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AGENDA
PLANNING AND ZONING COMMISSION MEETING
CITY OF CREVE COEUR, MISSOURI
MONDAY, JULY 16, 2012
7:00 PM

1. ROLL CALL

Mr. Michael Barton
Mr. Gary Eberhardt
Mr. James Faron
Mr. Ken Howard
Ms. Cynthia Kramer
Mr. Tim Madden
Mr. Jim Schnarr
Mr. Carl Lumley, City Attorney
Mr. Paul Langdon, AICP, Director of Community Development
Ms. Whitney Kelly, AICP, City Planner
Ms. Julie Lowery, Recording Secretary

Pursuant to Section 610.022 RSMO, the Planning and Zoning Commission 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.

Reports, documents, plans, and related materials are available for examination at the Creve Coeur Government Center, 300 North New Ballas Road, prior to the meeting.

Special disabled service may be arranged by contacting the Office of the City Administrator in advance.

2. ADDITIONS TO – ACCEPTANCE OF THE AGENDA

3. APPROVAL OF MINUTES

A. Draft minutes of the July 2, 2012, meeting.

4. PUBLIC COMMENT

An opportunity for members of the public to address the Planning and Zoning Commission 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.

5. **UNFINISHED BUSINESS**

None

6. **NEW BUSINESS**

A. Public Hearing. Application #12-001: Comprehensive Sign Code Revisions.

Applicant/Agent: Paul Langdon, AICP
 Director of Community Development
 City of Creve Coeur

B. Public Hearing. Application #12-018: Request for approval of a Master Sign Plan for the Congregation B'nai Amoona & Saul Mirowitz Jewish Community School Campus at 324 S. Mason Road.

Applicant/Agent: Patty Bloom
 Director of Admissions and Marketing
 Saul Mirowitz Jewish Community School

Applicant's Representative: Andy Hrdlicka
 Summit Sign and Graphics
 330 Southport Drive
 Columbia, Illinois 62236

C. Application #12-020: Request for approval of the Site Development Plan for Missouri Baptist University Bookstore, and additional parking along Dink Marler Drive.

Applicant/Agent: Ken Revenaugh
 Senior VP Business Affairs
 One College Park Drive
 Saint Luis, MO 63141

Applicant's Representative: Rick Keisker, AIA
 Ittner Architects
 611 N. 10th Street
 Saint Louis, MO 63101

7. **WORK AGENDA**

A. Storm Water Master Plan Update. City staff will introduce the draft Storm Water Master Plan Update report to the Commission and offer it for their review. Staff will return to a future meeting to discuss the draft report and the Commission's comments in detail.

8. **OTHER BUSINESS**

- A. Planning Division Report**
- B. City Attorney Report**

9. **ADJOURNMENT**

Posted: _____
 Whitney Kelly
 City Planner



**CITY OF CREVE COEUR - MINUTES
PLANNING AND ZONING COMMISSION MEETING
MONDAY, JULY 2, 2012
7:00 P.M.**

A public hearing and regular meeting of the Planning and Zoning Commission of the City of Creve Coeur, Missouri was held on Monday, July 2, 2012, at the Creve Coeur Government Center, 300 North New Ballas Road. Chair Tim Madden called the meeting to order at 7:00 p.m.

MEMBERS PRESENT: *Mr. Timothy Madden, Chair*
 Dr. Michael Barton
 Mr. Gary Eberhardt
 Mr. James Faron
 Mr. Ken Howard
 Ms. Cynthia Kramer

OTHERS PRESENT: *Mr. Carl Lumley, City Attorney*
 Mr. Paul Langdon, Director of Community Development
 Ms. Whitney Kelly, AICP, City Planner

2. ADDITIONS TO – ACCEPTANCE OF THE AGENDA

The Agenda was accepted as written.

3. APPROVAL OF MINUTES

Draft Minutes of June 18, 2012

Mr. Howard moved approval of the draft minutes as written. Mr. Faron seconded the motion which carried unanimously; Dr. Barton and Mr. Eberhardt abstained from the vote, as they were not present at the June 18th meeting.

4. PUBLIC COMMENT

None

5. UNFINISHED BUSINESS

None

6. NEW BUSINESS

None

7. WORK AGENDA

A. First review of conversion from SIC (1987) to NAICS (2002)

Mr. Langdon introduced the summer intern, Vianey Beltran, who would be presenting the conversion from SIC to NAICS.

Ms. Beltran presented the Commission a table, which she created, to compare the two systems. Ms. Beltran pointed out to the Commission that some of the changes to the code were merely transferable, but the other changes were made on Mr. Langdon and Ms. Beltran's discretion. Ms. Beltran went over examples of some of the changes made and also additions to the codes.

Mr. Eberhardt asked if the SIC codes are more specific than the NAICS codes, to which Ms. Beltran responded it is give and take, however the NAICS codes give more clarity to the title of the actual code. Mr. Eberhardt thinks it will be hard to convert the codes from SIC to NAICS. Mr. Langdon said that the new code recognizes changes in the industry, and when looking at the total number of uses from one code to the other, they are about the same within 5 to 10 percent. However, like any long-term federal policy, the industry requires continuity as well. Ms. Beltran did clarify that if a "P" appears with the code it stands for permitted use and if a "C" appears with the code it stands for conditional use. It was also noted that the word "No" indicates a use that is specifically not allowed within a given district.

Staff reviewed several line items in the proposed changes and told the Commission at the next work session, they will break down the list into pieces and walk through the changes of each piece in more detail.

B. Update on arterial design in form-based code

The Commission was given a handout to reference during discussion.

Mr. Langdon discussed some of the challenges faced with finding the right façade to use along the arterials. Mr. Langdon is trying to find a way to create viable scenarios where there is one building type or another and compare. After discussion with MoDOT, it appears that MoDOT is willing to consider having the trees setback at 6 feet, similar to the design accepted for the Olive TDD. Mr. Langdon went over different scenarios with the Commission regarding different façade's and sidewalk/planting options. One concept made use of flat building fronts with covered sidewalks, while the other involves buildings with two-story colonnades. Mr. Langdon pointed out that the colonnade was higher than previously discussed to avoid creating a tunnel effect along the sidewalk.

Mr. Howard asked if there were going to be specifications as to how many stories the buildings need to be, Mr. Langdon replied there are many different examples, but he believes it requires a three story minimum and six-story maximum along the arterials.

Staff and the Commission discussed specific options and scenarios, and also if there was planned signage for the developments.

8. OTHEREBUSINESS

A. Planning Division Report

Ms. Kelly explained that, at the next meeting, there will be a public hearing for the Sign Code revisions. Missouri Baptist University will be presenting their Phase 3 of student housing and an addition to their library. Lastly, B’nai Amoona/Saul Mirowitz Jewish Community School will be coming in for a Master Sign Plan. Ms. Kelly also informed the Commission that, at the August 6th meeting, Goddard School is proposing a new childcare center and that will be a public hearing.

B. City Attorney Report

None

9. ADJOURNMENT

There being no further business to come before the Planning and Zoning Commission, upon motion being made and duly seconded, the meeting was adjourned at 8:10 p.m.

Timothy Madden, Chair

Julie Lowery, Recording Secretary



city of CREVE COEUR

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www.creve-coeur.org

APPLICATION TO PLANNING AND ZONING COMMISSION

#12-001 TEXT AMENDMENT FOR COMPREHENSIVE REVISIONS TO ARTICLE VIII SIGN REGULATIONS OF THE ZONING ORDINANCES

FOR THE MEETING OF: July 16, 2012

LOCATION: City-wide

REQUEST:

An application by the Director of Community Development, on behalf of the City of Creve Coeur, has been submitted for various amendments to the Article VIII, Sign Regulations, intended to simplify several regulations and definitions, eliminate certain provisions that appear to be inconsistent with the purposes of the Sign Code and address content-related issues highlighted by a recent Circuit Court decision.

ADDITIONAL INFORMATION:

Local governments can make restrictions on speech based on its time, place, and manner, so long as the restrictions do not relate to the content of the speech. Many of Creve Coeur's definitions for various signs, and in several cases, the type of sign permitted, are based on content.

Key Issues:

- Does this request further the goals and/or implement the Comprehensive Plan?
- Is this a reasonable exercise of zoning authority?
- Any neighborhood impacts?

Comp. Plan References

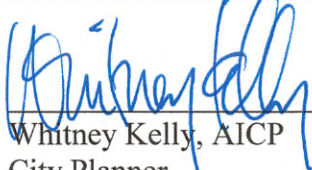
- Design Guidelines

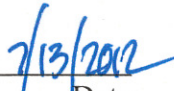
Zoning Code References

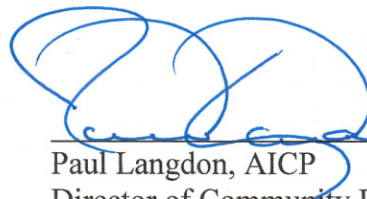
- Article VIII, Sign Regulations

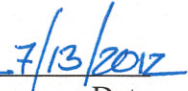
APPLICANT: Paul Langdon, AICP
Director of Community Development
City of Creve Coeur

REPORT PREPARED BY:


Whitney Kelly, AICP
City Planner


Date


Paul Langdon, AICP
Director of Community Development


Date

ATTACHMENTS: Draft redlined changes to the Zoning Code Definition and Article VIII of the Sign Regulations
Letter from Hutkin Development Company, dated July 12, 2012.
Letter from Creve Coeur/Olivette Chamber of Commerce, dated July 13, 2012.

INTRODUCTION

Staff has been reviewing the sign regulations with the Planning and Zoning Commission during several work sessions, and have developed a comprehensive revision to Article VIII Sign Regulations, of the City's Code of Ordinances, to facilitate the permitting process, and reduce or eliminate points of confusion, as well as comply with recent court ruling regarding the content neutrality of the sign regulations based on those discussions. The public hearing scheduled for Monday, July 16th, is to allow for public comment on the proposed changes and obtain suggested recommendations for revisions to the draft. Staff has presented the proposed changes to members of the Creve Coeur/Olivette Chamber of Commerce, and have individual conversations with members of the business community (see attached letters).

DISCUSSION

Definitions

As previously discussed, many of the current definitions for signs within the City's Code relate to content. The attached redlined draft shows changes to these definitions to render them content neutral. The most substantive definitional change that was discussed during the prior work sessions was the change to Gross Sign Area. Currently, the City's definition of gross sign area allows for increased square footage in the case of individual letter signs. Due to revisions for content neutrality, the "individual letter" would be changed to "individual symbol". The Commission members agreed with Staff that this created too much confusion about what could be constructed as an individual "symbol" and that it leads to more signage than was intended. Thus the proposed revisions under consideration will eliminate this provision as follows:

SIGN, GROSS SIGN AREA: The area within a single rectangle or circle enclosing the extreme limits of the sign, but not including structural supports which are not an integral part of the sign; ~~except that in the case of an individual letter symbol sign, only two-thirds (2/3) of the area of the enclosing rectangle or circle shall be counted as the gross area of the sign.~~ Where a sign has two (2) or more faces which can be viewed from a single location, the gross area of all such faces shall be included in determining the total gross area of the sign.

In order to promote the individual "letter" concept, and to limit the very bright white background of boxed signs, a design requirement has been added to each sign type within the appropriate section of the code (see below) such that the background or "negative space" must be opaque or simply the building façade (in the case of channel letters), in order to reduce the amount of glare emanating from the sign and increase readability.

General Provisions

Proposed changes within Section 405.930, General Provisions, are again largely due to the content and to streamline the wording. A new provision added is under *G. Miscellaneous Requirements*:

6. Architectural Consistency. Sign installations shall be consistent with, and not conceal, the architectural detail of a building.

This was added to ensure that the architectural detail of buildings was not hidden behind a sign. For example, one of the options for the AMC Theater signage for the new in-theater dining included covering a large portion of the façade with a hanging sign (see picture below):



Since projects are reviewed against the City's Comprehensive Plan and Design Guidelines that both favor quality architectural detail, the placement of the signs over these details would be contrary to those goals.

Signs in Residential Districts

Most of the changes in this section are, again, streamlining the wording and removing content-based standards. The only substantive change would be for the On-site Construction Signs. Currently, the Code allows for 12 square feet of sign area. Since these signs are used for whole subdivision projects, as well as individual houses, and they typically must contain a lot of information, Staff is proposing to increase this to 24 square feet, not to exceed 6 feet in height, similar to other real estate advertising for large sites. To wit:

Section 405.940: SIGNS IN RESIDENTIAL DISTRICTS

- G. *On-Site Construction Signs.* When property is under construction, pursuant to an issued building permit, an additional sign not to exceed twenty-four (~~12~~ 24) square feet in gross sign area and not to exceed six (~~4~~ 6) feet in height from top of sign to top of grade or two (2) feet in height from bottom of sign to top of grade, shall be permitted. Such a sign shall not be erected in a public right-of-way and shall be removed ten (10) days after the receipt of an occupancy permit for a building or development or ten (10) days after the completion of the work if no occupancy permit is required.

Signs in Non-Residential Districts

Wall signs

As discussed in the prior work sessions, the proposed changes for wall signs include eliminating the allowance based on the distance from the road to simply a one to one ratio based on the lineal foot of the tenant space with a minimum of 20 square feet and a maximum of 50 square feet.

Each use is allowed one wall sign, while end uses or buildings that directly abut two or more public streets may apply for a second wall sign:

Ground floor wall signs:

1. *In-line or mid-block uses.* Each individual use located at ground floor level with its own entrance at street level may have one (1) attached sign, affixed or painted on a wall, canopy, or awning, with a total gross sign area of one (1) square foot per linear foot of the use's front façade or twenty (20) square feet, whichever is greater, up to a maximum of fifty (50) square feet in area. The sign shall be located on the front façade which shall also be the same façade as the main entrance. If the sign consists of a boxed display, the negative space must be dark and opaque, or clear and colorless and show the surface of the building façade behind it.
2. *Corner units, single uses on corner lots, or out-lot buildings within a shopping center.* Each individual use located at ground floor level with its own entrance at street level may have one (1) attached sign, affixed or painted on a wall, canopy or awning with a total gross sign area of one (1) square foot per linear foot of the use's front façade or twenty (20) square feet, whichever is greater, up to a maximum of fifty (50) square feet in area. The sign shall be located on the front façade which shall also be the same façade as the main entrance. One (1) additional attached sign may be permitted, subject to the same size limitations, where the building faces two or more public streets and it is the closest building thereto. If the sign consists of a boxed display, the negative space must be dark and opaque, or clear and colorless and show the surface of the building façade behind it.
3. *Rear entrances.* A rear entrance to an individual or freestanding business used for delivery purposes may be identified by a sign not to exceed two (2) square feet in gross sign area. Such a sign shall be affixed directly to the rear entrance door.

Office building signs,

In addition to ground floor tenant signs, office building signs will be limited to buildings with three or more floors, as not to overwhelm the façade of the building with signage:

Attached signs for multi-floor office buildings.

- (1) Each freestanding, single or multi-tenant office building of three or more floors of leasable space may have one (1) attached sign affixed parallel to the building, with a sign area of up to fifty (50) square feet for a three (3) story building, with an additional ten (10) square feet of sign area allowed for each additional floor over three (3), up to a maximum of one hundred and fifty (150) square feet.

Low Monument Signs

Due to a recent Missouri 8th Circuit Court decision on the City of St. Louis Sign Code, differentiating sign regulations based on content, including real estate signs, is unconstitutional. Local governments can make restrictions on speech based on its time, place and manner, so long as the restrictions do not relate to the content of the speech. Thus, the multi-tenant real estate signs that are permitted as a ground sign could be used for any message, including commercial

advertising. Those properties that have a low monument sign identifying tenants, and one for leasing information, now have two ground signs that could contain any message.

In prior discussions with the Planning and Zoning Commission, the members expressed interest in allowing for more properties to have a ground sign, but to limit them to only one sign. All real estate information would have to be contained within the allowable square footage of the ground sign, within the 20% allowed for window signs, and/or permitted as a permanent wall sign for the available tenant space (limited to ground floor tenants only). Therefore, the proposed changes include allowing for more properties to receive a ground sign, provided that there is a minimum of 150 lineal feet of frontage, and that any ground sign is a minimum of 150 feet from any other signs on the same side of the street. This represents a decrease from the minimum of 300 lineal feet on a street or highway other than Lindbergh Boulevard, and 200 lineal feet of frontage along Lindbergh Boulevard, currently allowed. The currently permitted multi-tenant real estate signs would therefore become legally pre-existing, non-conforming signs.

