORESAID CITY AND WARD AT THAT TIME, THAT I HAVE FILED ALL REQUIRED CAMPAIGN DISCLOSURE REPORTS FOR ALL PRIOR ELECTIONS AND PAID ALL FEES ASSESSED BY THE MISSOURI ETHICS COMMISSION, AND THAT I AM OTHERWISE ELIGIBLE FOR SAID OFFICE AND WILL REMAIN SO THROUGH THE ELECTION DATE (OR WILL DISCLOSE OTHERWISE).

I HEREBY REQUEST THAT MY NAME AS FOLLOWS_____ BE PRINTED UPON THE OFFICIAL BALLOT FOR ELECTION BY GENERAL ELECTION AS A CANDIDATE FOR THE OFFICE OF COUNCIL MEMBER. WARD _____ FOR THE TERM INDICATED ABOVE AND STATE THAT I WILL SERVE AS SUCH OFFICER, IF ELECTED.

IN FILING FOR PUBLIC OFFICE, I SWEAR AND AFFIRM THAT I WILL UPHOLD AND DEFEND THE CONSTITUTION AND LAWS OF THE UNITED STATES, THE CONSTITUTION AND LAWS OF THE STATE OF MISSOURI AND THE CHARTER AND ORDINANCES OF THE CITY OF CREVE COEUR, MISSOURI.

DATE: _____ TIME: _____

_____
SIGNATURE OF CANDIDATE

Address: _____

Email: _____

Telephone: _____

ATTEST:

_____
KELLIE HENKE
CITY CLERK

NOTE: CANDIDATES ARE NOW REQUIRED TO SUBMIT AN AFFIDAVIT REGARDING PAYMENT OF TAXES TO THE MISSOURI DEPARTMENT OF REVENUE UNDER SECTION 115.306 RSMO. WHILE THE LAW IS UNCLEAR, OUT OF AN ABUNDANCE OF CAUTION CANDIDATES MAY WANT TO FILE A COPY OF THAT AFFIDAVIT WITH THEIR ACCEPTANCE OF NOMINATION.

NOMINATING PETITION

PURSUANT TO SECTION 10.2 OF THE CHARTER OF THE CITY OF CREVE COEUR, WE, THE UNDERSIGNED PETITIONERS, BEING REGISTERED AND QUALIFIED VOTERS OF WARD _____ OF THE CITY OF CREVE COEUR, AND ENTITLED TO VOTE FOR CANDIDATES FOR COUNCIL MEMBER OF SAID WARD, DO HEREBY NOMINATE _____ FOR THE OFFICE OF COUNCIL MEMBER OF WARD _____, FOR A TERM OF TWO YEARS AND RESPECTFULLY REQUEST THAT SUCH PERSON'S NAME BE INCLUDED ON THE BALLOT FOR SAID OFFICE FOR THE GENERAL MUNICIPAL ELECTION TO BE HELD ON TUESDAY, **APRIL 2, 2024.**

NOTICE TO SIGNERS: Please sign in ink or indelible pencil.

NAME (SIGNATURE)	NAME PRINTED	REGISTERED VOTING ADDRESS	DATE SIGNED
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RESOLUTION NO. 1683

A RESOLUTION AUTHORIZING THE EXECUTION OF AN AGREEMENT BETWEEN THE CITY OF CREVE COEUR AND EQUITABLE FOR THE CITY'S DENTAL INSURANCE PLAN BEGINNING JANUARY 1, 2024 AND ENDING DECEMBER 31, 2024.

WHEREAS, the City's employee dental insurance plan will expire on December 31, 2023; and

WHEREAS, industry trend rate increases for dental insurance are approximately 7% to 10% per year; and

WHEREAS, the City was presented with Equitable proposal Option 1 reflecting a 4.8% increase from current premium costs, and providing a 12-month rate guarantee for the plan year beginning January 1, 2024; and

WHEREAS, the City marketed its plan in 2010, 2011, 2013, 2016, 2018, 2021 and 2023 and has chosen to remain with Equitable based on lowest cost and comparable benefits.

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

SECTION 1: It is hereby authorized that an agreement with Equitable be executed by the City Administrator for dental insurance beginning January 1, 2024 for a 12-month term, and that the City Clerk is authorized and directed to attest thereto. The Agreement as executed shall be consistent with the provisions and intent of this Resolution with such changes as may be 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.

	Enrolled*	Total Monthly Premium	Employee Share of Monthly Premium	City Share of Monthly Premium	Estimated Total Annual Cost of Premium*	Estimated City Share of Total Annual Premium*
Employee	48	30.54	10.26	20.28	17,591.04	11,680.45
Employee + spouse	9	61.09	22.02	39.07	6,597.72	4,219.22
Employee + child(ren)	18	69.70	25.34	44.36	15,055.20	9,582.18
Family	25	93.67	34.56	59.11	28,101.00	17,734.05
TOTAL	**100**				**67,344.96**	**43,215.90**

**Based on current enrollment as of 10-9-2023; subject to change.*

RESOLUTION NO. _1683____

SECTION 2: This resolution shall become effective upon its passage.

ADOPTED THIS 23RD DAY OF OCTOBER 2023.

_____
DR. ROBERT HOFFMAN, MAYOR

ATTEST:

_____
KELLIE HENKE, CITY CLERK

INTEROFFICE MEMORANDUM

To: Mayor & City Council; Mark Perkins, City Administrator
From: Sharon Stott, Assistant City Administrator
Subject: Group Dental Insurance Contract for 2024
Date: October 13, 2023

City staff and the City's insurance broker, CBIZ, recommend maintaining dental insurance with Equitable for a 12-month rate hold effective January 1, 2024 through December 31, 2024 based on lowest cost, comparable provider network, and improved benefit levels.

Dental Insurance RFP Overview

September 2023 marked the seventh time since 2010 the City marketed its dental plan to other carriers. The City's insurance Broker, CBIZ, recently presented bids from five (5) companies (Equitable, Delta Dental, MetLife, The Standards, and Guardian), with Equitable presenting the lowest cost and comparable benefit levels.

City staff and CBIZ recommend remaining with Equitable for the following reasons:

- Equitable presented the lowest proposed increase in premiums at 4.8% from current premiums for the same level of coverage while other bids reflected a 20-32% increase.
- Equitable offers out-of-network coverage at the 99th percentile which can benefit those employees voluntarily electing to use dentists out of network.
- The City experienced a 16% decrease in premiums two (2) years ago when it switched to Equitable.
- Equitable has a comparable number of providers and 63% of participating employees will have in-network dentists.
- Equitable provides orthodontia coverage to include up to age 19 (versus age 18 for most providers).
- The City and its employees continue to seek cost saving opportunities when possible.
- The Employee Benefits Committee met on October 9, 2023 and voted unanimously in support of remaining with Equitable with no changes in benefit levels.

The following table summarizes proposed rates for Equitable for calendar year 2024:

Equitable Dental Premiums January 1, 2024 – December 31, 2024						
	Enrolled*	**Total Monthly Premium**	**Employee Share of Monthly Premium**	**City Share of Monthly Premium**	**Estimated Total Annual Cost of Premium***	**Estimated City Share of Total Annual Premium***
Employee	48	30.54	10.26	20.28	17,591.04	11,680.45
Employee + spouse	9	61.09	22.02	39.07	6,597.72	4,219.22
Employee + child(ren)	18	69.70	25.34	44.36	15,055.20	9,582.18
Family	25	93.67	34.56	59.11	28,101.00	17,734.05
TOTAL	**100**				**67,344.96**	**43,215.90**

**Estimate only; based on current enrollment; subject to change*

The City's cost share for calendar year 2024 is projected to be approximately $43,216 and reflects an approximate additional annual cost to the City of $1,976 from current premium rates (= $41,240/annual for 2021-2023).

City Council Consideration During FY25 Budget Planning Process

No changes are currently proposed to the City cost share of dental premiums which are currently at 66.4% for employee only coverage and 61.5% for all dependent coverages. However, as previously discussed with City Council during the FY24 budget planning process, the City cost share historically had matched that of health insurance with the City paying 85% for employee only and 80% for dependent coverages.

The City-employee cost share changed incrementally in 2008 and 2009 when employees absorbed 100% of premium rate increases in order to remain with Delta Dental in 2008 and 2009. In 2019, the City switched providers from Delta Dental to a different provider and did not adjust the cost share at the time or since.

As part of Goal 1 Strategic Plan action item, staff will revisit the discussion with City Council regarding the premium cost share percentages during the FY25 to remain more competitive with comparable cities which is supported by the City's 2022 Comprehensive Benefit Survey and the Employee Benefit Questionnaire completed in 2023.

Please let me know if you have any questions.

SMS

Appendices: 1) Resolution Dental Insurance Renewal 2024; 2) CBIZ Dental Market Overview Executive Summary; 3) Employee Benefits Committee Meeting Summary 10-9-2023

2024 Renewal Presentation

CITY OF CREVE COEUR

October 5, 2023

CBIZ

Executive Summary

CBIZ is proud to partner with City of Creve Coeur and we value your business. We take our role as your representative very seriously. Our partnership includes market research, education and aggressive marketing to the carriers. It is critical to ensure that the benefit package offered to your employees represents a key part of their total compensation package at a fair price. With this in mind, we offer the following recommendations.