The requirement that all signs should have a minimum of 150 feet between signs is to allow for at least three to four seconds of detection time between signs, without the signs competing with or conflicting with each other and potentially creating a hazardous traffic situation. At average vehicle speeds of less than 40 miles per hour, a distance between signs of approximately 150 feet is recommended by the American Planning Association. If the Commission members wish to allow for some deviation to account for site conditions (such as entry drives and landscaping requirements, and proximity of neighboring property signs), Staff could include a flexible buffer of approximately 15-25 feet may be granted at staff's discretion. Those properties that do not have the minimum of 150 lineal feet of frontage will have to incorporate the real estate information into the allowable wall signs or window signage.



Image showing how legally permitted signs can begin to create visual clutter when separated by distances less than 150 feet.

Due to the increase in the number of properties that would thus qualify for a ground sign, the allowable square footage of the low monument sign face has been scaled for varying sizes of property, as follows:

Low monument signs.

- (1) A project or development with at least one hundred and fifty (150) linear feet of lot frontage on a street or highway may be permitted a single low monument sign

that contains not more than twelve (12) square feet of sign area per face with not more than two (2) faces, that is not more than four (4) feet in total height, that is set back at least ten (10) feet from the right-of-way, and that is located a minimum of one hundred and fifty (150) feet from any ground sign on other property on the same side of the street.

- (2) A project or development with a site area of at least 30,000 sq. ft. but less than three and one-half (3.5) acres, and with at least three hundred (300) feet of lot frontage on a street or highway, shall be permitted a single low monument sign that contains not more than thirty (30) square feet of sign area per face with not more than two (2) faces, that is not more than six (6) feet in total height, that is set back at least ten (10) feet from the right-of-way, and that is located a minimum of one hundred and fifty (150) feet from any other ground sign on other property on the same side of the street.
- (3) A project or development with a site area of at least three and one half (3.5) acres but less than five (5) acres shall be permitted a single low monument sign that contains not more than thirty-five (35) square feet of sign area per face with not more than two (2) faces, that is not more than eight (8) feet in total height, that is set back at least ten (10) feet from the right-of-way, and that is located a minimum of one hundred and fifty (150) feet from any other ground sign on other property on the same side of the street.
- (4) A project or development with a site area of more than five (5) acres shall, by site development plan approval in accordance with Section 405.1080, be permitted a single low monument sign that contains not more than forty (40) square feet of sign area per sign face, with not more than two (2) sign faces, that is not more than twelve (12) feet in height, that is setback at least fifteen (15) feet from the right-of-way, and that is located a minimum of one hundred and fifty (150) feet from any other ground sign on other property on the same side of the street.
- (5) A landscaped area located around the base of the ground graphic equal to two and one-half (2.5) square feet for each square foot of ground graphic area allowed is required for all low monument signs.

The last provision was included to require a minimum amount of landscaping, so that the sign is appropriately designed within the entire site, and not as a separate element, as well as to soften the amount of hard surface on the site.

Street Address Numbers

Staff research into efficient sign design for user comfort and emergency services, revealed that new mapping via the internet and mobile devices allowed more people to look for the street addresses first, and then once located, look to the building for the specific tenant identification. Therefore, Staff has indicated that each building shall have address numerals that are not included as tenant signage.

Temporary Signs for Elections

The allowable signage during the election period was decreased from 24 square feet to 12 square feet, per individual candidate or proposition, so as not to overwhelm a site with too much signage when multiple propositions are on a ballot (see below). For example, should an election ballot have 8 propositions, a site would be entitled to 8 12-square foot signs.

Section 405.950: SIGNS IN NON-RESIDENTIAL DISTRICTS

2. Temporary or incidental signs

c. *Other Temporary signs.* Within forty-five (45) days prior to and ten (10) days after any election held within Creve Coeur, temporary non-commercial signs may be allowed with the owner's permission in addition to the permitted signage allowed on any non-residentially zoned lot or parcel of land in the City. Each lot or parcel of land shall be permitted one (1) or more single- or double-faced sign although no single sign face shall exceed twelve (12) square feet. The number of such temporary signs on a lot shall not exceed the total number of candidates and propositions on the election ballot. Not more than one (1) temporary sign per individual candidate and/or proposition on the election ballot shall be permitted per lot.

Portable signs

Currently portable "sandwich board" signs are prohibited. However, Staff are proposing that this be an allowed sign in commercial districts, as follows:

d. *Portable signs.* In all commercial districts, one (1) portable sandwich board sign limited to six (6) square feet and no more than four (4) feet in height shall be allowed per business address, without a permit, provided no part of such sign is more than four (4) feet from the building front near the main entrance, the sign does not obstruct pedestrian movement, and the sign does not obstruct or otherwise pose a hazard to motor vehicle traffic. Such signs must be stored inside when not open for business.

Common Signage Plans and Master Signage Plans

Staff and Members of the Planning and Zoning Commission were in agreement that the common signage plan provision provided too much discretion in the program to allow for a 20% bonus. Further, as the signs are protected by registered trademarks and free speech, the provisions of creating a fixed design program for the tenants has become unenforceable. Therefore, Staff has deleted this provision of the Code. Instead, all large scale projects and campuses should seek approval for a sign package that is unique to the project and site development plan, through the ground monument sign revisions proposed above, or through the Master Sign Plan process.

Note that the Master Sign Plan regulations were also modified to establish a minimum 10 acre site area and minimum building count (three) more befitting planned development and "campus" settings. This prevents over-use of the program which would, in turn, be contrary to the purposes of the sign code. Earlier discussions with the Commission contemplated a 15 acre site but staff research found that this would not address the larger commercial sites that are currently struggling with sign issues or who might be looking to replace an existing Common Sign Plan because those signs that were approved under the Common Sign Plan are proposed to become non-conforming. Any physical changes to a non-conforming sign would then require compliance with the new regulations.

Light Pole Banners

Again, due to the changes in the regulations regarding content, light pole artwork could contain any commercial message, and not limited to only seasonal decoration. The definition of Light Pole Signs would change as follows:

SIGN, LIGHT POLE ARTWORK-SIGN: A sign consisting of a banner fabricated from a durable fabric with a design applied through silkscreening or similar application method affixed to a light pole; the content of such signs shall be civic or seasonal in nature. Such

~~signs shall not include commercial advertising, business slogans or logos or the names of individual businesses, groups, organizations, shopping centers or office parks.~~

The Planning Commission members and Staff believed that this would lead to an explosion in the number of commercial signs while the use of such non-commercial seasonal decorations is best handled in the public right-of-way by the City only, or as regulated through a Master Sign Plan. Thus this provision of signage in the non-residential districts has been deleted.

Billboards

The City's ability to regulate billboards is highly influenced by State regulations and the Code has been modified to reflect the most recent actions by the State Legislature that have been signed into law by the Governor.

CONCLUSION

The majority of the proposed changes are discrete and, to date, have not created many concerns. Indeed, many properties will actually be entitled to more signs under these amendments than are currently allowed. Larger properties might see a decrease, but the primary effect of the changes is to simplify regulations where possible and scale the sign area allowances to the circumstances.

Nonetheless, it is clear from the comments received from the business community, and from the prior discussions with the Planning Commission, there are still some significant questions to be answered before the staff are prepared to request a recommendation from the Planning Commission. Specifically:

- Does the Commission wish to separate the question of real estate signs (all low monument signs, in effect) from the other modifications? This will allow the majority of the content-based regulations to be corrected, while providing time to resolve the most difficult issue. However, it also will require a new process to make whatever future amendments are decided on, and that portion of the Sign Regulations will be knowingly out of agreement with the current legal opinion.
- Subject to the prior question, does the Commission prefer the current proposal for low monument signs or do they prefer reducing the size and/or quantity of low monument signs in favor of re-introducing some form of temporary commercial sign that could be used for real estate information? Temporary signs allow more flexibility, but the difficulty with enforcement led to their deletion just a few years ago.
- Does the Commission wish to include the administrative discretion in the separation of low monument signs? If so, is 25 feet a reasonable adjustment before the value of the separation is obviated? Is 25 feet too little? Should the underlying requirement be changed or deleted?
- Does the Commission believe the revised standards for the Master Sign Plan appropriately limit its use while still providing an opportunity to the right developments? In other words, should it be revised back to a larger site area, thus confining it to only the largest campuses (CityPlace, the hospitals, Monsanto), or should it be flexible enough to work for the largest retail centers too (Bellerive Center, Pavilion, Westgate, West Oak)?

ACTION AND MOTION

Staff request that the Planning Commission vote to continue this item to the next Planning Commission meeting to allow for modifications to the draft ordinance as indicated by the current discussions and responses to the preceding questions. The following is an example motion:

- “I move to continue Application #12-001 to the meeting of August 6th, 2012, to allow the staff to incorporate the comments of the Planning Commission and the public as appropriate.”

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.

SIGN: Any device, ~~material, fixture, placard or structure, or part thereof, composed of lettered, numbered, symbolic and/or pictorial matter that is placed or located when in use outside of or on the exterior of or in the windows or other transparent surfaces of any building for display of a message, announcement, notice, direction, information or name that uses any color, form, graphic illumination, symbol or writing to advertise, announce the purpose of or identify the purpose of a person or entity or to communicate information of any kind to the public, but not including a church steeple or other religious symbol affixed to a church structure.~~

SIGN, ALTER (AS APPLIED TO A SIGN): A physical change in a sign or sign supports or an addition to a sign or sign supports. The term "alter" includes renovation, modification, rehabilitation or restoration, but does not include changing the copy on a ~~bulletin board sign, marquee sign or other~~ legal changeable ~~copy sign.~~

SIGN, BANNER: Any sign of lightweight fabric or other non-rigid material that is mounted to a pole or a building by a frame at one (1) or more edges. ~~National flags, State or municipal flags or the official flag of any institution or business shall~~ Flags are ~~not be considered~~ banners.

SIGN, BILLBOARD ~~OR OUTDOOR ADVERTISING:~~ ~~An off-premises outdoor sign, display, device, figure, painting, drawing, message, plaque, poster, billboard, or other thing designed, intended or used to advertise or inform, any part of the advertising or information contents of which is visible from any point of the traveled ways of the interstate or primary systems.~~

SIGN, BULLETIN BOARD SIGN, ~~INSTITUTIONAL:~~ A sign attached to a building or freestanding which ~~identifies a place of worship or school and which contains the name of the institution and~~ changeable ~~copy information such as the names of individuals connected with the institution, general~~ announcements of events or activities ~~occurring at the institution or similar messages.~~

SIGN, CANOPY SIGN: Any sign that is a part of or attached to an awning, canopy or other fabric, plastic or structural protective cover over a door, entrance, window or outdoor service area. A marquee is not a canopy.

SIGN, CHANGEABLE COPY SIGN: A sign on which message copy is changed manually or automatically through the utilization of attachable or integrally automated letters, numbers, symbols and other similar characters of changeable pictorial panels, ~~but not including an institutional bulletin board sign, gasoline station price sign or marquee sign.~~

SIGN, COMMERCIAL MESSAGE: ~~Any sign wording, logo or other representation that, directly or indirectly, names, advertises or calls attention to a business, product, service or other commercial activity, but not including a sign offering a residential dwelling for sale, lease or rent.~~

SIGN, CONSTRUCTION SIGN: A temporary sign erected on the premises on which construction is taking place, during the period of such construction, ~~indicating the names of the architects, engineers, landscape architects, contractors or similar artisans and the owners,~~

~~financial supporters, sponsors and similar individuals or firms having a role or interest with respect to the structure or project.~~

SIGN, DIRECTIONAL SIGN: A sign which is designed and erected ~~solely~~ for the purpose of traffic or pedestrian direction and placed on the property to which or on which the public is directed including entrance and exit signs.

~~*SIGN, DIRECTORY SIGN:* A sign listing the name and/or use and/or location of the various businesses or activities conducted within a building or group of buildings.~~

SIGN, FACE: The area or display surface used for the message of a sign.

SIGN, FLASHING SIGN: A sign which contains an intermittent flashing light source or which includes the illusion of intermittent or flashing light by means of animation or an externally mounted intermittent light source. Also, any sign in which any part of the light source varies in intensity and/or hue and flashes or appears to flash or turn on and off; or a sign in which a message constantly flashes or turns on and off or alternates with other copy by means of rotating or otherwise moving portions of the sign.

SIGN, FREESTANDING SIGN: Any sign supported by structures or supports that are placed on or anchored in the ground and that are independent from any building or other structure including, without limitation, a low monument sign.

~~*SIGN, FRONTAGE:* The length along the front of the ground floor of a building occupied by a separate and distinct use and the length along the side of the ground floor of a building occupied by a separate and distinct use when the side of such building faces a street; or the width of a tenant space measured along the ground floor of a building occupied by a separate and distinct use which does not face a street but faces a parking lot.~~

SIGN, GROSS SIGN AREA: The area within a single rectangle or circle enclosing the extreme limits of the sign, but not including structural supports which are not an integral part of the sign; ~~except that in the case of an individual symbol letter sign, only two thirds (2/3) of the area of the enclosing rectangle or circle shall be counted as the gross area of the sign.~~ Where a sign has two (2) or more faces which can be viewed from a single location, the gross area of all such faces shall be included in determining the total gross area of the sign.

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SIGN, HEIGHT: The vertical distance measured from the elevation of the centerline of the adjacent right-of-way at the point closest to the sign to the highest point of the sign.

SIGN, INCIDENTAL SIGN: A sign which is too small to be ~~generally informational and has a purpose secondary to the use of the premises on which it is located, such as "credit cards accepted here", "loading only", "telephone" or similar information. No sign with a commercial message legible from a position off the premises shall be considered incidental.~~

~~*SIGN, LIGHT POLE ARTWORK SIGN:* A sign consisting of a banner fabricated from a durable fabric with a design applied through silkscreening or similar application method affixed to a light~~

~~pole, the content of such signs shall be civic or seasonal in nature. Such signs shall not include commercial advertising, business slogans or logos or the names of individual businesses, groups, organizations, shopping centers or office parks.~~

SIGN, LOW MONUMENT SIGN: A freestanding sign not more than six (6) feet high which is located adjacent to a road right-of-way.

SIGN, MARQUEE SIGN: Any sign attached to in any manner or made a part of a marquee and which may include changeable copy.

SIGN, MOVING SIGN: Any sign or part of a sign which changes physical position by any movement or rotation, ~~but not including rotating panels which are integrated within an outdoor general advertising device.~~

~~*SIGN, NAME PLATE:* A non illuminated sign identifying only the name and occupation or profession of the occupant of the premises on which the sign is located.~~

SIGN, NON-CONFORMING SIGN: Any sign that was lawfully erected but no longer conforms to the requirements of this Chapter.

SIGN, OFF-PREMISES SIGN: Any sign containing content as directed at least in part by someone other than the owner of the property or occupant of a building on, ~~except a billboard as defined herein, which advertises or identifies a property, business or address, other than the~~ property, ~~business or address~~ where the sign is displayed.

SIGN, ON-PREMISES PERMANENT SIGN: A sign containing content as directed solely by the owner of the property or occupant of a building on the property where the sign is displayed. pertaining only to the premises on which the sign is located, and containing any of the following information:

- ~~1. The name of the owner, occupant, management, business or building;~~
- ~~2. The address;~~
- ~~3. The type of business, profession, service or activity;~~
- ~~4. The type or types of products offered; and~~
- ~~5. Other similar information.~~

~~*SIGN, PAPER SIGN:* A sign normally for temporary use made of paper, cardboard or similar material.~~

~~*SIGN, PARKING DIRECTION SIGN:* A sign indicating the entrance or exit to a parking lot.~~

~~*SIGN, PARKING REGULATION SIGN:* A sign stating the regulations for use of a parking lot.~~

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SIGN, PERMANENT SIGNS: All signs which are not temporary signs.

SIGN, PERMIT: A document certifying that the plans for the proposed sign comply with all applicable City ordinances and requirements.

SIGN, PORTABLE SIGN: Any sign not permanently attached to the ground or other permanent structure, which is designed to be transported including, but not limited to, signs designed to be transported by means of wheels, signs converted to A- or T-frames, menu and sandwich board signs and ~~hot air~~ balloons used as signs.

SIGN, PROJECTING SIGN: Any sign affixed to a building or wall in such a manner that its leading edge extends more than fourteen (14) inches beyond the surface of such building or wall but not including a sign suspended from a canopy and mounted perpendicular to a wall.

~~*SIGN, REAL ESTATE SIGN:* Any sign pertaining to the sale, lease or rental of real estate.~~

~~*SIGN, RESIDENTIAL SIGN:* A sign not exceeding six (6) square feet per sign face and not having more than two (2) sign faces, which is located in a residential zoning district and that contains no commercial message other than advertising the premises for sale, lease or rent.~~

SIGN, ROOF SIGN: Any sign erected and constructed wholly on and over the roof of a building, supported by the roof structure and or extending wholly or partially vertically above the highest portion of the roof.

SIGN, SNIPE SIGN: A ~~temporary~~ sign ~~or poster~~ affixed to a utility pole, tree, fence, or similar structure~~ete.~~

~~*SIGN, TEMPORARY PROMOTIONAL DISPLAY:* A temporary sign or signs displayed so as to attract attention to the sale of merchandise or services or a change in policy or in the status of a business.~~

SIGN, TEMPORARY SIGN: A sign which is not illuminated and is not permanently installed or affixed to any sign, structure or building.

SIGN, UNSIGHTLY OR UNKEMPT SIGN: A sign that is clearly in disrepair, is missing part of its copy, has letters or other copy that are broken, missing or so faded that they are difficult to read from the street, is not securely affixed to either the ground or some other supporting structure, ~~contains an illegible message,~~ contains rust or peeling or flaking paint or has damage to its face which is clearly visible from the street.

SIGN, WALL SIGN: Any sign attached parallel to, but within fourteen (14) inches of, a wall, painted on the wall surface of or erected and confined within the limits of an outside wall of any building or structure, which is supported by such wall or building and which displays only one (1) sign face.

SIGN, WINDOW SIGN: A sign ~~made of die-cut vinyl, screen printing and/or gilding applied to or etched into the inside surface of the storefront glazing or composed of artistically rendered skeletal neon depicting the tenant's identity or product graphics~~ placed on the surface or within three (3) feet of the inside of a window or other transparent surface and is visible from the exterior of the window or surface.

ARTICLE VIII. SIGN REGULATIONS

SECTION 405.910: PURPOSE AND INTENT

These regulations encourage the effective use of signs as a means of communication, to maintain and enhance the aesthetic appearance of the City and to facilitate and improve pedestrian and vehicular traffic safety. These regulations are intended to promote the public health, safety and general welfare through a comprehensive set of reasonable standards and requirements. These regulations allow for the identification of places of commerce, the communication of public and commercial information necessary for efficient and safe traffic movement; to allow for freedom of speech subject to reasonable restrictions as to time, place and manner; to protect the public from the dangers of unsafe signs; to lessen hazardous situations, confusion and visual clutter caused by a proliferation of signs competing for the attention of pedestrian and vehicular traffic; and to enhance the attractiveness and economic well-being of the City of Creve Coeur. (R.O. 2008 §26-100; Ord. No. 1903 §1, 11-24-97)

SECTION 405.920: SIGN PERMITS

A. It shall be unlawful for any person to erect, perform major repair, alter, move, replace or otherwise change a sign requiring a sign permit in the City of Creve Coeur without first obtaining a sign permit from the Zoning Administrator or Planning and Zoning Commission as provided by this Article. An application for a sign permit shall be submitted to the Zoning Administrator and shall include and be accompanied by plans that show the size and shape of the sign, the location of the proposed sign, the setbacks from surrounding properties, the type of illumination and proposed lighting, ~~the colors to be used in the sign~~, the materials used to construct and the method used to support the sign or attach it to a building. If the proposed sign is one that must be reviewed and approved by the Planning and Zoning Commission, the application shall comply with and be in accordance with the format and procedures adopted by the Planning and Zoning Commission and shall be filed with the Zoning Administrator in both paper format and electronic format in a commonly used medium such as diskette or CD-ROM and in a format that can be read by a word processing program used by the Zoning Administrator. The filing party shall certify that the electronic copy has been scanned for viruses and that it is virus-free.

B. If the proposed sign is one that may be approved by the Zoning Administrator, then, within twenty-one (21) days after the application for a sign permit has been received by the Zoning Administrator, he/she shall respond to the applicant advising said applicant whether or not the sign requested conforms with this Article. If no response is received within twenty-one (21) days, the application shall be deemed to have been approved. If the proposed sign is one that must be reviewed and approved by the Planning and Zoning Commission, then the Planning and Zoning Commission shall respond to the applicant within sixty (60) days after receipt of the application by the Zoning Administrator advising said applicant whether the sign requested has or has not been approved. If no response is received

within sixty (60) days, the application shall be deemed to have been approved. Upon denial, the applicant may appeal to the Board of Adjustment pursuant to Sections [405.1040](#) and [405.1110](#) of the zoning ordinance. The Zoning Administrator shall maintain a record of all sign permits issued, which records shall show date of application and date of issuance of permits. (R.O. 2008 §26-101; Ord. No. 1903 §1, 11-24-97; Ord. No. 5165 §7, 12-13-10)

SECTION 405.930: GENERAL PROVISIONS

A. *Scope.* The provisions of this Section shall apply to all signs in the City, unless a sign is specifically exempted by [Section 405.930\(E\)](#) of this Article. Every sign shall comply with all other applicable ordinances of the City. In case of a conflict between the provisions of this Section and other applicable provisions, the more restrictive shall govern. Any sign not specifically provided for herein as a permitted sign or a prohibited sign shall be designated as a permitted sign or a prohibited sign by the Zoning Administrator consistent with [Section 405.910](#), Purpose and Intent, and the most closely applicable provisions of this Article. If said sign is designated as a permitted sign, then said sign shall be subject to all limitations and provisions stated herein for a permitted sign which is most similar to said sign.

B. *Maintenance And Safety.*

1. All signs and related structures shall be maintained in good repair, free of rust, peeling, flaking, fading, broken or cracked surfaces and broken or missing letters.

2. All signs and related structures shall be maintained in a safe and clean condition. Whenever the Zoning Administrator determines that a sign has become structurally unsafe or endangers life or property or is not being maintained in good repair, a notice shall be sent to the owner or person in charge of the sign that the sign be made safe, repaired or removed. The owner or person in charge of the sign shall have ten (10) days from receipt of such notice in which to comply.

C. *Non-Conforming Signs.*

1. No new or existing sign may be constructed, altered in structure, relocated or replaced after the effective date of this Article, unless the sign conforms to all the provisions of this Article and any required sign permit has been issued by the Zoning Administrator or unless the sign is specifically exempted from the provisions of this Article. Nothing in this Section shall relieve the owner or user of a non-conforming sign from the provisions of this Article regarding safety, maintenance and repair of signs specified in [Section 405.930\(B\)](#) Maintenance and Safety.

2. Any existing sign that is destroyed, deteriorated or damaged to the extent of fifty percent (50%) or more of its replacement cost, exclusive of the foundation, after the effective date of this Article, shall not be rebuilt, repaired or replaced ~~except unless~~ in conformity with the provisions of this Chapter.

D. *Prohibited Signs.* The following types of signs are specifically prohibited in the City:

1. *Affixing of advertisements to public places.* No person shall paint, post, place, hang, suspend or affix any advertisement, card, poster, sign, banner or streamer, of any nature or for any purpose or cause the same to be done on or to any curbstone, flagstone or any other portion of any street or sidewalk or upon any tree or lamppost standing or erected on any public street or right-of-way or other public place or upon any pole erected upon any public street or right-of-way or other public place, which pole is used to carry telephone wires or cables, electric light wires or other electric conductors, or to any hydrant, bridge or other public structure within the City; provided however, that nothing contained in this Section shall apply to any official notice required by law or ordinance to be posted by public officers of the City or any other governmental agency.

2. Signs ~~legible~~visible from a public right-of-way that imitate, blend or conflict with or that otherwise may be confused with traffic signals and signs, that are not directional signs required by the City or other traffic authority for traffic efficiency and safety. Such signs shall include, but not be limited to, signs that are imitations of "stop", "go", "caution", "danger" or "warning".

3. Signs that are of a size, location, movement and/or illumination as may be confused with or construed as a traffic control device or which might obstruct from view any traffic or street sign or signal, that are not directional signs required by the City or other traffic authority for traffic efficiency and safety.-

4. Signs that falsely advertise that an activity, business, product or service ~~is no longer~~ sold or conducted on the premises upon which the sign is located and thereby misdirect traffic. Such signs shall be removed within thirty (30) days of written notification to the owner of the premises.

5. Signs on public land, except those erected at the direction of or with the permission of an appropriate public authority.

6. Vehicular signs which are not painted directly on or affixed flat against the factory surface of a vehicle ~~or which convey information other than the corporate logo, identity, address and phone number of a business operating within the City limits~~. This provision does not permit appendages or modifications to a vehicle for advertising purposes. Exempted from this Section are vehicular signs affixed to vehicles ~~that identify or advertise businesses not operating within the City limits~~ when said vehicles park temporarily and only ~~to~~ to make immediate deliveries or pickups.

a. Any vehicle displaying permitted vehicular signs owned by or operated on behalf of a and representing a business operating within the City limits shall park said vehicle at the business location behind the front building line within a properly designated parking space. Where such parking is not available, said vehicle shall park as far from the right-of-way and in the least visible area possible.

b. Any vehicle which displays a permitted ~~commercial~~ vehicle sign shall not park between 2:00 A.M. and 5:00 A.M. within residential zoning districts including "A", "B", "C", "D", "AR" or in a residential development in any zoning district within the corporate limits of Creve Coeur, ~~unless~~ unless such vehicle is parked within an enclosed

garage. Governmental and public safety vehicles shall be exempt from this provision, as well as construction-related vehicles parked on property under construction.

7. Strips or strings of lights used to call attention to a use or occupancy by outlining property lines, sales area, roof lines, doors, windows, wall edges or other architectural features of a building site. Exempted from this provision are holiday-style lighting displayed from November first (1st) through January fifteenth (15th) and lights which are an integral architectural feature of the original design of a structure as approved by the Planning and Zoning Commission. (The use of exposed neon is governed by [Section 405.930\(F\)\(6\)](#) and [\(7\)](#).)

8. Moving signs including those of which all or any part of the sign moves or appears to move. This prohibition against moving signs shall extend to devices including strings of light bulbs and rotating signs, whether part of any signs or maintained as an independent feature. This prohibition does not apply to tri-vision billboards or exempted governmental and official signs. "Tri-vision billboard" means a sign face having a series of three-sided rotating slats arranged side by side, either horizontally or vertically, which is capable of displaying a total of three (3) separate message copies, one (1) message copy at a time.

9. Snipe signs.

10. ~~Unightly or unkempt~~ or damaged signs.

11. Roof signs.

12. Projecting signs, except those permitted by [Section 405.950\(4\)\(g\)](#) or [Section \(Downtown Area\)](#) of this Article.

13. *Any sign structure which no longer supports a sign.* Exempted from this Section is a sign structure which is temporarily void of a sign due to a permitted alteration or repair. A sign permit or an application for a sign permit for this alteration or repair must be on file with the Department of Public Works and said alteration or repair must be completed within one (1) month of the issuance of the approved sign permit.

14. *Changeable copy signs (manual or automated).* Exempted from this provision are: tri-vision billboards as defined in Subsection (D)(7) above; ~~manually-changeable~~ bulletin board signs ~~as allowed by Section XXXXX~~ [Section 405.940\(E\)](#); marquee signs; signs defined in [Section 405.930\(E\)\(1\)\(a\)](#) (governmental and official signs); [Section 405.930\(F\)\(2\)](#) (illuminated signs); and signs in [Section 405.950\(5\)](#) (gasoline price signs).

15. Permanent or temporary window signs above the second (2nd) floor including lettering painted or applied to glass and temporary ~~promotional~~ displays as defined in [Section 405.950\(3\)\(b\)](#) located above the ground floor.

16. Back-lit awnings and lighted canopies.

17. Portable signs except as allowed by Section XXXX405.950(F)(4) that are not hand-carried or free-standing.

18. Inflatable signs ~~and~~, tethered balloons, banners, pennants, flags, wind-driven spinners, or streamers, except as otherwise provided in Section 405.950 (3)(b) Temporary promotional displays and signs.

19. Individuals dressed in costume intended to attract attention as human signs to a business for advertising purposes in violation of Chapter 610.

19. Signs extending over a roadway.

20. Off-premises signs, ~~except for permitted temporary open house signs and~~ except for billboards installed before July 1, 2009.

E. *Exempted Signs.* With the exception of Sections 405.930(B) (Maintenance and Safety), 405.930(D) (Prohibited Signs) and 405.930(G) (Miscellaneous Requirements), the provisions and regulations of this Article shall not apply to the following signs:

1. Governmental and official signs including, but not limited to, the following:

a. Public notices and official notices posted or authorized by government officials in the performance of their duties including changeable copy signs not exceeding thirty (30) square feet of sign area per face.

b. Signs for the control or direction of traffic and other authorized public purposes, including on private property as required by the City or other traffic authority.

2. No parking and no trespassing signs that are no larger than one (1) square foot in gross sign area.

3. Signs not exceeding two (2) square feet in sign area individually and not exceeding square feet in the aggregate, including, but not limited to, the following:

a. Name plates, attached to a structure and not exceeding two (2) square feet in area, used to identify a professional service or home occupation permitted in the single-family residential zoning district in which the sign is located.

b. Residential address number located on a sign not larger than one (1) square foot in gross sign area.

c. Commercial address numerals, which are required to be prominently displayed on each building, not to exceed two (2) square feet in area. Larger address numerals may be permitted elsewhere in this Article and would be subject to the provisions and regulations of the particular Section.

4. Incidental signs.

F. *Illuminated Signs.* The following requirements shall apply to illuminated signs:

1. The light from any illuminated sign shall be so shaded, shielded and/or directed in such a manner that the light intensity or brightness will not be a substantial nuisance to the residents or occupants of surrounding areas.

2. No sign shall have blinking, flashing or fluttering lights or other illuminating device of variable light intensity, brightness or color. Clocks and thermometers which only indicate the time or temperature shall not be considered flashing signs, provided that the gross area of such devices is not greater than sixteen (16) square feet per face (maximum of two (2) faces), the vertical dimension of any letter or number is not greater than twenty-four (24) inches and the color or intensity of light is constant except for periodic changes in the information display, which occur not more frequently than once every fifteen (15) seconds. Beacon lights are not permitted, ~~except by approval of a temporary permit, not to exceed five (5) days for a building opening or special event.~~

3. No colored lights shall be used at any location or in any manner so as to be confused with or construed as traffic control devices.

4. Neither direct nor reflected light from primary light sources shall create a hazard to operators of motor vehicles on public thoroughfares.

5. No exposed reflective-type bulb~~bs~~ or incandescent lamp which exceeds forty (40) watts shall be used on the exterior surface of any sign in such manner as to expose the face of the bulb, light or lamp to any public street or adjacent property.

6. The use of exposed neon in a window sign(s) with aggregate area larger than six (6) square feet must be reviewed and approved by the Planning and Zoning Commission prior to installation or erection of such sign(s).

7. The use of exposed neon as an illumination source for identification or an architectural feature must be reviewed and approved by the Planning and Zoning Commission prior to installation or erection of the exposed neon.

G. *Miscellaneous Requirements.* All signs shall comply with the following general requirements:

1. *Sign faces.* When a sign is allowed two (2) sign faces, the sign faces shall be parallel to one another and not more than fourteen (14) inches apart unless specifically authorized to deviate from this requirement by an applicable portion of this Article.

2. *Projections.* No sign shall project beyond a property line or into a public right-of-way, except traffic control signs as authorized pursuant to the traffic code and public information signs as approved by the City Council.

3. *Life safety code compliance.* All signs shall comply with all applicable life safety codes including the structural and fire safety provisions of the Building Code and the electrical provisions of the Electric Code of the City of Creve Coeur.

4. *Obstruction to exit ways.* No sign shall be erected, displayed or maintained so as to obstruct any fire escape, any required exit way, window or door opening used as a

means of egress or to obstruct any other means of egress required by the Building Code of the City of Creve Coeur.