Dental

The City switched to Equitable for the dental benefits effective January 1, 2022, for a 16% decrease. The City was given a two- year rate guarantee by Equitable which expires December 31, 2023.

For January 1, 2024, Equitable presented a 4.8% renewal increase. CBIZ requested a rate hold and was informed that there has been high utilization on the dental plan. We are presenting an option that increases the annual maximum from $1,500 to $2,000. This option would be an 8.8% increase from current rates, which is still below what the costs were with the previous carrier two years ago.

CBIZ recommends renewing with Equitable and increasing the annual maximum.

Vision

The renewal from EyeMed is another rate hold and four-year rate guarantee. We are presenting additional options with EyeMed that remove or lower the copays for lenses. We are also presenting an option that increases the allowance on frames and contacts from $175 to $200.

We did go to the market and one carrier, VBA, came in 1% below current rates. VBA's vision network is not as significant as EyeMed so there would be disruption in providers.

CBIZ recommends renewing with EyeMed and reviewing the additional options to determine if a change needs to be made.

City of Creve Coeur
DENTAL INSURANCE ANALYSIS
Renewal Date: 01/01/2024

= Benefit Enhancement

= Benefit Reduction

FEATURES:	Equitable *Current/Renewal*	Equitable *$2,000 Max.*
IN-NETWORK BENEFITS		
Calendar Year Deductible	$25 $75	$25 $75
Co-Insurance		
Preventive Care - Type I (Exams, Cleanings)	100%	100%
Basic Procedures - Type II (Fillings, Extractions)	80%	80%
Major Procedures - Type III (Caps, Crowns)	60%	60%
Orthodontia - Type IV	50%	50%
Orthodontia Plan Lifetime Max (Child to age 19)	$1,500	$1,500
Endodontics	80%	80%
Periodontics	80%	80%
Maximum Benefit/Year	$1,500	$2,000
OUT OF NETWORK BENEFITS		
Co-Insurance		
Preventive Care - Type I (Exams, Cleanings)	100%	100%
Basic Procedures - Type II (Fillings, Extractions)	80%	80%
Major Procedures - Type III (Caps, Crowns)	60%	60%
Orthodontia - Type IV	50%	50%
Orthodontia Plan Lifetime Max	$1,500	$1,500
Maximum Benefit/Year	$1,500	$2,000
UCR Percentile	99th	99th
Rate Guarantee	12 months	12 months

Tiers:	Census	Current	Renewal	Option 1
Employee	42	$29.14	$30.54	$31.76
Employee + Spouse	5	$58.29	$61.09	$63.53
Employee + Child(ren)	16	$66.51	$69.70	$72.21
Family	24	$89.38	$93.67	$97.14
	87	$4,724.61	$4,951.41	$5,138.29
Monthly Premium		$4,724.61	$4,951.41	$5,138.29
Annual Premium		$56,695.32	$59,416.92	$61,659.48
Difference vs Current			$2,722 (+4.8%)	$4,964 (+8.8%)

City of Creve Coeur
DENTAL MARKET OVERVIEW
Renewal Date: 01/01/2024

Carrier	Quoted	Declined	Premium Percentage Difference	Comments
Current - Equitable	X			
Renewal - Equitable	X		4.8%	
Equitable ($2,000 Max.)	X		8.8%	
Delta Dental (Current plan design)	X		20%	Quoted with a 2% Vision contingent discount
Delta Dental ($2,000 Max.)	X		25%	Quoted with a 2% Vision contingent discount
MetLife (Current plan design)	X		29.8%	
The Standard (Current plan design)	X		25%	
The Standard ($2,000 Max.)	X		32%	
Guardian (Current Plan Design)		X		Unable to provide a competitive quote

Employee Benefits Committee
Meeting Summary
Council Chamber
October 9, 2023 – 3:30 p.m.

Present: Employee Benefits Committee Members: Director of Recreation Jason Valvero; Director of Public Works Jim Heines; Police Capt. Jon Romas, Director of Finance Lori Obermoeller, Building Inspector Adam Boshears, Operations Superintendent Mike Fogg, and Human Resources Generalist Janet Rueschhoff.

Also Present: CBIZ Representative Tina Borge and Assistant City Administrator Sharon Stott

The meeting began at 2:00 p.m.

Overview of Dental Insurance Proposals
CBIZ representative Tina Borge provided the committee with a summary of the recent bid process for dental coverage effective January 1, 2024. The City currently has Equitable with the contract expiring on December 31, 2023 ending a 24-month rate freeze (January 1, 2022-December 30, 2023).

CBIZ received five (5) quotes from providers including Equitable. Based on maintaining the same or better coverage levels, the lowest and best proposals were received from Equitable.

Equitable proposed a 4.8% increase to current rates with out-of-network coverage at the 99th percentile for a 12-month rate hold. National average is between 7% and 10% increases. Other quotes presented a proposed increase ranging from 20%-32%. At this writing, Ms. Borge has not yet heard back from Equitable regarding her request for a 24-month rate hold.

Based on an employee benefit survey conducted in early 2023 requesting an "enhancement to dental and vision benefits", the City requested CBIZ to receive quotes from Equitable to enhance current benefit levels by increasing the maximum benefit of $1500 to $2000 per year which resulted in an 8.8% increase from current rates versus 4.8% to remain with the same benefit level. The City cost share of dental premiums is 66.4% for individual and 61.5% for dependent coverage.

Committee members discussed the pros and cons of paying higher monthly premiums versus the $500/year in additional maximum benefit maximum (all options received excluded cost of preventative services from the annual benefit maximums).

Tina Borge stated it is possible Equitable may raise premiums again next year as they continue to gain more of the market, and reminded members the City experienced a 16% decrease two years ago when it switched providers to Equitable.

Sharon Stott stated the City made one enhancement to dental and vision coverage in July 2023, by allowing retirees to remain on the group insurances at the full premium cost – a new benefit.

Jim Heines moved, seconded by Mike Fogg, to maintain the current level of coverage with Equitable and requested CBIZ request a 24-month rate hold instead of the 12-month rate hold proposed. With a vote of 7 ayes and 0 nays, motion passed.

Overview of Vision Insurance Proposals
CBIZ representative Tina Borge provided the committee with a summary of the recent bid process for vision coverage effective January 1, 2024. The City currently has EyeMed with the contract

expiring December 31, 2023. The City previously experienced a 48-month rate freeze with EyeMed (January 1, 2020- December 30, 2023).

CBIZ received six (6) quotes from providers including EyeMed. EyeMed agreed to maintain the same benefit levels, a 0% premium increase and a 48-month rate hold. CBIZ also received a quote from EyeMed to enhance current benefit levels including increasing the frame allowance from current $175 every two years to $200 which would increase premium costs 17.7%. Employees pay 100% of the premiums for vision insurance.

Committee members discussed the pros and cons of employees paying higher monthly premiums for only an additional $25 every two (2) years in frames resulting in the higher premium cost essentially equaling any proposed benefit enhancement.

Jim Heines moved, seconded by Capt. Jon Romas to maintain the current level of coverage with EyeMed with a 0% increase and 48-month rate hold. With a vote of 7 ayes and 0 nays, motion passed.

The meeting adjourned at 2:45 p.m.

Submitted by, Sharon Stott, Assistant City Administrator

RESOLUTION NO. 1684

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREVE COEUR, MISSOURI AUTHORIZING EXECUTION OF AN AMENDED 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 approved Resolution No. 1639 a Master Services Agreement with PGAV Planners for planning and development financing services; and

WHEREAS, on June 26, 2023 the City Council approved Resolution No. 1652 a Task Order agreement with PGAV Planners to provide such services to the City of Creve Coeur not to exceed $25,000 exclusive of reimbursable expenses; and

WHEREAS, the expenses incurred under this agreement are greater than anticipated thereby necessitating a need to increase the funds to $60,000 exclusive of reimbursable expenses;

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

Section 1: Amended 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 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 23RD DAY OF OCTOBER, 2023.

_____
DR. ROBERT HOFFMAN, MAYOR

ATTEST:

_____
KELLIE HENKE, CITY CLERK

ATTACHMENT A

AMENDED TASK ORDER NUMBER ONE

In accordance with the Master Services Agreement between the City and PGAV, this Amended 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 Amended 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~~ $60,000 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.

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

DEPARTMENT OF COMMUNITY DEVELOPMENT MEMORANDUM

Meeting Date: October 23, 2023

To: Mark Perkins, City Administrator
Mayor and City Council

Memo Prepared by: Jason W. Jaggi, AICP, Director of Community Development

Subject: **Amended Task Order Agreement with PGAV Planners—Olia Village Redevelopment**

On June 26, 2023, the City Council approved two resolutions to facilitate the review of redevelopment plans for the former Bayer West property, referred to as Olia Village. The first resolution (No. 1651) established 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 required the developer to advance $50,000 to the City to cover these review costs. The agreement contains a provision that requires the developer to advance additional funds, in $10,000 increments, if the balance falls below $5,000. With this provision, City Council approval is not necessary should additional funds from the developer be necessary to cover the City's review costs.