5. *Obstruction of ventilation.* No sign shall be erected, displayed or maintained in a manner that interferes with any opening required for ventilation under the Building Code of the City of Creve Coeur.

6. Architectural Consistency. Sign installations shall be consistent with, and not conceal, the architectural detail of a building.

H. *Flags.* Flags shall be permitted in any zoning district without a permit. Each lot or parcel of land in the City shall be limited to the display of not more than two ~~four~~ (42) flags. Parcels of land in excess of five (5) acres in size, however, may display additional flags, provided that there are not more than four (4) flags displayed per five (5) acres of land area. Within five (5) days prior to and three (3) days following a national holiday such as Independence Day, Memorial Day or Veterans Day, there shall be no limitation on the number of ~~U.S.~~ flags displayed on any parcel of land within the City. Flagpoles shall not exceed twenty-five (25) feet in height in residential districts and thirty-five (35) feet in height in non-residential districts.

I. *Sign Setbacks.* All permanent signs shall be set back from property lines according to the regulations specified in this Article or as otherwise required by any other applicable City ordinance. Temporary signs shall be set back at least five (5) feet from the edge of pavement of any road and shall be located outside of the right-of-way of any State, ~~or~~ County, or City road.

J. *Substitutability.* Whenever a commercial sign would be permitted under this Article, a sign bearing a political or other non-commercial message may be installed in its place, provided it otherwise complies with this Article. Subject to the landowner's consent, a non-commercial message of any type may be substituted for any duly permitted or allowed commercial message or any other duly permitted or allowed non-commercial message; provided, that the sign structure or mounting device is legal without consideration of message content. Such substitution of message may be made without any additional approval or permitting. This provision prevails over any more specific provision to the contrary within this Article. The purpose of this provision is to prevent any inadvertent favoring of commercial speech over non-commercial speech, or favoring of any particular non-commercial message over any other non-commercial message. This provision does not create a right to increase the total amount of signage on a parcel, nor does it affect the requirement that a sign structure or mounting device be properly permitted. (R.O. 2008 §§3-1; 26-102; Ord. No. 513 §49, 12-23-68; Ord. No. 1903 §1, 11-24-97; Ord. No. 5001 §1, 9-6-07; Ord. No. 5021 §1, 1-28-08)

SECTION 405.940: SIGNS IN RESIDENTIAL DISTRICTS

A. *General Limitations.* It shall be unlawful to erect, permit the erection of, display or permit the display of any sign in connection with a residential use or in a residential zoning district, unless such sign is expressly permitted by this Section, subject to all of the limitations and provisions stated herein.

B. *Residential Development Signs.* Permanent signs designating a subdivision, neighborhood or multi-family development for traffic efficiency and safety shall be approved by the Planning and Zoning Commission through the site development plan approval process as defined in [Section 405.1080](#). Such signs shall be limited to twelve (12) square feet per sign face with a maximum of two (2) sign faces.

C. *Exempt Signs In All Residential Districts.*

~~1.—Residential signs.—Any lot in a residentially zoned area shall be permitted one (1) sign with a maximum sign area of six (6) square feet per sign face and a maximum of two (2) sign faces, except that if the lot is on the market for sale or lease, then it shall be permitted one (1) additional sign of six (6) square feet per sign face and a maximum of two (2) sign faces. Such sign may contain any non-commercial message or advertise the premises for sale, lease or rent.~~ No permit shall be required for such a sign provided that the sign is erected by the owner or with the owner's permission.

~~2.—Temporary open house signs.—In addition to a residential sign containing information advertising a premises for sale, lease or rent, each such lot or parcel shall be allowed two (2) temporary open house signs with one (1) such sign on site and the other allowed off-site on private property with owner permission. Open house signs shall be limited to a maximum sign area of six (6) square feet per sign face and a maximum of two (2) sign faces and shall be permitted for up to three (3) consecutive days. A minimum of four (4) days shall transpire prior to posting any open house sign on the same lot or parcel for a second (2nd) or subsequent time. No permit shall be required for such a sign.~~

D. *Single-Family Lots Fronting On A Numerically Designated State Highway.* Any lot in a single-family residentially zoned area which fronts on and has direct access available from a numerically designated State highway which has received site development plan approval for an office, day care center or retail service uses, as provided by [Section 405.450\(E\)](#), may have a combination of one (1) low monument sign, wall signs, window signs or signs affixed or painted on canopies or awnings. Because these lots are within residential areas, the total gross sign area, counting all faces, shall be consistent with that of other lots in residentially zoned areas and shall not exceed twelve (12) square feet, except, however, that the allowable square footage of signs may be increased by two (2) square feet for each fifty (50) feet the building is setback from the roadway pavement of the numerically designated State highway to a maximum of sixteen (16) square feet to enhance the ability of motorists to see the signs for traffic efficiency and safety. An additional rear entrance to such a business may be identified by a sign not to exceed two (2) square feet in gross sign area. Such a sign shall be affixed directly to the rear entrance door. Permits shall be required for all signs allowed by this paragraph.

E. *Institutional Uses In Residential Districts^[CL1].*

1. Institutional uses in residential districts such as schools and places of worship shall be allowed one (1) permanent sign not exceeding twelve (12) square feet in size, except, however, that any such use which has a minimum of two (2) street frontages which each exceed three hundred (300) lineal feet shall be permitted two (2) such signs. The permanent sign may be a bulletin board sign with manually-changeable copy or may be an on-

premises permanent sign. In addition, such uses shall be permitted one (1) temporary sign not exceeding twelve (12) square feet in size, provided that the display of such sign shall be limited to a period of ninety (90) days and a minimum of ninety (90) days shall elapse prior to posting another temporary sign on the premises.

2. *Low monument signs.* An institutional use in a residential district occupying a site of at least thirty thousand (30,000) square feet may also be permitted a single, low monument sign, which can include a manually-changeable-used primarily for identification or as a bulletin board sign, provided such sign contains not more than twelve (12) square feet of sign area per face with not more than two (2) faces, is not more than six (6) feet in total height above the elevation of the centerline of the adjacent right-of-way or the adjacent finish grade, is set back at least ten (10) feet from the right-of-way of said fronting street or highway, is not located within the site distance triangle described in Section 405.670 of this Chapter and the site meets one (1) of the following criteria:

a. The site has at least three hundred (300) feet of lot frontage on a street or highway other than Lindbergh Boulevard; or

b. The site has at least two hundred (200) feet of lot frontage on Lindbergh Boulevard.

3. *Campus low monument sign.* An institutional use in a residential district occupying a site in excess of five (5) acres may, by filing a plan with the Zoning Administrator, have a single, freestanding, on-premises permanent sign identifying the institutional campus or complex in accordance with the following standards:

a. *Maximum sign area.* Sixty (60) square feet.

b. *Maximum area per sign face.* Twenty-four (24) square feet.

c. *Maximum height.* Six (6) feet above prevailing base grade.

d. *Setback from right-of-way.* Fifteen (15) feet.

4. *Parking direction signs.* One (1) freestanding parking direction sign, which may be internally illuminated subject to Section 405.930(F) shall be requiredpermitted for every one hundred fifty (150) parking spaces with not more than two (2) sign faces, provided the sign shalldoes not exceed fifteen (15) square feet in gross sign area per face, the sign height shalldoes not exceed four (4) feet in height and no portion of the sign shall extend into the public right-of-way. The sign shall be placed within the parking lot and for enhanced traffic directional purposes may contain the name and/or logo of the institution in addition to messages providing directional information. The Zoning Director may allow fewer signs for good cause.

F. *Temporary Signs In Residential Districts.* Within forty-five (45) days prior to and ten (10) days after any election held within Creve Coeur, temporary non-commercial signs may be allowed with the owner's permission in addition to the permitted signage allowed on any

residentially zoned lot or parcel of land in the City. Each lot or parcel of land shall be permitted one (1) or more single- or double-faced signs although no single sign face shall exceed twelve (12) square feet. ~~The number of such~~ Not more than one (1) temporary signs ~~on a lot shall not exceed the total number of per individual~~ candidates and/or propositions ~~on the election ballot shall be permitted per lot~~ [CL2].

G. *On-Site Construction Signs.* When property is under construction, pursuant to an issued building permit, an additional sign ~~Only one (1) such sign per entire development denoting the owner, architect, engineer, consultant, developer, lender and/or contractor,~~ not to exceed ~~twelve~~ twenty-four (24) square feet in gross sign area and not to exceed ~~ten-six (106)~~ feet in height from top of sign to top of grade or two (2) feet in height from bottom of sign to top of grade, shall be permitted. Such a sign shall not be erected in a public right-of-way and shall be removed ten (10) days after the receipt of an occupancy permit for a building or development or ten (10) days after the completion of the work if no occupancy permit is required. (R.O. 2008 §26-103; Ord. No. 1903 §1, 11-24-97; Ord. No. 1966 §1, 11-23-98; Ord. No. 2287 §1, 6-28-04; Ord. No. 5033 §3, 3-24-08)

SECTION 405.950: SIGNS IN NON-RESIDENTIAL DISTRICTS

A. General Limitations It shall be unlawful to erect, permit the erection of, display or permit the display of any sign in connection with any non-residential use or in a non-residential zoning district unless such sign is expressly permitted by this Section, subject to all of the limitations and provisions stated herein. All signs permitted by this Section shall require the issuance of a sign permit, except for allowed temporary, incidental and portable signs.

1. ~~Classification of signs. Signs shall be classified as on-premises permanent signs, temporary or incidental signs and special purpose signs.~~

~~a. On-premises permanent signs as defined in Section 405.120. b. Temporary or incidental signs as provided in this Section.~~

~~c. Special purpose signs are limited to directory signs, parking direction signs, parking regulation signs, directional signs, marquee signs, on-site construction signs and light pole artwork signs.~~

B.2. On-premises permanent signs Ground Floor Wall Signs.

~~a. Individual or freestanding business or use. Each individual business or use located at ground floor level with its own entrance at street level or a second (2nd) story retail business, either of which has sign frontage as defined in Section 405.120, may have one (1) or more wall signs, window signs or signs affixed or painted on canopies or awnings with a total gross sign area per sign frontage not to exceed one (1) square foot per linear foot of sign frontage upon which the sign is to be located, up to a maximum of twenty five (25) square feet in area; except that the total gross sign area per sign frontage may increase by twelve and one half (12.5) square feet for each fifty (50) feet an individual business or use sets back from the edge of street pavement up to a maximum of one hundred twenty five (125) square feet in area, provided said individual business or use has the required sign frontage to~~

allow such an increase.

1. In-line or mid-block uses. Each individual use located at ground floor level with its own entrance at street level may have one (1) attached sign, affixed or painted on a wall, canopy, or awning, with a total gross sign area of one (1) square foot per linear foot of the use's front façade or twenty (20) square feet, whichever is greater, up to a maximum of fifty (50) square feet in area. The sign shall be located on the front façade which shall also be the same façade as the main entrance. ~~– If the sign consists of a boxed display, the negative space must be dark and opaque, or clear and colorless and show the visible surface of the building façade behind it shown. No sign may violate the architecture of the building to which it is attached.~~
2. Corner units, single uses on corner lots, or out-lot buildings within a shopping center. Each individual use located at ground floor level with its own entrance at street level may have one (1) attached sign, affixed or painted on a wall, canopy or awning with a total gross sign area of one (1) square foot per linear foot of the use's building frontage façade or twenty (20) square feet, whichever is greater, up to a maximum of fifty (50) square feet in area. The sign shall be located on the front façade which shall also be to be placed on the same façade as the main entrance. One (1) additional attached sign may be permitted, subject to the same size limitations regulations above, where the building faces abuts two or more public streets and it is the closest building thereto. If the sign consists of a boxed display, the negative space must be dark and opaque, or clear and colorless and show the visible surface of the building façade behind it shown. ~~No sign may violate the architecture of the building to which it is attached.~~
3. Rear entrances. A rear entrance to an individual or freestanding business used for delivery purposes may be identified by a sign not to exceed two (2) square feet in gross sign area. Such a sign shall be affixed directly to the rear entrance door. In locations where individual businesses or uses are grouped together in a shopping center, the on-premises permanent signs ~~should~~ shall maintain uniformity in location, height and general design ~~and shall be compatible in color.~~

C. Low monument signs. ~~A landscaped area located around the base of the ground graphic equal to two and one half (2.5) square feet for each square foot of ground graphic are allowed is required for all low monument signs.~~

1. A project or development with at least one hundred and fifty (150) linear feet of lot frontage on a street or highway may be permitted a single low monument sign that contains not more than ~~of~~ twelve (12) square feet ~~square feet~~ of sign area per face with not more than two (2) faces, that is not more than four (4) feet in total height, ~~and that is set back at least ten (10) feet from the right-of-way, and that is located.~~ Location of the ground sign must be a minimum of one hundred and fifty (150) feet from any other ground sign on other property on the same side of the street.
2. A project or development with ~~at~~ at least 30,000 sq. ft. of site area but less than ~~to~~ three and one-half (3.5) acres, and ~~with where the site has at least three hundred (300) feet of lot frontage on a street or highway,~~ shall ~~may~~ be permitted a single low monument sign ~~that provided such~~

sign contains not more than thirty (30) square feet of sign area per face with not more than two (2) faces, that is not more than six (6) feet in total height, and that is set back at least ten (10) feet from the right-of-way, and that is located. Location of the ground sign must be a minimum of one hundred and fifty (150) feet from any other ground sign on other property on the same side of the street.

3. A project or development with at least of three and one half (3.5) acres but less than five (5) acres shall may be permitted a single low monument sign that provided such sign contains not more than thirty-five (35) square feet of sign area per face with not more than two (2) faces, that is not more than eight (8) feet in total height, that is and set back at least ten (10) feet from the right-of-way, and that is located. Location of the ground sign must be a minimum of one hundred and fifty (150) feet from any other ground sign on other property on the same side of the street.

4. A project or development with more than of over five (5) acres shall may, by site development plan approval in accordance with Section 405.1080, be permitted a single low monument sign that provided such sign contains not more than forty (40) square feet of sign area per sign face, with not more than two (2) sign faces, that is not more than twelve (12) feet in height, that and is setback at least fifteen (15) feet from the right-of-way, and that is located. Location of the ground sign must be a minimum of one hundred and fifty (150) feet from any other ground sign on other property on the same side of the street.

(5.) A landscaped area located around the base of the ground graphic equal to two and one-half (2.5) square feet for each square foot of ground graphic area allowed is requireds for all low monument signs.

D. Wall signs for multi-floor office buildings. Each freestanding, single or multi-tenant office building of three or more floors of leasable space may have one (1) attached sign affixed parallel to the building, with a sign area of up to fifty (50) square feet for a three (3) story building, with an additional ten (10) square feet of sign area allowed for each additional floor over three (3), up to a maximum of one hundred and fifty (150) square feet. If the sign consists of a boxed display, the that negative space must be dark and opaque, or clear and show the have the visible surface of the building façade shown.

b.—Low monument signs. An individual building or use occupying a site of at least thirty thousand (30,000) square feet may also be permitted a single, low-monument sign provided such sign contains not more than thirty (30) square feet of sign area per face with not more than two (2) faces, is not more than six (6) feet in total height above the elevation of the centerline of the adjacent right-of-way or the adjacent finish grade, is set back at least ten (10) feet from the right-of-way of said fronting street or highway, is not located within the site distance triangle described in Section 405.670 of this Chapter and the site meets one (1) of the following criteria:

(1)—The site has at least three hundred (300) feet of frontage on a street or highway other than Lindbergh Boulevard;

(2)—The site has at least two hundred (200) feet of frontage on Lindbergh Boulevard; or

~~(3)—The site has at least two hundred (200) feet of frontage on a street or highway other than Lindbergh Boulevard and the sum of the total gross sign area of the site's wall signs, window signs and signs affixed and/or painted on canopies or awnings is at least twenty (20) square feet less than the maximum allowed in Subsection (2)(a) above or in Subsection (2)(d) Office Building Signs.~~

~~c.—Shopping center or office park sign. A shopping center, office park or institutional complex occupying a site in excess of five (5) acres in size may, by site development plan approval in accordance with Section 405.1080, have a single, freestanding, on-premises permanent sign identifying the center, park or complex (individual tenants shall not be identified on this sign unless the development has received approval of a common signage plan) in accordance with the following standards:~~

~~(1)—Maximum sign area. One hundred (100) square feet.~~

~~(2)—Maximum area per sign face. Forty (40) square feet.~~

~~(3)—Maximum height. Sixteen (16) feet above prevailing base grade.~~

~~(4)—Setback from right-of-way. Fifteen (15) feet.~~

~~d.—Office building signs.~~

~~(1) Each freestanding, single or multi-tenant office building may have one (1) wall sign per sign frontage. This sign shall be affixed parallel to the facade of the building with no part of this sign projecting more than fourteen (14) inches from the building surface it is attached to. No part of this sign shall extend above the roof line or parapet of a building. The gross sign area of said sign shall not exceed thirty five (35) square feet per sign frontage; except that the total gross sign area per sign frontage may increase by twelve and one-half (12.5) square feet for every fifty (50) feet an office building sets back from the edge of street pavement, up to a maximum of one hundred twenty five (125) square feet in area, provided said office building has the required sign frontage (one (1) square foot of gross sign area per lineal foot of sign frontage) to allow such an increase.~~

~~fE.(2)~~ Address Signs

~~For fire protection and traffic safety and efficiency, E~~each freestanding single or multi-tenant ~~office~~ building shall have one (1) set of address numerals per building frontage. These numerals must be affixed flat against the facade of the building and no part of the numerals shall project above the roof or parapet line of the building. The square footage shall be determined by measuring the rectangle formed by outlining the numeral. Each numeral shall not exceed the sign limitations listed in the following table:

Height of Sign on Building (story)	Distance from R.O.W. (feet)	Allowable Square Footage per Numeral (square feet)
1	0--100	2
1	101--250	3
1	over 250	4
2	0--100	3
2	101--250	4
2	over 250	5
3	0--100	4
3	101--250	5
3	over 250	6
4	0--100	5
4	101--250	6
4	over 250	7
5	0--100	6
5	101--250	7
5	over 250	8
6	0--100	7
6	101--250	8
6	over 250	9
over 6	0--100	8
over 6	101--250	9

over 6	<u>over-250</u>	<u>10</u>
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~~e. Multi-tenant real estate information signs. Each multi-tenant building or complex (where more than one (1) building is in the same development) may be permitted one (1) permanent real estate information sign, subject to the following:~~

~~(1) The gross sign area shall not exceed twenty-four (24) square feet per face with a maximum of two (2) sign faces. Decorative edge treatments shall not be included in the gross sign area.~~

~~(2) The sign shall not be more than six (6) feet in total height above the elevation of the centerline of the adjacent right-of-way or the adjacent finish grade, shall be set back at least ten (10) feet from the right-of-way of said fronting street or highway and shall not be located within the site distance triangle as defined in Section 405.120, Definitions, of this Chapter.~~

~~(3) The sign shall be permanently affixed to the ground with rot- and insect-resistant materials without use of supporting wires, cross-bracing or stanchions.~~

~~(4) The aggregate visible width of the supporting legs or monument shall be at least one-quarter (1/4) of the width of the sign.~~

~~(5) The edges of the sign shall be boxed in, framed or otherwise enclosed to eliminate visible gaps or spaces between the sign panels.~~

~~(6) The sign copy shall be applied and protected with weather-resistant materials and finishes.~~

~~(7) Any attached "riders" (e.g., available floor area) on the sign shall be incorporated within the external dimensions of the sign and are limited to one (1) rider per sign face.~~

~~(8) These provisions shall not be applicable to single-tenant or owner-occupied properties which are subject to Section 405.950(3) Temporary or incidental signs for single-tenant properties.~~

F.23. *Temporary or incidental signs.* The following signs are permitted as temporary or incidental to a given ground floor business or use and are not to be included in calculating the allowable gross sign area for on-premises permanent signs:

a1. *Window signs.* The total gross sign area of all window signs as defined in Section 405.120, Definition of Terms, shall not exceed twenty percent (20%) of the area of any individual window located in the lowest eleven (11) feet of the storefront as measured from the adjacent exterior grade. For the purposes of this Section, panes of glass separated by a structural column or portion of exterior finished wall shall be considered individual windows. Further, glass located within a door, whether or not

it is used as an entrance/exit, is not an eligible location for a window sign. No window signs are allowed more than eleven (11) feet above the adjacent grade.

2b. Temporary ~~promotional~~ displays and signs. Temporary ~~promotional~~ displays ~~such as including only~~ banners ~~or~~, posters, ~~pennants, ribbons, streamers and balloons~~ shall be permitted for ground floor retail sales and service uses ~~to announce grand openings, special sales or events~~. These special promotions shall be limited to two (2) times per year for up to three (3) weeks each period. A separate sign permit shall be required for each event. These temporary ~~promotional~~ displays shall be constructed and lettered to a professional quality and the size of banners or posters shall not exceed the allowable square footage for on-premises permanent signs. Permitted balloons shall not exceed two (2) feet in length or width. The items shall be secured in such a manner as to minimize movement and shall be attached to the main building or structure and not be erected as freestanding elements or attached to vehicles or low monument signs, and shall be limited to the first floor elevation of a building, with no more than 18 feet above the ground elevation.

e3. Other Temporary signs. Within forty-five (45) days prior to and ten (10) days after any election held within Creve Coeur, temporary ~~non-commercial~~ signs may be allowed with the owner's permission in addition to the permitted signage allowed on any non-residentially zoned lot or parcel of land in the City. ~~Each~~ lot or parcel of land shall be permitted one (1) or more single- or double-faced sign although no single sign face shall exceed twelve ~~twenty-four~~ (24) square feet. The number of such temporary signs on a lot shall not exceed the total number of candidates and propositions on the election ballot. ~~Not more than one (1) temporary sign per individual candidate and/or proposition on the election ballot shall be permitted per lot.~~

~~d.—Temporary real estate signs on single tenant/occupant properties.—In addition to the permitted signage on any single tenant/occupant non-residential premises, temporary real estate signs are allowed offering the premises for sale, lease or rent. Such signs shall be limited to advertising the premises on which they are located, shall be a maximum of six (6) feet tall and shall be limited to twenty-four (24) square feet per sign face with a maximum of two (2) sign faces. Temporary real estate signs shall be removed from the premises ten (10) days after the premises is sold, leased or rented. These provisions shall not apply to multi-tenant/occupancy properties and if the property is subsequently converted to multi-tenant occupancy, the requirements of Section 405.950(2)(e), Multi-tenant real estate information signs, shall be enforced on the property.~~

4. Portable signs. In all commercial districts, one (1) portable sandwich board signs limited to six (6) square feet and no more than four (4) feet in height shall be allowed per business address, without a permit, provided no part of such signs is more than four (4) feet from the building front near the main entrance, the sign does not obstruct pedestrian movement, and the sign does not obstruct or otherwise pose a hazard to motor vehicle traffic. Such signs must be stored inside between dusk and dawn when not open for business, and are brought each night.

e5. Signs on converted residential structures in commercial zoning districts. Each residential structure which has been converted to a commercial use by approval

of a site development plan by the Planning and Zoning Commission may have one (1) or more wall signs, window signs or signs affixed or painted on canopies or awnings with a total gross sign area not to exceed twenty-five (25) square feet. A rear entrance to such business may be identified by a sign not to exceed two (2) square feet in gross sign area. Such a sign shall be affixed directly to the rear entrance door.

~~All signs permitted by this Section shall require the issuance of a sign permit.~~

G4. *Special purpose signs.* Signs authorized in this Subsection are not to be included in calculating the allowable gross sign area for on-premises permanent signs.

a1. *Parking ~~and other~~ direction signs.* One (1) freestanding parking direction sign per direction, which may be internally illuminated, ~~shall~~ may be ~~required~~ permitted for each driveway, provided the sign ~~shall~~ does not exceed three (3) square feet in gross sign area per face, the sign height ~~shall~~ does not exceed three (3) feet and no portion of the sign shall extend into the public right-of-way. If the sign is located at a private driveway, for enhanced traffic directional purposes it may contain the name, address and/or logo of the business in addition to messages providing directional information. the sign may ~~shall only~~ contain the address of the business or institution on the premises. Other directional signs shall be installed as may be required by the City.

~~b. — Directional signs. Directional signs, other than parking direction signs, may be located on a project, site or development exceeding twenty (20) acres in size, provided that the total area of such signs located on any site shall not exceed twelve (12) square feet in gross sign area and no sign should be more than ten (10) feet in height or located closer than fifty (50) feet to a public or private right-of-way.~~

~~c. — Parking regulation signs. One (1) non-illuminated parking regulation sign, not exceeding five (5) square feet in gross sign area and not exceeding ten (10) feet in sign height, shall be permitted for each commercial or public parking lot. Parking lots with more than twenty (20) parking spaces shall be permitted one (1) such sign for each twenty (20) parking spaces or fraction thereof.~~

~~b2d.~~ *Marquee signs.* Marquee signs for theaters, cinemas, exhibition centers and similar public assembly uses shall be permitted only upon the specific authorization of the Planning and Zoning Commission, subject to such restrictions and conditions as the Commission may deem necessary after a site development plan is reviewed under the provisions of Section 405.1080.

~~e3e.~~ *On-site construction signs.* Only When the property is under construction pursuant to an issued building permit, an additional one (1) such sign per entire development denoting the owner, architect, engineer, consultant, developer, lender and/or contractor, not to exceed thirty-two (32) square feet in gross sign area per face with a maximum of two (2) faces and not to exceed ten (10) feet in height from top of sign to top of grade or two (2) feet in height from bottom of sign to top of grade, shall be permitted. Such a sign shall be erected out of the public right-of-way, upon receipt of a building permit and shall be removed ten (10) days after completion after completion of a project and not later than 10 days after issuance of occupancy permit. the receipt of an occupancy permit for a building or development. The sign may indicate the owner, architect, engineer, consultant, developer, lender and/or contractor and other such information.

~~f. — Light pole artwork signs. Light pole artwork signs shall be permitted on light poles in public surface parking lots accommodating a minimum of two hundred (200) vehicles. All light poles supporting these signs must be located a minimum of fifteen (15) feet from the front curb line of the parking lot. The bottom of such sign shall not be lower than twelve (12) feet from the base of the light pole. In addition, temporary light pole artwork signs may be permitted on light poles or similar utility~~

~~poles adjacent to a public street to announce special events. The gross sign area of each light pole artwork sign shall not exceed eighteen (18) square feet with a maximum of two (2) signs per light pole. No part of this sign shall project more than~~

~~three (3) feet beyond the vertical centerline of the light pole. These signs shall be attached to the light pole in such a manner so as to minimize any sign movement. Any torn, frayed or faded light pole artwork sign must be repaired, replaced, removed entirely within ten (10) days of written notification.~~

d4g. *Covered walkway signs.* A sign not to exceed two (2) square feet in gross sign area may be hung from the ceiling of a covered walkway that is attached to the front of a retail store. Such a sign shall not exceed eighteen (18) inches in drop from the bottom of the said sign to the ceiling surface of the covered walkway, nor shall the bottom of said sign be less than seven (7) feet above the sidewalk surface it is hanging over. Only one (1) covered walkway sign per business shall be allowed. Such a sign shall be hung perpendicular to the retail storefront so as to be beneficial to pedestrian traffic.

5H. *Automobile service stations.*

a1. Signs located on property used for automobile service stations shall be subject to the provisions and limitations set forth in this Section. Additional retail signs, unless specifically provided for herein, advertising the sale of specific products shall be prohibited.

b2. No sign shall be attached to any pole, light standard or gasoline tank vent pipe. No sign shall be attached to a gasoline pump excepting those provided for in Section 405.950(5)(e).

e3. *Wall signs.*

(1a) Not more than one (1) wall sign shall be permitted for each automobile service station. This wall sign shall not exceed twenty-five (25) square feet in gross sign area. ~~This sign may include the name of the firm, the business being conducted on the premises or the principal product being offered for sale on the premises or a combination of same. A business logo may appear as a part of this wall sign.~~

(2b) In instances where the ~~incidental~~ washing of motor vehicles is an accessory service being offered on a property used for an automobile service station, one (1) additional wall sign shall be permitted. This wall sign shall not exceed ten (10) square feet in area. ~~This sign may include the product being offered for sale on the premises. Further, One (1) sign designating the entrance to and one (1) sign designating the exit from the washing area shall be affixed directly to the structure near such entrance or exit~~ for traffic safety and efficiency. The gross sign area of such signs shall not exceed twelve (12) square feet.

~~Instances where a full-service car wash is part of a property used for an automobile service station, a sign advertising the variety of car wash services being offered, along with their respective costs, may be displayed. Such a One additional sign may be erected no closer than seventy-five (75) feet from any public right-of-way. Such a sign shall not exceed ten (10) square feet in gross~~

sign area or eight (8) feet in height from top of sign to top of grade. Said sign shall be permanently anchored to a wall, canopy support or a freestanding pole.

~~d~~4. *Service station canopy signs.* An automobile service station with a canopy shall be permitted one (1) service station canopy sign, in addition to a wall sign, per street frontage. This service station canopy sign shall not exceed thirty (30) square feet in gross sign area per street frontage. This sign shall be a flat sign permanently affixed to the vertical face of the canopy and shall not project above or below or from any side of the vertical face of the canopy. This sign shall be illuminated by internal and non-intermittent light sources. ~~Any~~ business logo, inclusive of striping or other symbols, ~~may appearing~~ on this canopy sign shall count as part of the gross sign area allowable for said sign.

~~e~~5. *Pump signs.* Signs shall be ~~posted~~allowed on gasoline pumps so as to provide the required information to the public regarding "octane rating", "price" and "type of fuel". As the trade name of the business is often incorporated into the different types of fuels, said trade name and any associated symbols shall be permitted on the sides of the pumps as flat signs located no more than three (3) feet above the ground and not to exceed two (2) square feet in area per sign face (four (4) square feet in aggregate) per pump. "Self-service" or "full-service" signs shall identify each pump island on the service station property. The location of such signs shall be limited to the gasoline pump or the canopy support, not more than eight (8) feet above the ground, located at each end of the pump island. A maximum of two (2) such signs shall be allowed per pump island and each sign shall not exceed two (2) square feet in area.

~~f~~6. *Gasoline price signs.* For purposes of traffic efficiency and safety, No more than one (1) gasoline price sign shall be allowed per service station property street frontage. This sign must be freestanding and permanently anchored. Such a sign shall not exceed sixteen (16) square feet in sign area per face and shall not exceed six (6) feet in height from top of sign to top of grade. Illumination shall be by internal and non-intermittent light sources. This sign shall identify the actual unit price being charged for gasoline being sold. ~~The business's name and/or logo may be displayed on this sign, provided it does not occupy more than four (4) square feet of the total sign area per face.~~

I6. *Master signage plans--"CB" Core Business District, "GC" General Commercial, "PH" Planned Hospital District, "HE" Higher Education District* properties of campus style developments of multiple buildings with a minimum of ten (10) acres and residentially zoned institutions (schools and places of worship with a minimum tract area of twenty (20) acres). The provisions set forth in the preceding Sections 405.910, et seq., shall be applicable as stated therein to signs accessory to uses in "CB" Core Business District, "GC" General Commercial, "PH" Planned Hospital District and "HE" Higher Education District and signs accessory to residentially zoned institutions (schools and places of worship with a minimum tract area of twenty (20) acres). However, in keeping with the intent to allow flexibility in the design of planned developments and large campuses developmentses of multi-acre areas, not separated by designated arterial or numerical highway (e.g. Olive Boulevard), the following options may be available for~~applicable to~~ signs accessory to uses in the "CB" Core Business

| District, ["GC" General Commercial](#), "PH" Planned Hospital District and "HE"

Higher Education District and signs accessory to residentially- zoned institutions (schools and places of worship with a minimum tract area of twenty (20) acres):

a1. As an alternative ~~to what would otherwise be allowed~~, signs may be permitted in accordance with a Comprehensive Master Plan of signage subject to the recommendation of the Planning and Zoning Commission and approval of the City Council following a public hearing conducted in accordance with the provisions of Sections 405.1060(D)(3) and 405.1120 of the Zoning Code. The Comprehensive Master Plan of signage shall show the location, size, height and extent of all proposed signs, ~~as well as the nature of the information to be displayed on the signs~~. In addition, the geographic limits of the area to be covered by the Comprehensive Plan of signage must be shown.