The second resolution (No. 1652) involved 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, was 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.

Since the approval of these funding agreements, the development proposal has received extensive reviews by the City's planning consultant, PGAV Planners. PGAV has reviewed and advised the City on the site concept plan, development standards, allowable uses, and consistency with the Comprehensive Plan during the Planning and Zoning Commission review process. In addition, PGAV prepared a residential market study to provide information to the City with respect to the housing demand for this site and within the region. PGAV and the City's bond counsel, Gilmore & Bell, have also conducted reviews of the developer's financing model and provided their feedback to the developer, which is on-going. It is anticipated that the services of PGAV on the planning and zoning application will no longer be needed, with the focus going forward on the development financing.

With these considerations in mind, an amendment to the task order for Olia Village is being submitted for consideration that would increase the funding for PGAV Planners from $25,000 to $60,000. These additional funds are needed due to higher than anticipated review costs which exceed the previously authorized amount.

Recommendation

These amended agreements will continue to 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 consulting services. Therefore, Staff recommends approval of the resolution to authorize an increase in funds to PGAV to $60,000.

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 approved Resolution No. 1639 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 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

CITY OF CREVE COEUR, MO • 1949 •

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 28th day of June, 2023.

ATTEST:

Kellie Hewlett
City Clerk

CITY OF CREVE COEUR, MISSOURI

Mark Perkins
City Administrator

ATTEST:

Lindsey Evans
Sr. Project Manager

PGAV PLANNERS, LLC

Andy Struckhoff
President

DEPARTMENT OF PUBLIC WORKS
STAFF MEMORANDUM

DATE: September 28, 2023

TO: Mark Perkins, City Administrator

CC: Jim Heines, Director of Public Works

FROM: Tom Delia, Project Manager - Engineering

SUBJECT: Recommendation for Lake School building

Public Works staff has gathered information regarding options as they relate to the Lake School building. Lake School is in need of repair in order to keep the building from further deterioration. At the same time there is some question with regards to the need to continue to maintain said building going forward. The public works staff has looked at various options an offers the pros and cons associated with each.

Project Description

In 2023, Creve Coeur Public Works Department began to develop the Lake School Park Master Plan. Part of this plan development encompassed recommendations from the City of Creve Coeur's Master Park Plan from September 2, 2019. In the plan, the Lake School was identified as a unique element of attraction, it was also identified as a low value / high-cost element. In the spring 2023, Micheal Blaes Architect was selected to provide a building evaluation for structural and cosmetic damages, document repairs and improvements, front porch reconstruction, investigate reconstruction of original cupola, and grading in the immediate vicinity. This work was completed in June 2023, and has been placed on hold till a decision is made. The cost to provide this improvement will be provide later in the financial comparative section.

Currently the building is closed due to structural issues and has not been open for some time. There is no benefit derived from its presence at the park, beyond the name. Further it is not a true historical site as it has not been oriented the same way as the original and the building has been modified with the removal of the copula, metal roof and the removal of the chimney.

In an effort to see if there was interest in the building by outside groups. Jason Valvero reached out to Brian Schaffer, St Louis County's Director of Parks and Recreation, and asked if there was an interest in the Lake School building. He suggested we reach out to the Faust Park Historical group and see if there was an interest or room for the building. Tom Delia reached out to Jessie Francis, the Cultural Site Manager at Faust Park, and was told there was no interest in the building as they currently had the Clester and Hackmann cabins to still reassemble. He offered to send contact information for the Chesterfield Historical Society. Upon search we located Erin Compton with Chesterfield Historic and Land Preservation Committee, and reach out to see what level of interest there was on their part. Prior to any conversation with either of these two (2) groups, I received an informal estimate from Commonwealth Construction with regards to move a structure for at least $250,000. Its worth noting that this cost does not include the staffs time to coordinate this move, the countless hours that would be involved to move the said structure to a

new location, any road closures, dealings with MO Dot , St Louis County Traffic Division, Ameren and various Utilities that are hung on telephone poles, etc.

Final option pursued was the demolition of the building and removal from the park. In September, an onsite visit was conducted with Commonwealth Construction to discuss what would need to be done to accomplish this option. The quote provided included demolition of the structure, removal of all debris, disconnection of any water and sewer utilities, backfill, seed and straw. The quote has been attached below. This quote also includes consideration that the existing electric panel for the tennis court lights that are located in the crawlspace of the structure. To that end, additional cost is offered to provide weather proof stand to keep the utility active. This options also brings up concerns regarding environmental issues regarding material that are present with older construction. There are two (2) items that maybe present in the Lake School, lead paint and asbestos. Per the Missouri Department of Natural resources, demolition debris from a structure such as the Lake School, does not need to be tested, as long as it is not processed. Unprocessed waste maybe disposed of in either a sanitary or a demolition landfill in Missouri. (Documentation attached below). Asbestos waste is handled by St Louis County, and is primarily a problem for commercial structures with asbestos flooring, insulation, siding, etc. In walking this site with the demolition contractor, the only item which may contain asbestos would be the window caulking which is less than 0.1% of the total amount of site debris. In this case, we can request a waiver from St Louis County for this demolition project. The contractor is confident that a waiver would be granted and further control measure would involve a water spray down during demolition to limit particulate matter.

Options. The City has three (3) options with regards to the Lake School Building:

Bidder		Total Bid Price
1.	Repair with Historical Alterations	$ 347,181.68
2.	Repair without Historical Alterations	$ 288,212.93
3.	Dedicate and move to new location (loose estimate)	$ 250,000.00
4.	Demolish the building (includes electric structure)	$ 20,900.00

Financing

Funds are available in the FY2024 Capital Improvement Program for historical building rehabilitation and preservation, in the amount of $100,000. To date approximately $16,000 of this fund has been allocated to repairs on the Tappmeyer House. So there is ample funds available to handle demolition cost or a partial funding of a relocation if there is an interested party.

Recommendation

While the Lake School building is a unique element in Creve Coeur, it only has historic value if it were in its original condition and placement. Even when it was open to the public, it was difficult to get volunteers to staff events, nor was there a strong community interest to visit a site with only one element of historical interest. If restoration were to be done, it would continue to have maintenance needs that would continue to draw funds from the community for an element of low value. There is very little appetite from local community groups to support the building via generating funds to support maintenance and hold events. Further, there is little interest in outside historical groups to move the building to a new home due to the high cost to perform said move. Based on this information Public Works staff believes the best option for the City is to recommend the demolition of the Lake School building. Additionally, removal of this building

will open up more space for parking in the park which will be needed with the proposed expansion of the tennis complex and additional playgrounds and walking trails.

Attachment: Commonwealth Construction – Demolition Bid

Bid Tabulation for Lake School Repairs

Missouri Department of Natural Resources – Disposal of Demolition Waste Contaminated with Lead of Other Heavy Metals

JOINT WORK SESSION MEETING
MINUTES
CITY OF CREVE COEUR
CITY COUNCIL & PARKS AND HISTORIC PRESERVATION COMMITTEE
300 NORTH NEW BALLAS RD
AUGUST 28, 2023
6:00 PM

CALL TO ORDER

A joint work session meeting of the City Council of the City of Creve Coeur and the Parks and Historic Preservation Committee 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, August 28, 2023 at 6:00 PM.

ROLL CALL

Mayor Robert Hoffman
Council Member, Ward 1 Mark Manlin
Council Member, Ward 1 Heather Silverman
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

Staff Present: City Administrator Mark Perkins, City Attorney Carl Lumley, Director of Community Development Jason Jaggi, Director of Finance Lori Obermoeller, Director of Recreation Jason Valvero, Assistant City Administrator Sharon Stott, Chief of Police Jeffrey Hartman, and City Clerk Kellie Henke.

Parks and Historic Preservation Committee Members Present: Chair Ralph Merola, Vice-Chair Nancy Litzinger, Nanci Allen, Joe Harrison, Richard Darrow, Matthew Rizzo, and Teresa Wheeler.

Others Present: Jon Brook, of HDR/4DO, via Zoom and Meridith McKinley, of Via Partnership.

DISCUSSION ITEMS

1. **Approval of August 14, 2023 City Council Joint Work Session Minutes**

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 4 Tierney
SECONDER: Council Member Ward 2 Carney
AYES: Hoffman, Martinich, Manlin, Tierney, Greer, Neudorf, Carney, Silverman

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

City Administrator Mark Perkins requested to add Lake School House as discussion item number three.

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 1Silverman
SECONDER: Council Member Ward 2 Carney
AYES: Hoffman, Martinich, Manlin, Tierney, Greer, Neudorf, Carney, Silverman

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

2. Venable Park Master Plan and Memorial Update

Director of Recreation Jason Valvero provided an update on the HDR Foundation grant and stated the City has preliminary approval for a $300,000 grant of which $100,000 would go towards the Venable Park memorial project and $200,000 would go towards the Parks Master Plan.

Jon Brook, of HDR/D4O, provided an update on the Venable Park Master Plan (see Exhibit A) and discussed site issues and opportunities, including an improved park entry and signage, expanded parking, new multi-use courts, and a new splash pad.

Council Member Martinich confirmed that reconfiguration of the Master Plan will not be needed once the location of the memorial artwork is finalized.

Resident David Meyer, of 433 Shadybrook Drive, requested a noise impact study to be conducted regarding the proposed pickleball courts. City Administrator Mark Perkins stated next steps include communication and engagement with the community

regarding proposed site amenities.

Mr. Valvero stated the start of construction would take place in the fall of 2024 and end in the summer of 2025. Mr. Valvero stated installation of the memorial will coincide with park construction.

Meridith McKinney discussed the memorial artwork goals and stated the work would complement other park uses and the overall park design. Ms. McKinney summarized the artist selection process, concept development, and the final selected artists:

- Damon Davis
- Oletha DeVane and Christopher Kozjar
- Norman Lee and Shane Allbritton, RE: site Studio

Ms. McKinney stated the finalists would present their concepts to the Memorial Jury on August 30, 2023 and the concepts would be on display for public comment from September 15 to October 15, 2023. Ms. McKinney stated a meeting with local educators would also take place during this time to discuss the concepts. Ms. McKinney stated the jury would meet after the public comment period to make its final selection and recommendation to the City Council. Council Member Tierney emphasized the importance of public comments.

3. Lake School House

Chair Ralph Merola, on behalf of the Parks and Historic Preservation Committee (PHP), read the committee's recommendation to remove or donate the Lake School House located within Lake School Park (see Exhibit B).

Council Member Martinich agreed with the recommendation of the PHP Committee and supported reaching out to St. Louis County for a possible donation.

Council Member Carney agreed with the recommendation of the PHP Committee and supported dedicating historical preservation funds for maintenance of the Tappmeyer House.

Mr. Perkins stated an issue with moving the Lake School House is that it is not able to be dissasembled; the entire house would need to be moved and would be costly, and damage could occur upon removal.

Council Member Hoffman stated there are environmental issues to consider due to lead paint. Mr. Valvero stated no inquiries have been made for cost estimates for lead abatement or demolishing the house.

Committee Member Litzinger stated the contents of the house could be donated to various local historical societies and possibly the Creve Coeur VFW. Mr. Perkins stated that some of the contents could be moved to the Tappmeyer House and suggested that the contents of the house should not be moved prior to the City Council's final decision on how to proceed.

Ms. Litzinger stated that routine funding and accessibility to the Tappmeyer house would demonstrate the City's commitment to historic preservation.

Committee Member Darrow recommended, due to cost, waiting until Lake School Park has been renovated prior to additional discussion regarding the removal of Lake School House. To which Council Member Tierney agreed.

Mr. Perkins stated City staff is actively working on the Lake School Master Plan and confirmed removal of the house could impact the Master Plan and removal should be considered prior to the completion of the Master Plan.

ADJOURNMENT

RESULT: APPROVED (UNANIMOUS)
MOVER: Council Member Ward 3 Hoffman
SECONDER: Council Member Ward 1 Manlin
AYES: Hoffman, Martinich, Manlin, Tierney, Greer, Neudorf, Carney, Silverman

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

The meeting adjourned at 6:59 PM.

Submitted by:

Kellie Henke
City Clerk

Dr. Robert Hoffman
Mayor

Exhibit A

DR. H. PHILLIP VENABLE MEMORIAL PARK

PARK MASTER PLAN AND MEMORIAL ARTWORK

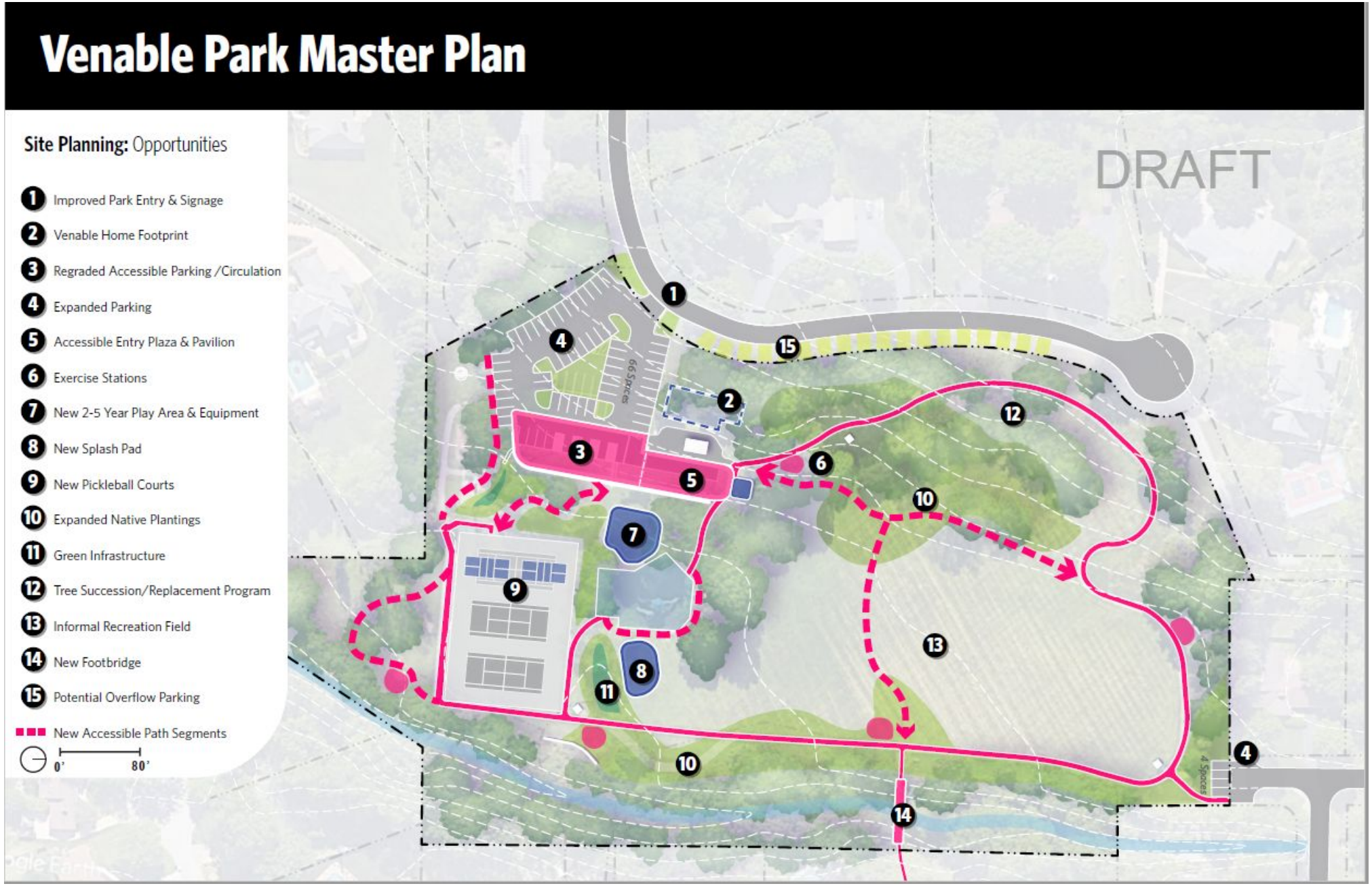
City Council - August 28, 2023

Agenda

- Memo Highlights
- Review Draft Master Plan with D4O
- Review Memorial Project Plan with Via Partnerships
- Next Steps
- Questions & Answers

Venable Park Master Plan

Venable Park Master Plan



Master Plan: Next Steps

- Public Input
- Hire architect to create scope and bid documents
- Bid project in early 2024
- Start construction in Fall of 2024
- Complete construction in Summer of 2025
- Installation of memorial will coincide with park construction