~~b. In addition, a plan for off-site directional signs in commercial districts which identify commercial centers and institutional campuses may be recommended by the Planning and Zoning Commission and approved by the City Council following a public hearing conducted in accordance with the provisions of Sections 405.1060(D)(3) and 405.1120 of the Zoning Code. The plan for off-site signs shall show the location, size, height and extent of all signs encompassed within the signage plan, as well as the nature of the information to be displayed on each sign. All such signs shall be located within the "CB" Core Business District, "PH" Planned Hospital District or "HE" Higher Education District. Off-site signage is not permitted in residential districts.~~

b2e. Any application submitted pursuant to Subsection (6)(a) ~~or (b)~~ above may be made by any property owner, owner of an easement, lessee, contract purchaser or their agent. Such application shall be accompanied by a statement setting forth the names of the record owners of the properties upon which such signs are proposed to be located and the notarized agreement of each record owner to the placement of such signs on their property. When an application requests permission to erect a sign on property owned by someone other than the applicant, then such application shall be accompanied by a written and notarized statement signed by the record owners of such properties which indicates their endorsement of the application.

e3d. The above-cited signage options shall be exercised in accordance with the standards for all planned developments as set forth in Section 405.1080. All proposed signs shall be reviewed based on the following criteria

- a. Proposed signs are consistent with the purpose of this ordinance;
- b. Proposed signs ~~are compatible~~are compatible with the theme, visual quality, and overall character of the surrounding area.
- c. Proposed signs are in scale and harmonious with the development and shall be so located and sized as to ensure convenience to the visitor, user or occupant of the development while not adding to street clutter or otherwise detracting from the planned unit nature of the development and the purposes of architectural and urban design elements.

~~7. Common signage plan all non-residential districts. If the owners of two (2) or more contiguous (disregarding intervening streets and alleys) lots or the owner of a single lot with more than one (1) building (not including any accessory building) file with the~~

~~Zoning Administrator for such lots a common signage plan conforming with the provisions of this Section, a twenty percent (20%) increase in the maximum total sign~~

~~area shall be allowed for each included lot. This bonus shall be allocated within each lot as the owner(s) elects.~~

~~a.—*Provisions of common signage plan.* The common signage plan shall contain the information in paragraph (1) below and shall also specify standards for consistency as required by paragraph (2) below.~~

~~(1)—The common signage plan shall contain the following:~~

~~(a)—An accurate plot plan of the lot, at such scale as the Zoning Administrator may reasonably require;~~

~~(b)—The location of buildings, parking lots, driveways and landscaped areas on such lot;~~

~~(c)—Computation of the maximum total sign area, the maximum area for individual signs, the height of signs and the number of freestanding signs allowed on the lot(s) included in the plan under this Chapter; and~~

~~(d)—An accurate indication on the plot plan of the proposed location of each present and future sign of any type, whether requiring a permit or not, except that incidental signs need not be shown.~~

~~(2)—The common signage plan shall specify standards for consistency among all signs on the lots affected by the plan with regard to:~~

~~(a)—Lettering or graphic style;~~

~~(b)—Lighting;~~

~~(c)—Location of each sign on the buildings;~~

~~(d)—Material; and~~

~~(e)—Sign proportions.~~

~~b.—*Window signs on common signage plan.* A common signage plan or master signage plan including window signs may simply indicate the areas of the windows to be covered by window signs and the general type of the window signs (e.g., paper affixed to window, painted, etched on glass or some other material hung inside window) and need not specify the exact dimension or nature of every window sign.~~

~~c.—*Limit on number of freestanding signs under common signage plan.* The common signage plan, for all lots with multiple uses or multiple users, shall limit the number of freestanding signs to a total of one (1) for each street on which the lots~~

included in the plan have frontage and shall provide for shared or common usage of such signs. Individual tenants may be identified on freestanding signs.

~~d.—Other provisions of common signage plans. The common signage plan may contain such other restrictions as the owners of the lots may reasonably determine.~~

~~e.—Consent. The common signage plan shall be signed by all owners or their authorized agents in such form as the Zoning Administrator shall require.~~

~~f.—Procedures. A common signage plan shall be included in any site-development plan or other plan required by the City for the proposed development and shall be processed simultaneously with such other plan.~~

~~g.—Amendment. A common signage plan may be amended by filing a new common signage plan that conforms with all requirements of the ordinance then in effect.~~

J7h. Existing signs not conforming to common signage plan. If any ~~new or amended~~ common signage plan has been approved under previously effective ordinances is filed for a property on which existing signs ~~were~~are located, ~~withit shall include~~ a schedule for bringing into conformance, within three (3) years, all signs not conforming to the proposed ~~amended~~ plan or to the requirements of this Chapter in effect on the date of submission, such schedule shall be met notwithstanding elimination of the common signage plan ordinance.

~~i.—Binding effect. After approval of a common signage plan, no sign shall be erected, placed, painted or maintained, except in conformance with such plan and such plan may be enforced in the same way as any provision of this Chapter. In case of any conflict between the provisions of such a plan and any other provision of this Chapter, the ordinance shall control.~~

8K. Billboards.

a1. Not permitted. Billboards shall not be permitted in the City. This prohibition shall be effective as of July 1, 2009. Any billboard permitted prior to that date shall be deemed a non-conforming sign, but shall not be enlarged, relocated, or reset. The City expressly prohibits the resetting of qualifying signs pursuant to Section 226.541 RSMo.

b2. Lighting and landscaping of billboards. All lighting and landscaping of billboards shall comply with the following:

(1a) Prior to issuance of a City permit for erection of a billboard, the applicant shall submit and receive approval of a landscape plan depicting the landscaping, billboard lighting and fencing around the proposed billboard to ensure that the structure will be aesthetically compatible with its surroundings and the aesthetic standards of the community and neighboring property. Said landscaping shall consist of a circular base with a minimum radius measured from the center of the sign base. Said radius shall be no less than the total height of the

sign, measured from ground grade at the sign structure base to the highest point of the total sign and structure. Such plans shall comply with the provisions of [Section 405.540](#), shall be reviewed and approved by the Planning and Zoning Commission and shall comply with all standards in this Section;

([2b](#)) No revolving or rotating beam or beacon of light that simulates any emergency light or device shall be permitted as part of any sign. No flashing, intermittent or moving light or lights will be permitted except scoreboards and other illuminated signs designating public service information, such as time, date or temperature or similar information, will be permitted;

([3c](#)) External lighting such as floodlights, thin line and gooseneck reflectors are permitted, provided the light source is directed upon the face of the sign and is effectively shielded so as to prevent beams or rays of light from being directed into any portion of the main traveled way of the interstate or primary highway and the lights are not of such intensity so as to cause glare, impair the vision of the driver of a motor vehicle or otherwise interfere with a driver's operation of a motor vehicle and such lights shall be effectively shielded so as to prevent beams or rays of light from being directed onto adjacent residential property;

([4d](#)) No billboard shall be so illuminated that it interferes with the effectiveness of or obscures an official traffic sign, device or signal;

([5e](#)) The maximum average lighting intensity level for such sign shall be twenty (20) foot-candles.

[3e](#). *Obstruction of official highway signs.* No sign shall be located in such manner as to obstruct or otherwise physically interfere with the effectiveness or visibility of an official traffic sign, signal or device or obstruct or physically interfere with a motor vehicle operator's view of approaching, merging or intersecting traffic.

[d4](#). *Annual inspection and certification.* Owners of all billboards shall be required to submit, to the Zoning Administrator, an inspection report from a Missouri licensed engineer as to the sign's structural integrity. Such certification shall be done on or before July first (1st) of each year. Failure to submit a report shall result in the immediate revocation of the sign's permit.

[5e](#). *Nuisances.* Any billboard which, because of lack of maintenance, upkeep, vandalism, accumulation of litter, refuse or debris or the deterioration of landscaping, lighting or fencing, becomes unsightly or unsafe, as determined by the Zoning Administrator, is hereby declared to be a nuisance and shall be subject to abatement by the City in the same manner all other nuisances on private property. (R.O. 2008 §26-104; Ord. No. 1903 §1, 11-24-97; Ord. No. 1919 §1, 1-26-98; Ord. No. 1977 §§1--5, 1-11-99; Ord. No. 2236 §1, 10-27-03; Ord. No. 2287 §1, 6-28-04; Ord. No. 5073 §§3--4, 1-8-09)

SECTION 405.960: ENFORCEMENT AND SIGN REMOVAL

A. *Sign Code Violations And Enforcement.* Any sign which is not in compliance with all the provisions of this Article is declared to be unlawful. The City, through the Zoning Administrator, may initiate injunction or abatement proceedings or other appropriate action in the courts against any person who violates or fails to comply with any provisions of this Article or against the erector, owner or user of an unlawful sign or the owner of property on which an unlawful sign is located to prevent, enjoin, abate or terminate the erection, use of display of an unlawful sign. Any person who violates or fails to comply with any of the provisions of this Article or the erector, owner or user of an unlawful sign or the owner of property on which an unlawful sign is located shall be subject to the penalties set forth in [Section 405.1150\(D\)](#) of this Chapter.

B. *Removal Of Unlawful Sign.* Any unlawful sign which has not been removed within thirty (30) days after conviction of violation or imposition of civil penalty may be removed by the City and the costs charged to the violator. If removal costs have not been paid and the sign reclaimed within thirty (30) days of its removal by the City, the City may sell or otherwise dispose of the sign and apply the proceeds toward costs of removal. Any proceeds in excess of costs shall be paid to the owner of the sign.

C. *Immediate Removal Of Unlawful Or Unsafe Signs.* Signs which the Zoning Administrator finds upon public streets, sidewalks, rights-of-way or other public property or which ~~wheresoever~~wherever located present an immediate and serious danger to the public because of their unsafe condition may be immediately removed by the Zoning Administrator without prior notice. (R.O. 2008 §26-105; Ord. No. 1903 §1, 11-24-97)

SECTION 405.970: VARIANCES

A. *Practical Difficulties Or Unnecessary Hardship.*

1. Where there are practical difficulties or unnecessary hardship in the way of carrying out the strict letter of the provisions of this Article, the Board of Adjustment may vary or modify the application of specific regulations for any permitted form of signage so that the spirit of this Article shall be observed, public safety and welfare secured and substantial justice done.

2. A variance from this Article may be granted for any permitted form of signage where it is found that because of the limitations on character, size, number or dimensions of signs or the regulations controlling the erection or installation of a sign, the applicant would be subject to practical difficulties or unnecessary hardship. Unnecessary hardship is not considered the loss of possible advantage, economic loss or gain or mere inconvenience to the applicant.

B. *Procedures And Criteria.* The procedures and criteria for granting a variance from the regulations in this Article shall be as set out in [Section 405.1040](#) of this Chapter. (R.O. 2008 §26-106; Ord. No. 1903 §1, 11-24-97)

SECTIONS 405.980--405.990: RESERVED

HUTKIN DEVELOPMENT COMPANY

July 12, 2012

Planning and Zoning Commission
City of Creve Coeur
Re: Proposed Changes to City Sign Ordinances

RECEIVED

JUL 12 2012

PLANNING DEPT.

Dear Members of the Planning and Zoning Commission:

We are writing this letter in response to changes proposed by the City of Creve Coeur (the "City") to its sign ordinances (the "**Proposed Changes**"), which we understand in part are due to the recent court case of *Neighborhood Enterprises, Inc. v. City of St. Louis*.

As you know, Hutkin Development Company and its affiliates ("**Hutkin**") are long-time, conscientious owners of multiple commercial and retail properties in the City, including the Plaza Shops, Balmoral Plaza, Shops at Westchase, our offices at 10829 Olive Boulevard, as well as others. Hutkin has owned most of these properties for many years (Balmoral Plaza since the 1970's) and they have been highly sought after locations for many businesses that serve the residents and bring regional customers to Creve Coeur. We hope the City will agree that it is in both parties' interest to work together to ensure the success and prosperity of these properties, and all commercial property in Creve Coeur.

Of particular concern to us, is the proposed complete elimination of a second sign for commercial and retail properties. Currently, such properties are allowed to have two (2) signs: (1) a monument sign which provides a partial or complete listing of the tenants doing business at the property; and (2) a leasing sign notifying potential tenants that there is space either coming available or is currently available at the location. Both signs are extremely important to the existing and future viability of commercial and retail properties in the City, from both a practical and competitive perspective. Forcing a property owner to use a portion of the monument signage to advertise space "for lease" will in almost every case provide unintended consequences for the property owners and the City:

- Merging the "for lease" information with the tenant information on a monument sign is confusing, cluttered and diminishes the effectiveness of both.
- Not all monument signs provide a good or reasonable place to put "for lease" information (i.e the Balmoral Plaza monument is a beautiful brick sign; cluttering it or adhering "for lease" information is not desirable by us, our tenants, or the City).
- Tenant monument signs are not where our customers/prospective tenants look for "for lease" information.
- Permanent "for lease" signs (in lieu of a monument sign) are directly counter to the image of Creve Coeur and the quality of commercial property in the City, and especially on the Olive Street corridor and along Ballas Road.
- The proposed changes are going to have a negative effect on our marketing efforts, which in turn will reduce occupancy levels and make lease-up times longer, which in turn will negatively impact sales tax revenues.

10829 Olive Boulevard, Suite 200, St. Louis, Missouri 63141, (314) 872-9140
Facsimile (314) 872-9001 <http://www.hutkin.com> e-mail: info@hutkin.com

We are also concerned about the One Hundred Fifty (150) foot spacing requirement for signs. While we recognize and approve of the City's desire to allow drivers to clearly see each individual sign, we fear that there could be unfair application of the spacing requirements. If one owner placed a sign on the corner of their property, it could force the neighboring property owner to place a sign at the far end of their property, which may not be practical, contextual, or even be possible.

The economic downturn continues to impact quality commercial property, even in a top-tier municipality like Creve Coeur. Without the ability to adequately advertise available space, by way of well designed, strategically placed and appropriate "for lease" signage, property owners will struggle further. We are confident the City does not want to unduly hinder the use of reasonable and essential marketing tools that help fill vacant spaces and bring businesses to the City.

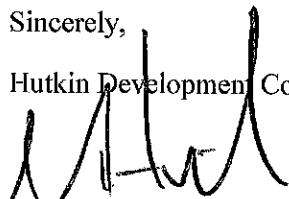
We recognize the City has concerns about the recent court case ruling. However, we believe there is a better approach that would not be as detrimental to the City, or to the retail and commercial property owners in the City.

It is our understanding that the City is able to regulate "place", "manner" and "time" as it pertains to signs. In order to reduce the likelihood of a property owner utilizing a "for lease" sign as a permanent sign for some other purpose, the City could incorporate into the ordinance a procedure that once a property owner becomes aware that a space will be coming available, the property owner will be required to provide a reasonable measure of proof of such availability, submitted during the sign permit process. Once the vacancy or available space has been leased, then the sign must be removed by the property owner within ten (10) business days of the new tenant receiving its occupancy permit from the City. We believe this concept could also assist the City in reaching its goal of reducing sign clutter. Significant fines could be levied against property owners who leave signs up without legitimate vacancy or space available.

We would hope that the City will work with us on this very important issue - one that we know is as important to the City as it is to us. We respectfully request the opportunity to work directly with the City and explore this and other alternatives to protect the City while not hindering the legitimate business needs of the City's retail and commercial property owners. We are confident that a mutually acceptable solution can be found through our joint efforts.

Sincerely,

Hutkin Development Company



Steven F. Hutkin, President

Cc: Mr. Paul Langdon

Ms. Whitney Kelly

This letter is submitted in connection with the public hearing on the proposed changes to the City sign ordinances scheduled for July 16, 2012 and we request that it will be made a part of the official record.

2012 BOARD OF DIRECTORS

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Delmar Gardens of Creve Coeur
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Phyllis Messeria
AMG Corporate Offices
President Elect

Shelly Dunsmoor
Drury Hotels
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Visiting Nurse Association
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Dave Book
Murphy Company
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Tessler Promotions

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Wyne & Merritt PC



Chamber Of Commerce

July 13, 2012

Planning and Zoning Commission
City of Creve Coeur
300 North New Ballas Road
Creve Coeur, MO 63141

Re: Proposed Modifications to the City of Creve Coeur Sign Ordinances

Dear Members of the Planning and Zoning Commission:

We are writing this letter in response to proposed changes by the City of Creve Coeur (the "City") to its sign ordinances (the "Proposed Changes"), which we understand in part are due to the recent 8th Circuit court case *Neighborhood Enterprises, Inc. v. City of St. Louis*.