Memorial Artwork - Jury Members

Nanci Allen – Parks & Historic Preservation Committee

Pier Alsup – Venable Park Task Force

Changa Bey – Local Educator

Jon Brooke –HDR/D4O Design Team

Lisa Hilton – Art Committee

Linda Kusmer – Art Committee

Tim Portlock – Practicing Artist

Jim Singer – Venable Park Task Force

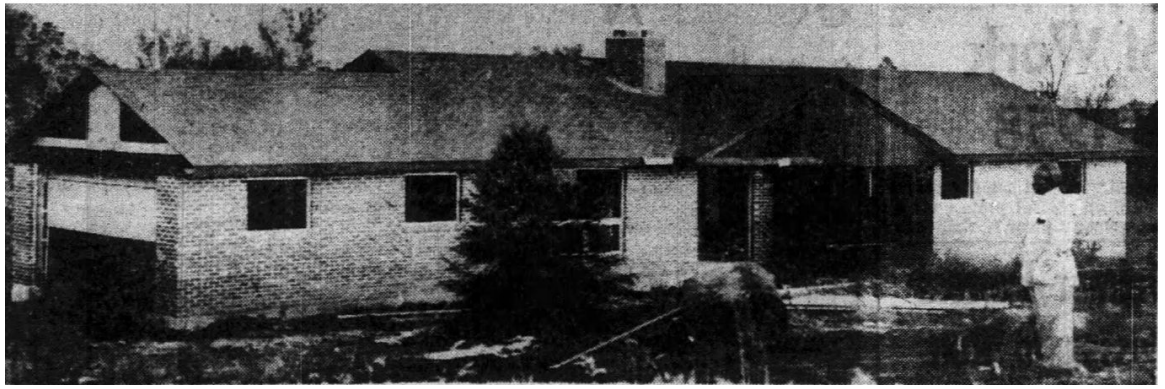
Dan Tierney – Council Liaison

Rossalind Woodhouse – Venable Family

Geoff Ward – Project Consultant

Artwork Goals

- Honor the Venable family and inspire the community through a visually compelling, engaging, and unique work of art
- Educate the public about the Venables and other families and their struggle with the City of Creve Coeur
- Create a lasting memory of the legacy of Dr. Venable in all aspects of his life
- Inspire contemplation and dialogue about the past and current struggles for justice and civil rights
- Complement other park uses and the overall park design in terms of site and scale



Selection Process: Evaluation Criteria

- Artistic excellence & compatibility. Interest in and/or previous work relating to civil rights, social justice, or racial discrimination
- Body of work demonstrates an ability to create an original work that responds to the project goals
- Clear understanding of and/or relevant connection to the project
- Experience executing projects of similar scale

Selecting Finalists

- Call for Artists closed on April 19 and generated 38 submissions
- The Jury reviewed submissions and narrowed the list to 15
- The Jury met on May 10 and selected 3 finalists:

    - Damon Davis

    - Oletha DeVane and Christopher Kozjar

    - Norman Lee and Shane Allbritton, RE:site Studio

Damon Davis

St. Louis, Missouri

"...this project would aim to foster empathy amongst those that interact with it, encouraging dialogue and serving as a reminder of the racism the Venable family experienced while also creating something unique, compelling, and beautiful for people to encounter..."

Left: *Pillars of the Valley*, 2023, St. Louis

Right: *Cracks*, 2019

Oletha DeVane and Christopher Kojzar

Ellicott City, MD and Burlington, VT

"We would like this project in Venable Park to re-invest in the culture and resources of the people who frequent the area, today and in the past, and who seek comfort, awe, leisure, and contemplation. It would be an honor to propose an artwork that complements the surrounding park… while paying homage to Dr. Venable's life, work, and advocacy for justice."

Top: *Memorial to Those Enslaved and Freed*, 2022, Owings Mills, MD

Bottom: *Robert and Rosetta*, 2022, Baltimore, MD

Norman Lee and Shane Allbritton, RE:site Studio

Arlington and Houston, TX

"Our approach would be radically site-specific, commemorating the lasting memory of the legacy of Dr. Venable in all aspects of his life. We envision creating a sense of place that invites inter-generational conversation about the ongoing struggle for civil rights and human dignity."

Top: *From Absence to Presence, Commemorative to Enslaved Peoples of Southern Maryland*, 2020; St. Mary's College of Maryland

Bottom: *Fallen Five Memorial*, 2019, Chattanooga ,TN

Concept Development

The finalists each:

- Signed an agreement to develop a concept proposal
- Attended individual briefing with Via, HDR/D40 and City
- Participated in virtual roundtable with Venable family
- Made a site visit to Venable Park

Presentation & Public Comment Period

- Finalists will present their concepts to the Jury on August 30
- Concepts will be on display for public comment from September 15 to October 15
- Boards will be at City Hall and at the Dielmann Recreation Complex
- City’s website
- Two opportunities at Venable Park
  - Sept 21 from 4-6
  - Oct 7 from 10-12
- Meeting with local educators

Jury will meet after the public comment period to make their final selection and then make their recommendation to the City Council.

Questions & Answers

Exhibit B

Mr. Mayor, City Council members, and Mr. Perkins, my name is Ralph Merola, and I am the chairperson on the Parks and Historic Preservation Committee (PHP).

I am here before you this evening to discuss the current fate of the Lake School building located at the entrance of the Lake School Park. A school house that is 126 years old and been at its current location since 1967, a total of 56 years. A building that is no longer open to the public due to safety concerns and staffing issues.

Over the past couple of months, our committee has been looking into the possibility of repair and/or restoration of the Lake School house, and the use of the house as an events center.

As you are aware, the school house requires much repair before it can be safely opened to the public as an event center. Back in July 2022, our committee made a picture presentation to city council showing photos of the inside and outside of the structure. While the inside was reasonably in good shape and the artifacts protected, with no water damage evident, the outside showed signs of wear and neglect.

- The roof is in good shape (approximately 5 years old)
- The entrance is in very rough shape; the portico is sagging
- The foundation is now showing signs of stress
- The old paint is chipping and needs scraping and new paint applied (there is a concern that the old paint is lead based)
- Window frames and shutters are in need of repair.

At that time, we recommended as our next steps that a structural evaluation be made

- Repairs and maintenance be performed on the front porch
- The paint be scrapped and new paint be applied
- The windows and shutters be replaced as applicable
- Landscaping be performed and the trees and bushes be trimmed
- Improve accessibility for visitors.

Also at that time, we identified what we thought would be community benefits in preserving community appreciation for historic preservation. Such as:

- Offer an open house for special events
- Reading hours
- Classes or speaker series ranging from gardening, art, history and lifestyle
- Interpretive and educational programs with tours with local and private schools

- Showcase the city and school in the metro area historic Christmas and summer tour events
- Craft sales, plant sales and private rentals

While not all committee members agreed to the usage of the house for the aforementioned potential community benefits, we did agree that the city should take steps in making the necessary repairs we identified, and others as the public works department may deem necessary.

With the approval of the FY24 through FY28 CIP funding, City Council approved funding under Historic Building Rehabilitation and Preservation-03 **$200,000** spread over 5 years with **$100,000** being allocated in FY 2024. However, this funding allocation was to be used for repairs at both the Lake School and Tappmeyer House in Millennium Park. In FY 24, the focus was to be for the repairing of the front porch and stabilizing the structural support, cleaning up the basement, and repainting at Lake School.

Also in the 5 year CIP, under Lake School Park Phase 1: Master Plan, Grading & Playground-20, the city council council allocated **$464,100** which covers various improvements and additional amenities to the Lake School Park None of this funding covers any specific repairs identified above.

So why am I here in front of you addressing our honorable mayor and esteemed city council members?

It is to inform you that that after long debates/discussions among our committee members over the past months, and by an unanimous vote at our last meeting on 16 August 2023 with those in attendance, the committee voted by an unanimous vote to remove or donate the school house from the park. It was a hard decision to make, but we felt that it was in the best interest of the city to do so.

Concerns we considered:

- The first thing that came to mind was “What benefit is there in keeping the school house”? Certainly, there would not be any financial gain in keeping it open to support those community benefits I mentioned above.

- The city most likely would have to hire an additional employee, or transfer job responsibilities in order to coordinate any activity that would take place at the house.

- Some PHP committee members brought up the idea of soliciting volunteers to staff these activities, but that still would require a member of the city work force to be involved.

- Would any fees gained from these activities support the upkeep and maintenance of the school house? - Frankly, NO.

The most compelling reason for our decision was the cost factor to keep the school house safely open to the public, and I do stress “safety”.

- Mr. Tom Dalia spoke with Jessie Francis from St. Louis County for a recommendation for an architect that works with historical structures. Let me mention at this time that Mr. Francis was the person who the city coordinated with to remove the two log cabins from Conway Park to Queeny Park.

- Blaes Architects was contacted to provide the city with a structural review of the building, along with any other items that needed attention to bring the building and exterior up to a safe and presentable state.

- Blaes reported that there are only a few companies that they work with who perform work on older historical structures. Blaes asked one of those companies to provide a rough order of magnitude pricing estimate.

- Mr. Valvero shared that cost estimate with our committee members. While I don't have the actual breakdown estimate in front of me, it is currently with Mr. Valvero and Mr. Delia. The cost estimate without the alternates totaled $288,213. The cost of the alternates was $58,969 (if we chose them), for an all in costs of $347,182.

- This is much more than the Lake School house's $100,000 budgeted portion in FY 24, as well as, the remaining 4 year $100,000 allotment (inclusive of Tappmeyer house) over the next 4 FY's.

This estimate was significantly higher for repairs and maintenance than was perceived by this committee.

So where do we go from here? Questions and thoughts raised by the PHP committee:

- Do we go out and attempt to get bids from other companies who restore/repair

old buildings like this one? Is it worth it?