The Creve Coeur-Olivette Chamber of Commerce (the "Chamber") appreciates that the City informed us of the Proposed Changes and asked for the Chamber's input. We have formed a committee and gathered input from our members, which include several prominent commercial and retail property owners throughout the City. Many of our members have concerns with the Proposed Changes and we value the opportunity to be able to bring them to your attention.

The major areas of concern are permitting or allowing the following which would be eliminated or severely curtailed under the Proposed Changes:

1. A second short-term sign for leasing and sale purposes for commercial/retail properties with a monument sign;
2. Short-term leasing and sale signs for property owners who do not have monument signage;
3. Self-executing exceptions to the One Hundred Fifty (150) foot spacing requirements and the Ten (10) foot distance from right of way requirements, for hardships;
4. Reasonable relocation and reconfiguration of signage without additional regulatory approval;
5. Temporary open house signs for residential properties;
6. Larger sign size for multi-story buildings, which sit back a considerable distance from the public road;
7. Two wall signs for multi-story buildings which front more than one road.

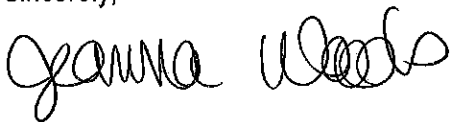
While this is not an exclusive list, it identifies the considerable scope and extent of the changes which appear to be somewhat extreme measures to control "content".

We also note that the changes may inadvertently restrict a property owner's statutory rights to advertise their property for sale or for lease. Section 67.317 of the Revised Statutes of Missouri prohibits a political subdivision from enacting or enforcing an ordinance which "forbids or restricts" the right of a property owner to display a sign on their property advertising the property for sale or for lease.

As business professionals and entrepreneurs, the Chamber's members are all acutely aware of the economic decline suffered across the country and this decline has undeniably influenced our City. Without the ability to properly or effectively advertise or market vacant properties, Chamber members and property managers will be unable to attract new tenants. These Proposed Changes will unquestionably cause the local business economy, which is so important to the City's growth and development, to suffer. The Proposed Changes will also put the City's local businesses at a competitive disadvantage to adjoining St. Louis County areas which will not be subject to such restrictions.

The Chamber recognizes and sympathizes with the City's concerns about preventing inappropriate, obscene, or offensive images or language on signage. The Chamber would appreciate the opportunity to explore alternatives to address the above concerns so as to protect the City while not hampering the legitimate business needs of the City's retail and commercial property owners.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanna Woods". The signature is fluid and cursive, with the first name "Jeanna" written in a larger, more prominent script than the last name "Woods".

Jeanna Woods, President
Creve Coeur-Olivette Chamber of Commerce

This letter is submitted in connection with the public hearing scheduled for July 16, 2012 on the proposed changes to the City of Creve Coeur sign ordinances. We request that it will be made a part of the official record.



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

APPLICATION TO PLANNING AND ZONING COMMISSION #12-018 FOR APPROVAL OF A MASTER SIGN PLAN FOR THE SAUL MIROWITZ & B'NAI AMOONA CAMPUS AT 324 S. MASON ROAD

FOR THE MEETING OF: July 16, 2012

LOCATION: 324 S. Mason Road

REQUEST: Congregation B'Nai Amoona and Saul Mirowitz Jewish Community School (formerly the Solomon Schechter Day School), has submitted a request for approval of a Master Sign Plan to allow for new signs on the campus that include light pole banners, new building sign, and directional signage. The 32.8 acre campus is located at 324 S. Mason Road (see attached map) at the northeast corner of S. Mason Road and Conway Road and is zoned "A" Single Family Residential District

ADDITIONAL INFORMATION: Section 405.950.6 Master Signage Plans allows for consideration of a comprehensive plan of signage subject to the recommendation of the Planning and Zoning Commission and approval of the City Council for residentially-zoned institutions (schools and places of worship with a minimum tract area of twenty (20) acres.

Key Issues:

- Consistency in design, materials, and siting
- Visual clutter
- Protection of pedestrian and vehicular traffic safety from the proliferation of signs.

Comp. Plan References

- Design Guidelines

Zoning Code References

- Article VIII Sign Regulations
- 405.940 Signs in Residential Districts
- 405.950.6-Master Signage Plans

APPLICANT: Patty Bloom
Director of Admissions
and Marketing
Saul Mirowitz Jewish
Community School

**APPLICANT'S
REPRESENTATIVE:**

Andy Hrdlicka
Summit Sign and Graphics
330 Southport Drive
Columbia, Illinois 62236



REPORT PREPARED BY:

Whitney Kelly
Whitney Kelly, AICP
City Planner

7/12/2012
Date

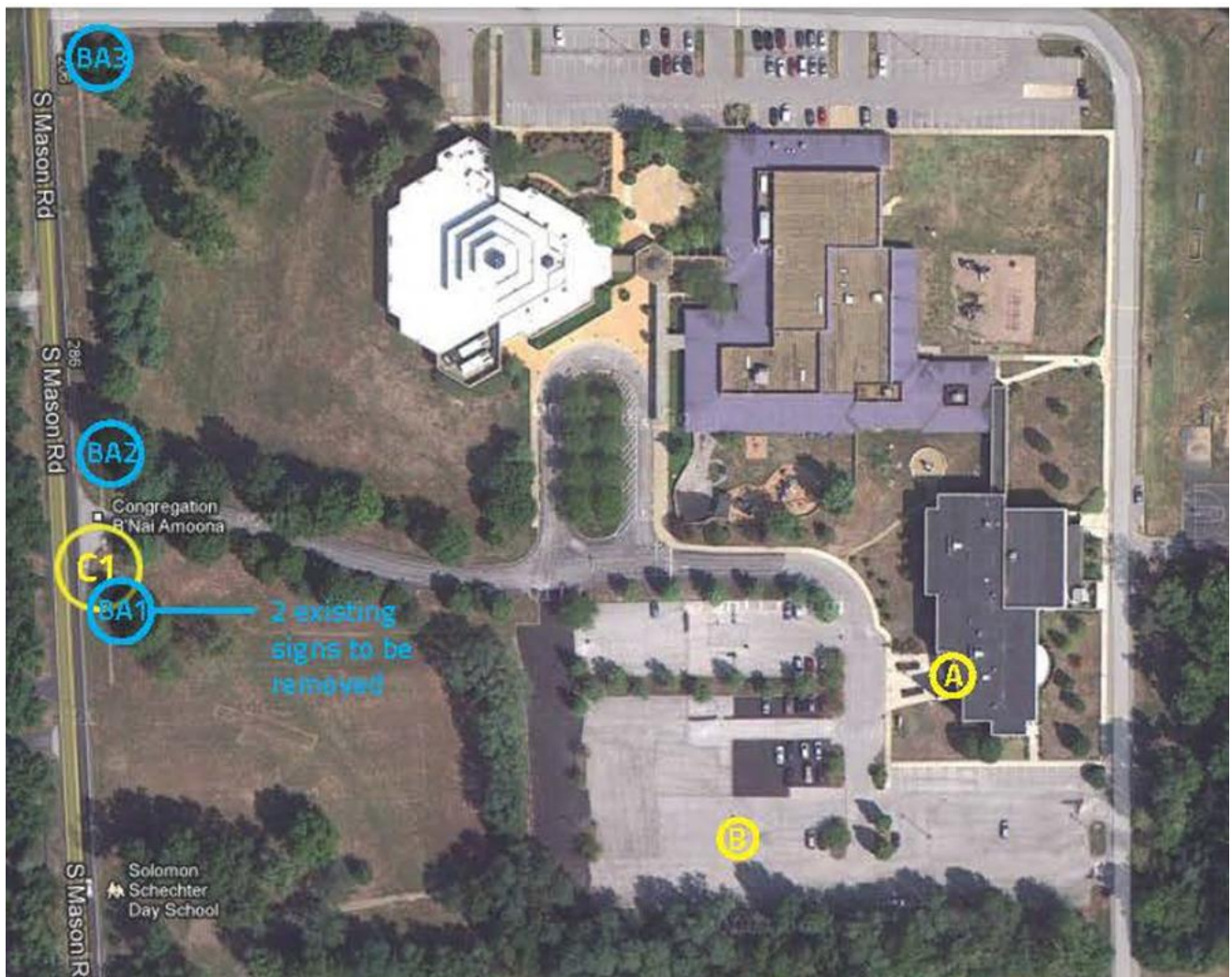
ATTACHMENTS: Draft Ordinance
Applicants Materials, received June 11, 2012

BACKGROUND

B'Nai Amoona Congregation received approval for a Site Development Plan and Conditional Use Permit for the Solomon Schechter Day School in 1999. The 32.8 acre campus is located at 324 S. Mason Road at the northeast corner of S. Mason Road and Conway Road and is zoned "A" Single Family Residential District.

MASTER SIGN PLAN PROPOSAL

Andy Hrdlicka of Summit Sign and Graphics, on behalf of Congregation B'Nai Amoona and Saul Mirowitz Jewish Community School (formerly the Solomon Schechter Day School), has submitted a request for approval of a Master Sign Plan to allow for new signs on the campus that include light pole banners, new building signage, and directional signage, along with maintaining the existing ground sign for B'Nai Amoona Congregation (identified as BA2 on the map below and pictured) and the parking direction sign for the north entrance (identified as BA3 on the map below and pictured).



Map of sign locations at the B'Nai Amoona Congregation & Saul Mirowitz Jewish Community Day School



Existing Ground sign to remain (BA2)



Existing parking direction sign to remain (BA3)

New signs include a 68.6 square foot Saul Mirowitz sign placed over the entrance canopy of the school, and the 20 square foot tag line for Jewish Community School attached to the face of the canopy (as pictured below)

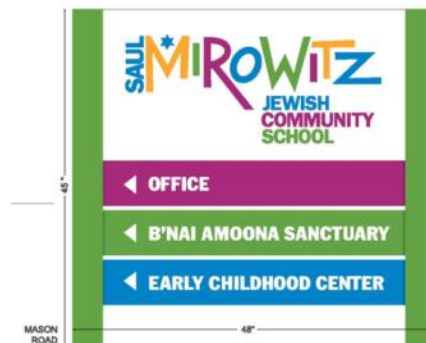


Building Signage (A)

The applicant is also proposing to add 10 light pole banners, located in the south parking lot (identified as B on the map above and shown below), and to replace the existing parking direction sign for the south entrance with a new 15 square foot parking direction sign along Mason Road (identified as C1 and shown below).



Example of the light pole graphics located in the south parking area (B)



New parking direction sign along Mason Road (C1)



Existing parking direction sign to be removed (BA1) and replaced with the above proposed sign

LAND USE AND ZONING OF SURROUNDING PROPERTIES

The adjacent zoning and land uses are as follows:

DIRECTION	USE	ZONED	SEPARATED BY
North	Residential	"A" Single Family Residential	NA
South	Residential	"A" Single Family Residential	NA
East	Residential	"A" Single Family Residential	NA
West	Residential	City of Town and County	S. Mason Road

COMPREHENSIVE PLAN REVIEW

The Comprehensive Plan does not provide much direction in sign review, except recommend that they City ensure that non-residential development is compatible with adjacent residential development (page 23).

The Design Guidelines offer further recommendations in reviewing signs, by recommending that sign plans include a consistency of materials, siting, and design, while allowing for individual identification. Specifically, all signs are to be architecturally integrated and complement their surroundings in terms of size, shape, color, texture and lighting. Signs are to complement the overall design of the building and are not to be designed to be in visual competition with other signs in the area. New signs proposed for existing buildings should provide a compatible appearance with other building signage. Where no sign program exists there should be an attempt to bring in a unifying element (such as size). (Chapter 5, page 17)

The purpose of the master sign plan is to ensure that the overall design themes for signs are incorporated throughout the campus setting in a comprehensive manner, but to also allow for different tenant identification beyond what the existing sign regulations allow. As the proposed signs are within a residential setting and will have a greater visual impact on the surrounding community, a unifying design theme is critical to meet with the intent of the Design Guidelines and the Comprehensive Plan. Having competing signs on one campus creates visual clutter. The proposed signs provide no unifying theme with the existing signs on the campus, nor do they relate to the surrounding residential development. The use of inconsistent materials, particularly

with the competing parking direction signs and the ground sign along Mason Road, as well as the light pole banners concentrated on one side of the campus, visually divides the campus when it should be tying it together. Therefore the proposed Master Sign Plan for the B'Nai Amoona/Saul Mirowitz Campus is inconsistent with the Comprehensive Plan and the Design Guidelines.

ZONING CODE REVIEW

All signs within the City are regulated under Article VIII of the Zoning Ordinance. The purpose of the Sign Regulations are to encourage the effective use of signs as a means of communication, to maintain and enhance the aesthetic appearance of the City and to facilitate and improve pedestrian and vehicular traffic safety, and to lessen confusion and visual clutter caused by a proliferation of signs competing for attention. Signs in residential districts are limited to 12 square feet for wall signs, and light pole banners are limited to non-residential districts. Relevant sections of the Sign Regulations are below:

Article VIII SIGN REGULATIONS OF THE ZONING ORDINANCE

Section 405.940 SIGNS IN RESIDENTIAL DISTRICTS

E. Institutional Uses In Residential Districts.

1. Institutional uses in residential districts such as schools and places of worship shall be allowed one (1) permanent sign not exceeding twelve (12) square feet in size, except, however, that any such use which has a minimum of two (2) street frontages which each exceed three hundred (300) lineal feet shall be permitted two (2) such signs. The permanent sign may be a bulletin board sign with changeable copy or may be an on-premises permanent sign. In addition, such uses shall be permitted one (1) temporary sign not exceeding twelve (12) square feet in size, provided that the display of such sign shall be limited to a period of ninety (90) days and a minimum of ninety (90) days shall elapse prior to posting another temporary sign on the premises.
2. Low monument signs. An institutional use occupying a site of at least thirty thousand (30,000) square feet may also be permitted a single, low monument sign used primarily for identification or as a bulletin board sign, provided such sign contains not more than twelve (12) square feet of sign area per face with not more than two (2) faces, is not more than six (6) feet in total height above the elevation of the centerline of the adjacent right-of-way or the adjacent finish grade, is set back at least ten (10) feet from the right-of-way of said fronting street or highway, is not located within the site distance triangle described in Section 405.670 of this Chapter and the site meets one (1) of the following criteria:
 - a. The site has at least three hundred (300) feet of frontage on a street or highway other than Lindbergh Boulevard; or
 - b. The site has at least two hundred (200) feet of frontage on Lindbergh Boulevard.
3. Campus monument sign. An institutional use occupying a site in excess of five (5) acres may, by filing a plan with the Zoning Administrator, have a single, freestanding, on-premises permanent sign identifying the institutional campus or complex in accordance with the following standards:
 - a. Maximum sign area. Sixty (60) square feet.

- b. Maximum area per sign face. Twenty-four (24) square feet.
 - c. Maximum height. Six (6) feet above prevailing base grade.
 - d. Setback from right-of-way. Fifteen (15) feet.
4. Parking direction signs. One (1) freestanding parking direction sign, which may be internally illuminated subject to Section 405.930(F) shall be permitted for every one hundred fifty (150) parking spaces with not more than two (2) sign faces, provided the sign does not exceed fifteen (15) square feet in gross sign area per face, the sign height does not exceed four (4) feet in height and no portion of the sign shall extend into the public right-of-way. The sign shall be placed within the parking lot and may contain the name and logo of the institution in addition to messages providing directional information.

However, the Master Signage Plan allows for deviation from the sign regulations on large campuses in order to provide for a more consistent program as to ensure convenience to the visitor, user or occupant of the development while not adding to street clutter or otherwise detracting from the planned unit nature of the development. All signs shall be in scale and harmonious with the development and provide an overall design them throughout the campus in a comprehensive manner.