- Do we really think we can make a go of the community benefits idea mentioned above? Our current society is not conductive to staffing the house with volunteers as it was in the sixties, seventies, and eighties. As a result, there are no viable options to re-open the house to the public in any meaningful, practical way.

- Do we channel those dollars into Tappmeyer which is already recognized and well used by the public; is open to public events and tours during the summer on Sundays; and for concerts?

I hate to say this, but as it stands now, the current state of the building is an eye sore, and somewhat of an embarrassment to the city; and a current and future financial drain on the city's resources, especially if we keep the building there after the Lake School Master Plan is incorporated.

Our committee recognizes that the revenue from the new city tax provides our city with ample resources to improve and maintain our parks. We also recognize that we are representatives of the community, and should use our resources wisely and make good financial decisions. Unfortunately, we strongly believe that it is not viable or fiscally responsible to keep the Lake School House as part of the Creve Coeur Historic structures.

I do want to add that our committee is committed to finding a new home for the contents in the school house. One of our members has agreed to contact various local historical societies, while another will contact the Creve Coeur VFW Post for items that have their markings on them. And one more thing, I would like to add. I hope that this experience shows the City Council and members of our city government what happens when the city does not spend money on regular upkeep on our historic buildings.

Thank you. Ralph

Subdivision Trustee Meeting – January 26, 2023

Agenda

1. **Introductions (All Staff)**
2. **Long-Range Planning (Mark Perkins)**
    a. Strategic Plan, Comprehensive Plan, and Capital Improvement Plan
3. **Citizen Involvement (Kellie Henke)**
    a. Boards, Committees and Commissions
4. **Community Development**
    a. **Planning Division (Jason Jaggi)**
        i. Sign allowances for residential properties
        ii. Zoning development requirements for residential properties.
        iii. Fence requirements for residential properties
    b. **Building Division (Gregory Tate)**
        i. When are building permits required / how to get a building permit
        ii. City development codes vs. subdivision indentures;
        iii. Enforcement of city code and subdivision indentures
        iv. Reporting a code enforcement/property maintenance concern
        v. Building Task Force Recommendations - Code modifications, policy changes, new public software
5. **Public Works (Jim Heines)**
    a. Residential Services – Leaf/limb collection, trash/recycling collection, snow plow service
    b. Pavement Repair Requests
    c. Cost Share Programs - Sewer lateral cost share & shared cost tree planting
    d. Watershed Management Plan
6. **Police Department (Chief Jeffrey Hartman)**
    a. Auto Theft and Car Break-ins
    b. Traffic Safety in Residential Neighborhoods
7. **Parks and Recreation (Jason Valvero)**
    a. Benefits of Creve Coeur resident ID
    b. Meeting room and pavilion rentals
    c. City parks and amenities (Dielmann Recreation Complex)
    d. Recreation Guide
8. **Q&A**

Subdivision Trustee Meeting Presentation– January 26, 2023
Creve Coeur Government Center- Council Chambers

Long-Range Planning

The Strategic Plan, adopted by the City Council, provides focus to municipal operations over three years. The Strategic Plan includes specific organizational goals that are tied to organizational priorities such as financial stability or improved city services: https://www.crevecoeurmo.gov/678/Strategic-Plan-2023-2025

The Comprehensive Plan is the City's land use adopted by the Planning and Zoning Commission and represents a long-range vision for the community: https://www.crevecoeurmo.gov/179/Comprehensive-Plan-and-Design-Guidelines

The Capital Improvement Plan 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, cost-effective manner: https://www.crevecoeurmo.gov/95/Capital-Improvement-Program

Citizen Involvement

If you are interested in working in the community or would like to become a member of one of the boards, commissions, or committees of the City of Creve Coeur, please complete the application form found online. Vacancies do come up throughout the year; however, most appointments are made in June.

The City of Creve Coeur tries to maintain a listing of all subdivision trustees in the city. When there is a change of trustees or an update of information, please contact the City Clerk Kellie Henke at khenke@crevecoeurmo.gov or 314-872-2517.

Community Development

Planning Division

Sign allowances for residential properties: For additional information regarding residential signs, please visit the City of Creve Coeur Zoning Ordinance, Article VII Sign Regulations, Section 405.940: https://ecode360.com/28143414. *Please note:* Content of a sign can be minimally regulated by the City.

Zoning development requirements for residential properties: For additional information regarding Zoning District regulations, please visit the City of Creve Coeur Zoning Ordinance, Article III: https://ecode360.com/28142091.

Fence requirements for residential properties: For additional information regarding Fences, please visit the City of Creve Coeur Zoning Ordinance, Article VI General Provisions, Section

405.640: https://ecode360.com/28143148. *Please note*: As a courtesy, staff requests evidence that the subdivision Trustee(s) have reviewed the proposal, however trustee approval is not required for the permit to be issued.

39 North: 39 North, announced by St. Louis County and the St. Louis Economic Development Partnership, is to be a global innovation district for plant science and agricultural technology. With the Danforth Plant Science Center, Bio Research & Development Growth (BRDG) Park, Bayer, and the Helix Center Biotech Incubator as anchors, the district encompasses 600+ acres in the City of Creve Coeur within St. Louis County. For additional details, please visit: https://www.crevecoeurmo.gov/179/Comprehensive-Plan or https://39northstl.com/

Bayer West Campus has been sold for redevelopment. Some existing Bayer buildings may be kept and renovated, but the mix of uses is still undetermined. A *Greenway Connection* will be a component of the project and pavement and sidewalk improvements are scheduled to be made by MoDOT for the *Lindbergh and Old Olive Street interchange*.

Short Term Rentals (AirBNB, Flipkey and VRBO): Please note: there is no set limit of the number of rental homes within the City. For additional information regarding short term rentals, please visit: https://www.crevecoeurmo.gov/DocumentCenter/View/9031/Short-Term-Rentals-Information-Guide

Building Division

When are building permits required / how to get a building permit: To find out if your project requires a permit, view a list of common projects that do and don't require a permit or call (314) 872-2500. *Please note:* Escrow Deposits are held by the City as assurance for completion of the project, compliance with the building and zoning codes, compliance with all storm water and land disturbance ordinances, compliance with the approved site plans, and repair of damage to public property.

City development codes and enforcement vs. subdivision indentures: UPDATE WITH TRUSTEE REVIEW POLICY FROM GREGORY TATE

Reporting a code enforcement/property maintenance. Examples include, but are not limited to, Exterior Property Maintenance concerns, Illegal Construction Activity, Weeds, and Dead Trees. To Report a Code Enforcement/Property Maintenance concern please contact us at 314-872-2500 or submit a service request online*:* https://www.crevecoeurmo.gov/forms.asp?FID=45*.*

Building Task Force Recommendations

*Code Modifications: C*hanges included interior door sizes, egress windows, retaining wall heights, allowing Wi-Fi wireless smoke detectors and no longer requiring a permit for every existing residence that is simply installing replacement windows/doors.

Policy Changes: changes include a policy that no longer charges a penalty fee every time a permit has a failed inspection, stop work order are now rarely used and only as a very

last resort. Assigning the same inspector throughout a permit/project is now occurring in most cases as per staff availability.

Public Perception: Permit close-out survey responses were very positive in 2022 and far more complimentary as compared to the previous surveys in years past.

Contractor Forum: the Chief Building Official held a contractor forum in May 2022 and presented the key changes made and how it will help them to obtain permits, inspections and to more effectively communicate with the Creve Coeur building division staff. The result was very positive and all the contractors in attendance seemed very pleased with the new policies, procedures and our efforts to work together going forward.

New Software: City staff has recognized the need for new software to modernize the permitting process in order to meet the expectations of the construction industry and residents. New software is currently in the implementation process and estimated roll out is August 2023. Strengths of the software include an easy to use citizen portal that will allow contractors and residents the option of submitting applications online, scheduling inspections and making payments. Additionally, the software will allow for electronic plan reviews.

Public Works

Residential Services – Leaf/limb collection, trash/recycling collection, snow plow service
Pavement Repair Requests: To Report a concern please contact us at 314-872-2533 or submit a service request online*:* https://www.crevecoeurmo.gov/forms.asp?FID=45 *or to* Sign up to receive emails about trash, recycling & yard waste service, leaf & limb collection and more: https://www.crevecoeurmo.gov/list.aspx

Cost Share Programs - Sewer lateral cost share & shared cost tree planting: For more information about the Sanitary Sewer Lateral Program or the Right of Way Street Tree Planting Program please contact Public Works at 314-872-2533 or visit:
https://www.crevecoeurmo.gov/109/Sanitary-Sewer-Lateral-Program;
https://www.crevecoeurmo.gov/137/Street-Tree-Planting
Please note: currently, there is no shared cost program regarding the removal of pin oak trees on private property, however it is something the city can review.

Watershed Management Plan: The City has recently begun the process of developing a citywide Watershed Management Plan in order to plan for future stormwater infrastructure improvements. This process will include several opportunities for public input including a questionnaire and a series of open houses. This project is funded by the City's Parks and Stormwater Sales Tax. **Open House #1:** Wednesday, March 22, 2023 • 6:30-8:00 p.m. • Creve Coeur Government Center (300 N. New Ballas Rd.)

The Stormwater Committee is also discussing the possibility of a *city cost-share program* to allow subdivisions to apply for assistance with stormwater maintenance.

Police Department

Auto Theft and Car Break-ins

- *Data*
  - 72% increase in motor vehicle theft in 2022
  - 50% keys left in car
  - 36% were Kia or Hyundai's
  - 90% vehicles recovered (charges filed in 5% of the cases as it is very difficult to prove)
  - Motor vehicle theft most commonly occurs in apartment parking lots or Single-Family Residential Neighborhoods

- *What the Creve Coeur Police Department is doing:*
  - Public Education via social media, mainstream media, city newsletter, and public meetings
  - Partnered with Creve Coeur Neighborhood Watch to get the message out, an independent organization supported by the Creve Coeur Police Department, who provides safety and preparedness education to residents. Creve Coeur Neighborhood Watch has received approval from many of the local gas stations to place stickers on the pumps reminding citizens to lock their doors.
  - Targeted patrols and remaining visible
  - Technology License Plate Reader (LPR's) have been installed strategically based on motor vehicle theft data
    - LPR's are available for public purchase for an initial purchase fee and an annual fee
  - Working with the courts to make sure these cases are properly prosecuted

- *What you can do:*
  - Lock Doors (even when pumping gas)
  - Don't leave keys inside the car (even when pumping gas)
  - Don't leave valuables in plain view
  - Don't leave guns in the car
  - Register home based camera systems with the Police Department by calling Prime Prevention at (314) 442-2075 or visit: https://www.crevecoeurmo.gov/FormCenter/Police-Department-Forms-6/Creve-Coeur-Police-Department-Camera-Reg-130
  - If you have a subdivision newsletter or social media page, reprint Police Department posts or put your own message out reminding your neighbor

Traffic Safety in Residential Neighborhoods

- *Speed Complaint Process*
  - Contact the Police Department through website, phone, email.
  - Police Department next steps:

    - Gathering data with counters and determine if there is an issue
    - Set up a speed trailer ***Please note:*** The counter and speed trailer are about 4 weeks deep in requests
    - Speed enforcement
    - Gather data shortly thereafter to see if there was any impact
    - Repeat

Parks and Recreation

Benefits of Creve Coeur resident ID: A resident ID card is required to get the resident rate for Creve Coeur recreation programs. With the resident ID card, residents also receive discounts at the Creve Coeur, Ballwin and University City golf courses, the Creve Coeur Ice Arena and the Maryland Heights Aquaport. Residents may purchase an ID card for $5 at the Dielmann Recreation Complex during regular business hours (8 a.m. to 5 p.m., Monday–Friday)

Meeting room and pavilion rentals: Contact the Recreation Department at (314) 432-3960 or visit the Dielmann Recreation Complex during regular business hours (8 a.m. to 5 p.m., Monday–Friday)

City parks and amenities: The City of Creve Coeur has six parks to offer the community: https://www.crevecoeurmo.gov/284/Parks. The Dielmann Recreation complex is open year-round to the Creve Coeur Ice Arena and Creve Coeur Golf Course. The Dielmann Complex offers meeting rooms, a concession stand, and recreational activities for residents and businesses.

Recreation Guide: The Recreation Department offers a variety of recreational activities and special events throughout the year for people of all ages. To learn more about the most up-to-date recreational activities, visit https://www.crevecoeurmo.gov/126/Parks-Recreation or check out the monthly resident newsletter.

Staff Contacts

Mark Perkins, City Administrator
314-872-2511; mperkins@crevecoeurmo.gov

Kellie Henke, City Clerk
314-872-2517; khenke@crevecoeurmo.gov

Jason Jaggi, Director of Community Development
314-872-2504; jjaggi@crevecoeurmo.gov

Gregory Tate, Chief Building Official
314-872-2513; gtate@crevecoeurmo.gov

Jim Heines, Director of Public Works
314-872-2538; jheines@crevecoeurmo.gov

Jeffrey Hartman, Chief of Police
314-872-2522; jhartman@crevecoeurmo.gov

Jason Valvero, Director of Recreation
314-872-2570; jvalvero@crevecoeurmo.gov

Melissa Bradford, Public Information Officer & Management Analyst
314-442-2081; mbradford@crevecoeurmo.gov

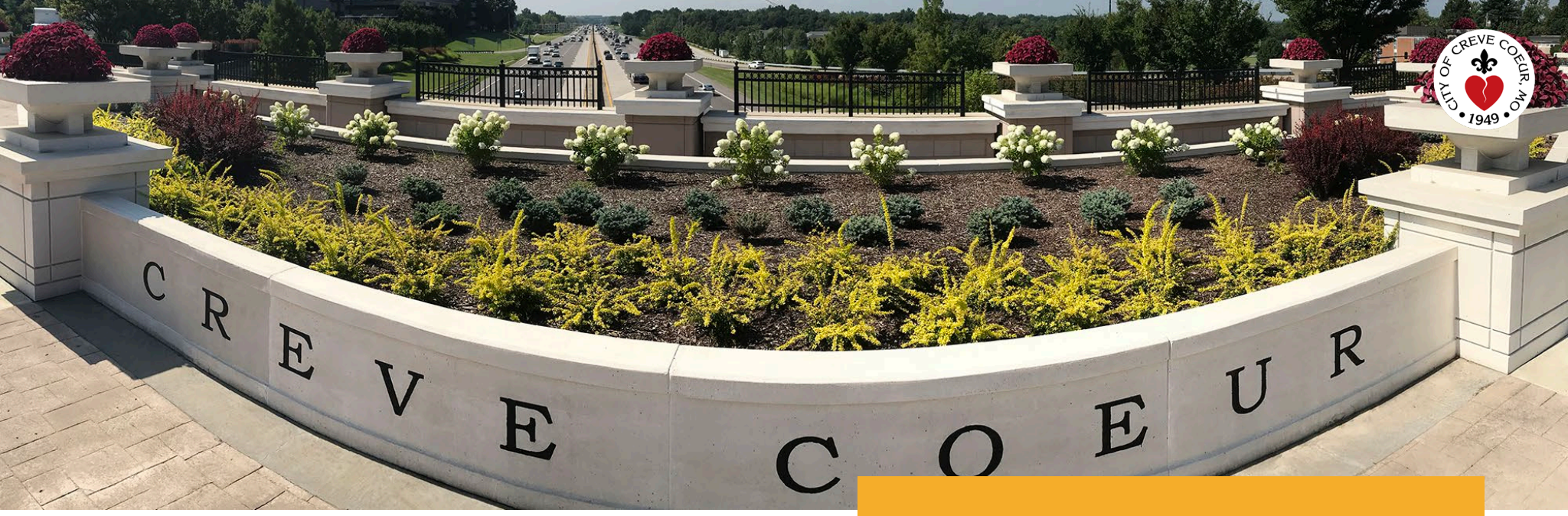
City of Creve Coeur

Subdivision Trustee Meeting

January 26, 2023

Agenda

- Introductions
- Long-Range Planning
- Citizen Involvement
- Community Development
- Public Works
- Police Department
- Parks and Recreation
- Q&A

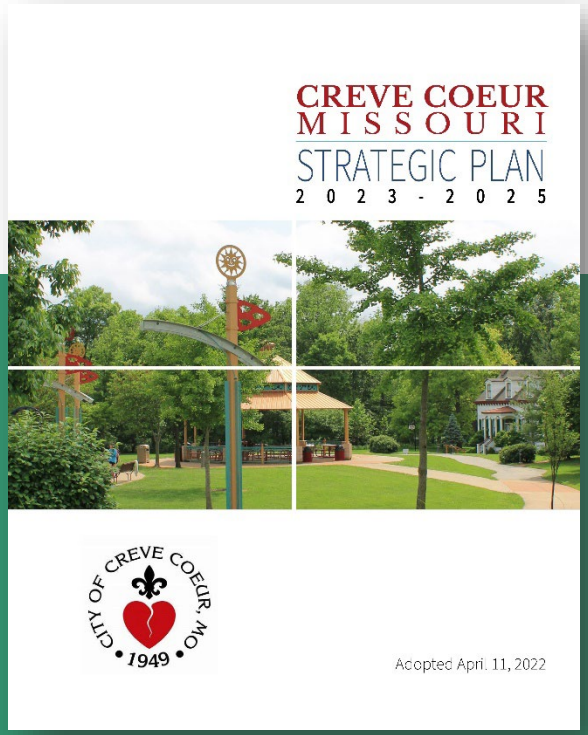


Introductions

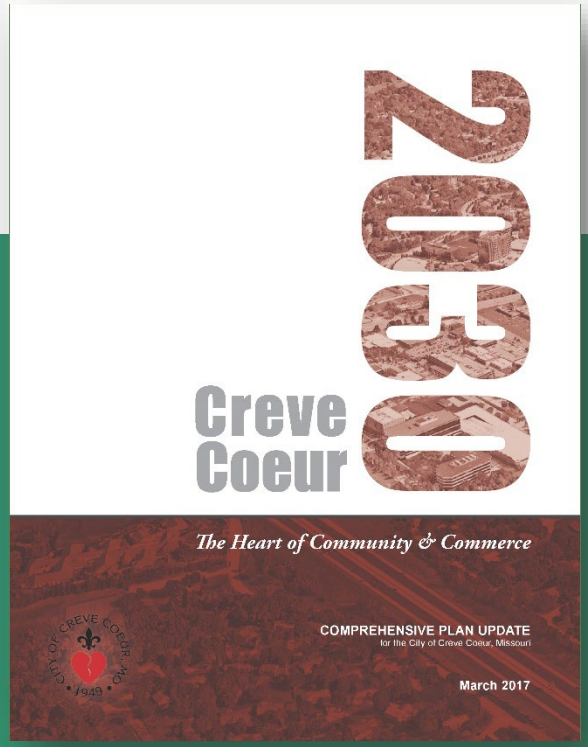
- Mark Perkins, City Administrator
- Kellie Henke, City Clerk
- Jason Jaggi, Director of Community Development
- Gregory Tate, Chief Building Official
- Jim Heines, Director of Public Works
- Jeffrey Hartman, Chief of Police
- Jason Valvero, Director of Recreation

Long-Range Planning

Strategic Plan



Comprehensive Plan



Capital Improvement Program

Citizen Involvement

Boards, Committees & Commissions

APPLY ONLINE

- Arts Committee
- Audit Committee
- Board of Adjustment
- Building Code Board of Appeals
- Economic Development Committee
- Employee Pension Fund Board of Trustees
- Energy and Environment Committee
- Facilities Task Force
- Finance Committee
- Horticulture, Ecology and Beautification Committee
- Parks and Historic Preservation Committee
- Personnel Appeals Board
- Planning and Zoning Commission
- Police & Safety Committee
- Stormwater Committee
- Venable Park Task Force

Community Development

Planning Division

Regulations for Residential Properties

- Sign allowances for residential properties
- Zoning development requirements for residential properties
- Fence requirements for residential properties

Community Development

Development Activity

First Bank

39 North

Mercy Ballas Outpatient Center

Community Development

Building Division

Building Permits

- When are building permits required
- How to get a building permit

Code Enforcement

- City development code vs. subdivision indentures
- Enforcement of city code and subdivision indentures
- Reporting a property maintenance concern

Community Development

Building Division

Improvements Recommended by the Building Permit Task Force

- Building Code Modifications
  - Interior Doors
  - Emergency Escape Windows in Basements
  - Retaining Walls
  - Smoke Detectors
  - Window & Door Replacement

Community Development

Building Division

Improvements Recommended by the Building Permit Task Force

- Policy Changes
- New Public Interactive Software
    - Coming Late Summer 2023

Public Works

Residential Services

Leaf/Limb Collection

Trash/Recycling Collection

Snow Plow Service

Public Works

Pavement Repair Request

Service Request Sign in to Save Progress

Do you have a request? Please complete the form below. Be sure to mark the box that best describes your request, provide a description of the problem and tell us where it is located. Be sure to provide us with your name, address, phone number, and email address so we can follow up with you.

Please indicate your request by checking the appropriate box:*

- ☐ Pothole
- ☐ Damaged Sidewalk
- ☐ Street Lights
- ☐ Trash Pick-up
- ☐ Exterior Property Maintenance Complaint
- ☐ Illegal Construction Activity
- ☐ Weeds
- ☐ Dead Trees
- ☐ Hazardous Parking
- ☐ Stormwater
- ☐ Other

Public Works

Cost Share Programs

Sewer Lateral Cost Share

- City insures sewer laterals in home for up to 50% of the cost to repair with a maximum of $7,500

Street Tree Planting Program

- Plant trees in the public right of way through this 50/50 cost share program

Public Works

Watershed Management Plan

Planning for future stormwater infrastructure improvements

- Process includes questionnaire and a series of open houses
- **Open House #1:**
  Wednesday, March 22, 6:30–8:00 p.m.
  Creve Coeur Government Center
- Funded by the Parks and Stormwater Sales Tax

Police Department

Auto Theft & Car Break-Ins

Police Department

Traffic Safety in Residential Neighborhoods

Parks & Recreation

Resident ID Card

With a resident ID card, residents receive discounts for the…

- Creve Coeur, Ballwin and University City golf courses
- Creve Coeur Ice Arena
- Maryland Heights Aquaport
- Creve Coeur recreation programs
- Meeting room rentals
- Dog Park in Conway Park

Parks & Recreation

Meeting Room & Pavilion Rentals

Dielmann West

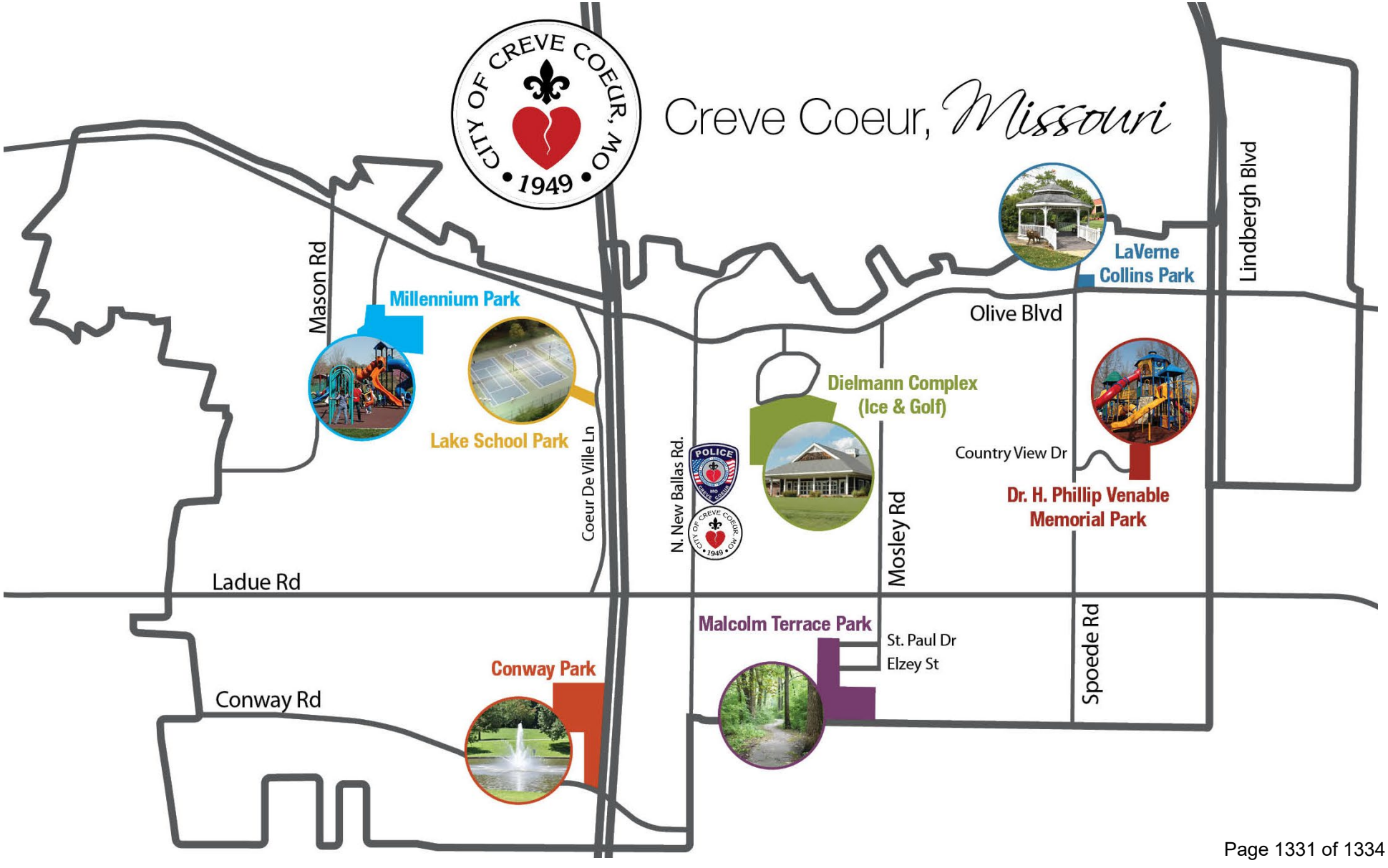
Dielmann East

Millennium Park Pavilion

Venable Park Pavilion

Parks & Recreation

City Parks & Amenities



Parks & Recreation

Summer Recreation Guide

Highlights Upcoming Community Events & Recreation Programs in Creve Coeur!

Published in the April Newsletter!

Questions?

CITY OF CREVE COEUR, MO
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