6. *Master signage plans*--"CB" Core Business District, "PH" Planned Hospital District, "HE" Higher Education District and residentially zoned institutions (schools and places of worship with a minimum tract area of twenty (20) acres). The provisions set forth in the preceding Sections 405.910, et seq., shall be applicable as stated therein to signs accessory to uses in "CB" Core Business District, "PH" Planned Hospital District and "HE" Higher Education District and signs accessory to residentially zoned institutions (schools and places of worship with a minimum tract area of twenty (20) acres). However, in keeping with the intent to allow flexibility in the design of planned developments and campuses, the following options may be applicable to signs accessory to uses in the "CB" Core Business District, "PH" Planned Hospital District and "HE" Higher Education District and signs accessory to residentially zoned institutions (schools and places of worship with a minimum tract area of twenty (20) acres):
- a. As an alternative, signs may 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 following a public hearing conducted in accordance with the provisions of Sections 405.1060(D)(3) and 405.1120 of the Zoning Code. The Comprehensive Plan of signage shall show the location, size, height and extent of all proposed signs, as well as the nature of the information to be displayed on the signs. In addition, the geographic limits of the area to be covered by the Comprehensive Plan of signage must be shown.
 - b. In addition, a plan for off-site directional signs in commercial districts which identify commercial centers and institutional campuses may be recommended by the Planning and Zoning Commission and approved by the City Council following a public hearing conducted in accordance with the provisions of Sections 405.1060(D)(3) and 405.1120 of the Zoning Code. The plan for off-site signs shall show the location, size, height and extent of all signs encompassed within the signage plan, as well as the nature of the information to be displayed on each sign. All such signs shall be located within the "CB" Core Business District,

- "PH" Planned Hospital District or "HE" Higher Education District. Off-site signage is not permitted in residential districts.
- c. Any application submitted pursuant to Subsection (6)(a) or (b) above may be made by any property owner, owner of an easement, lessee, contract purchaser or their agent. Such application shall be accompanied by a statement setting forth the names of the record owners of the properties upon which such signs are proposed to be located and the notarized agreement of each record owner to the placement of such signs on their property. When an application requests permission to erect a sign on property owned by someone other than the applicant, then such application shall be accompanied by a written and notarized statement signed by the record owners of such properties which indicates their endorsement of the application.
 - d. The above-cited signage options shall be exercised in accordance with the standards for all planned developments as set forth in Section 405.1080. All proposed signs shall be in scale and harmonious with the development and shall be so located and sized as to ensure convenience to the visitor, user or occupant of the development while not adding to street clutter or otherwise detracting from the planned unit nature of the development and the purposes of architectural and urban design elements.

The proposed B’Nai Amoona/Saul Mirowitz Campus Master Sign Plan is inconsistent with the intent of the Zoning Code provision for master sign plan as there is no unifying comprehensive approach to the campus setting and the residential character of the zoning district, as outlined in the Design Guidelines discussion above.

CONCLUSION AND ACTION

It is Staff’s opinion that the absence of a unifying element is inconsistent with the intent of the Master Sign Plan, and the Design Guidelines. However, if the Planning and Zoning Commission believe the Master Sign Plan proposal for the B’Nai Amoona/Saul Mirowitz Campus is consistent with the purpose and requirements of Article VIII, a recommendation to the City Council for approval is necessary. Action on the proposal will come in the form of a recommendation of approval, approval with conditions, or denial. The following is an example of an appropriate motion for this application:

“I move to recommend approval of the Master Signage Plan for the B’Nai Amoona/Saul Mirowitz Campus, submitted with Application #12-018, subject to the conditions contained in the draft ordinance attached to the staff report for the meeting of July 16, 2012” (conditions may be added, eliminated, or modified by preceding motion).

If the Commission members wish to defer the recommendation to the following meeting to allow the applicant to modify the designs to be consistent with the Design Guidelines and the Master Sign Plan provision, the following is an example of an appropriate motion:

“I move to recommend deferral of the Master Signage Plan for the B’Nai Amoona/Saul Mirowitz Campus, submitted with Application #12-018, until the August 2nd meeting date to allow the applicant to address the concerns raised in the staff report for the meeting of July 16, 2012”

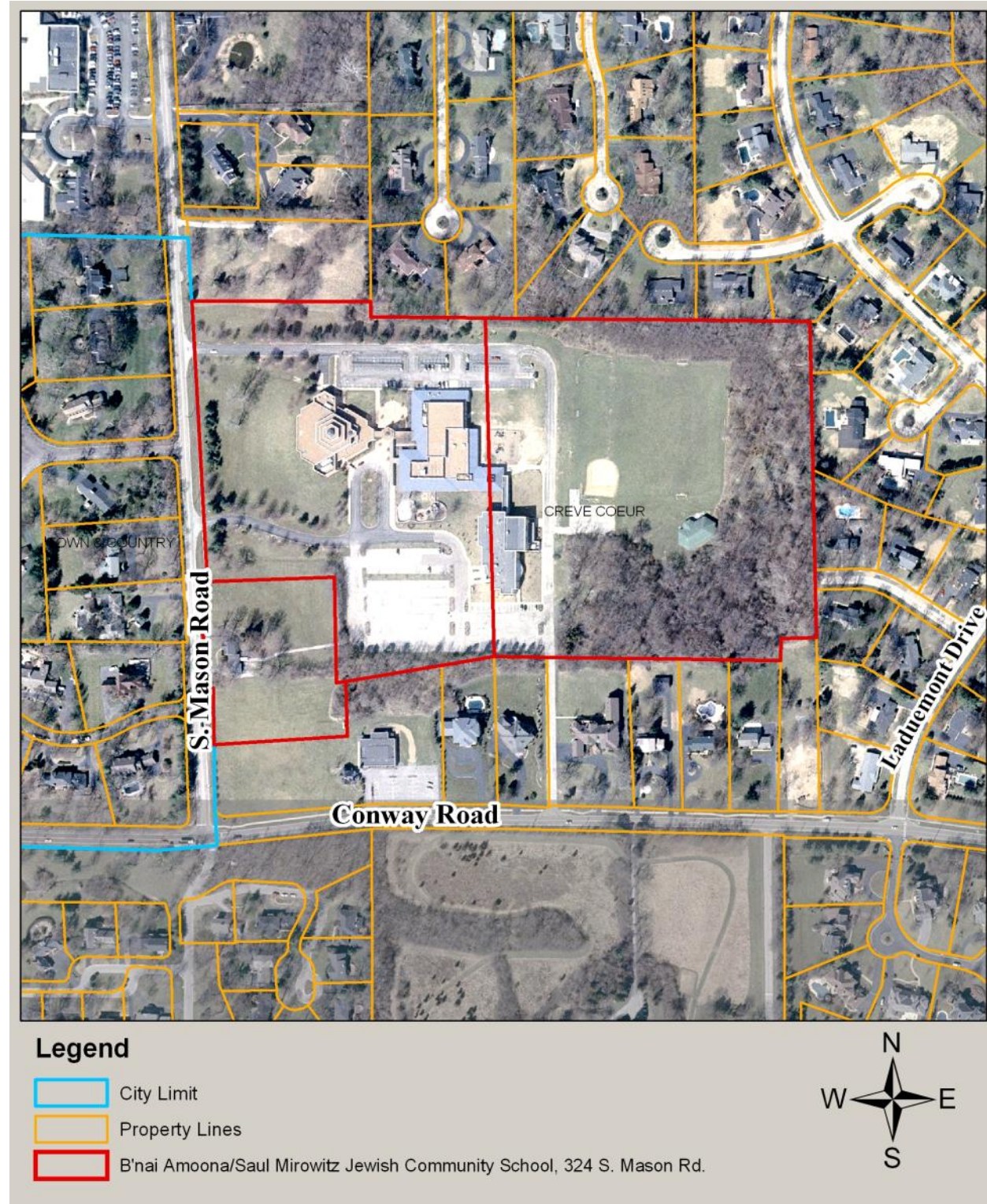
APPENDIX 1: COMPREHENSIVE PLAN

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 PHOTO



APPENDIX 4: SITE PHOTOGRAPHS	Photo Date: 07/09/2012 and 7/12/2012
	Picture of the existing school building where the proposed building signage will be located.
	View of the existing ground monument sign that is proposed to remain.
	View of the existing parking direction sign at the north entrance along Mason Road that is proposed to remain.

	View of illegal temporary signs at the north entrance.
	View of the illegal temporary banner within the south parking lot.
	View of the pole sign proposed for removal at the south entrance from Mason, along with the low parking direction sign that matches the one at the north entrance. (Note: approval of the existing, low parking direction sign required removal of the pole sign. In other words, the pole sign will need to be removed either way.)

	View looking south along Mason Road, from the southern entrance into the campus.
	View looking north along Mason Road at the southern entrance into the campus.

**AN ORDINANCE APPROVING A MASTER SIGNAGE PLAN PURSUANT TO SECTION
405.950.6 OF THE CITY OF CREVE COEUR'S CODE OF ORDINANCES FOR THE
CONGREGATION B'NAI AMOONA AND SAUL MIROWITZ JEWISH COMMUNITY SCHOOL
CAMPUS LOCATED AT 324 S. MASON ROAD**

WHEREAS, an application was submitted by the Summit Sign and Graphics, on behalf of Saul Mirowitz Jewish Community School for a Master Signage Plan for the Congregation B'Nai Amoona and Saul Mirowitz Jewish Community School campus located on 324 S. Mason Road, pursuant to Section 405.950.6 of the City of Creve Coeur's Code of Ordinances, to include new signage throughout the campus; and

WHEREAS, the boundaries of the Master Signage Plan will be for the entire development including all existing and proposed signage as demonstrated in the Plan dated June 5, 2012 and attached as Exhibit 1; and

WHEREAS, the Planning and Zoning Commission of the City of Creve Coeur, Missouri, held a public hearing thereon at the Creve Coeur Government Center on July 16, 2012, beginning at 7:00 p.m., or immediately following the close of the previous public hearing; and

WHEREAS, notice of said public hearing had previously been published at least 15 days prior to the hearing in the St. Louis Countian, a newspaper of general circulation in the City of Creve Coeur; and

WHEREAS, all persons who presented themselves at said meeting and desiring to be heard were given an opportunity to be heard; and

WHEREAS, the Planning and Zoning Commission reviewed and by an ____ vote recommended approval of the Plan subject to certain conditions at its meeting on Monday, July 16, 2012; and

WHEREAS, a copy of the proposed ordinance has been made available for public inspection prior to its consideration by the City 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 approving the Plan subject to certain conditions would be in harmony with and bear a substantial relation to the public welfare, health, safety, comfort and convenience of the citizens of the City of Creve Coeur and in the public interest.

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

Section 1: A Master Sign Plan is approved for the Congregation B'Nai Amoona & Saul Mirowitz Jewish Community School campus pursuant to Section 405.950.6 in the "A" Single Family Residential zoning district whose legal description is as follows:

Parcel Number 1:

A tract of land In Section B, T 45N, R 5 E, being part of a larger tract conveyed to P. William Hoffman by deed recorded in Book 782, Page 292, SL Louis County Records and described as:

Beginning at a point in the eastern line of tract described by the above mentioned deed, distant N 01° 09' 00" W, 348.30 ft from its Intersection with the northern line of Conway Road, 60 ft wide; thence along the eastern line of tract so conveyed, N 01° 09' 00" W, 720.55 ft to a point, hence along the western line of tract conveyed to said F. William Hoffman by above mentioned deed S 01° 09' 00" E, 869.56 ft to a point and thence S 89° 04' 00" E, 720.69 ft to the place of beginning.

Parcel Number 2:

A tract of land in Section b, T 45 N R 5 E, and being part of the larger tract conveyed to Leo Hoffman by deed recorded In Book 782, Page 291, SL Louis County Records, and described as:

Beginning at an Iron pipe in the eastern line of Mason Road, 40 ft wide, being In the northern line of the tract conveyed to Clarence WJ Hoffman and wife, by deed recorded In Book 3540, Page 2 of the SL Louis County Records; thence along the northern line of tract so conveyed, N 86° 42' 30" E, 335.08 ft to an iron pipe at northwestern corner of tract conveyed in last mentioned deed; thence along the east line of tract conveyed in last mentioned deed S 03° 17' 30" E, 260.00 ft. to the southeast corner thereof; thence N 86° 42' 30" E, 378.25 ft to a point In the eastern line of tract conveyed to Leo Hoffmann by the first above mentioned deed, thence along the east line of tract so conveyed N 01° 09' 00" W, 869.56 ft. to a point; thence N 89° 29' 00" W, 286.20 ft to a concrete monument; thence N 00° 25' 00" W, 50.00 ft. to the southeast corner of tract conveyed to Ronald E. Hoffmann by deed recorded In Book 3544; Page 200 of the SL Louis County Records, and thence along the south line of tract so conveyed N 89° 29' 00" W, 463.57 ft to a concrete monument in the east line of Mason Road, 40 ft wide, and thence along said eastern line S 03° 17' 30" E, 708.64 ft to the place of beginning EXCEPTING THEREFROM the west 15.00 feet conveyed to ST. Louis County, MO for the widening of Mason Road by deed recorded In Book 7255, Page 2416.

Parcel Number 4:

A tract of land in Lot 2 of the Subdivision of Melvina Smith's Estate in the E 1/2 of the SE 1/4 of Section B, T .45 N, R 05 E, and described as follows:

Beginning at the northwest corner of said Lot 2; thence S 01° 09' 00" E, along the west line of said Lot 2, 815.97 ft to the northwest corner of a tract conveyed to Jacobs Bair by deed recorded In Deed Book 20, Page 436 of St. Louis County Records; thence S 88° 38' 00" E, along the north line of said Bair property, 104.38 ft to the northeast corner of said Bair property; thence N 01° 09' 00" W, along the northward north line of said Lot 2; thence N 89° 29' 00" W, along the north line of said Lot 2, 104.32 ft to the point of beginning.

Parcel Number 5:

A tract of land in Section B, T 45 N, R 05 E, St. Louis County, Missouri, and described as follows:

Beginning at a point in the eastern line of Mason Road, 40 ft wide, said point being the northwestern corner of property conveyed to Southern Missouri District Council of the Assemblies of God by deed recorded In Book 6711, Page 57 of the St. Louis County

BILL NO. _____

ORDINANCE NO. _____

Records; thence along said road line N 03° 17' 00" W, 270.00 ft to its intersection with the northern line of property conveyed to Clarence WJ Hoffmann and wide by deed recorded in Book 4574, Page 232 of the St. Louis County Records; thence along said Hoffmann's northern line N 86° 43' 00" E, 335.08 ft to the northeast corner thereof; thence along said Hoffmann's eastern line S 03° 17' 00" E, 260.00 ft to the southeastern corner thereof, said point being an angle point in the northern line of property conveyed to Southern Missouri District Council of the Assemblies of God, as aforementioned; thence along said northern line N 86° 43' 00" E, 28.42 ft to a point thence leaving said northern line and running S 03° 17' 00" E, 135.00 feet to a point; thence leaving said point and running S 86° 43' 00" W, 363.50 ft to a point in the eastern line of Mason Road, as aforementioned; thence along said road line N 03° 17' 00" W, 125.00 ft to the point of beginning.

SECTION 2: Such approval of the Master Signage Plan for the Congregation B'Nai Amoona & Saul Mirowitz Jewish Community School campus shall be subject to the following conditions:

1. The applicant shall submit sign permit and/or building permit applications for proposed signs referred to in the Master Sign Plan that currently do not possess a sign permit.
2. The applicant shall follow the Master Signage Plan for all new or altered signage on the campus, as approved by the City of Creve Coeur. The location, size, shape, color, type, and design of each sign shall not substantively depart from the Master Sign Plan, unless approved by the City of Creve Coeur.
3. Any damaged or weathered light pole banners shall be immediately replaced.
4. Any brackets that are damaged, rusted, and not securely holding banners to minimize movement shall be immediately replaced.
5. No additional signage is allowed for the campus.

SECTION 3: The Master Signage Plan, and all components thereof, shall be as demonstrated on the Plan received by the Planning Department on June 11, 2012 except as modified by this Ordinance.

SECTION 4: This ordinance shall become effective in accordance with Section 3.11 (g) of the City Charter.

ADOPTED THIS ____ DAY OF _____, 2012.

ROBERT HOFFMAN
PRESIDENT OF CITY COUNCIL

APPROVED THIS ____ DAY OF _____, 2012.

BARRY GLANTZ

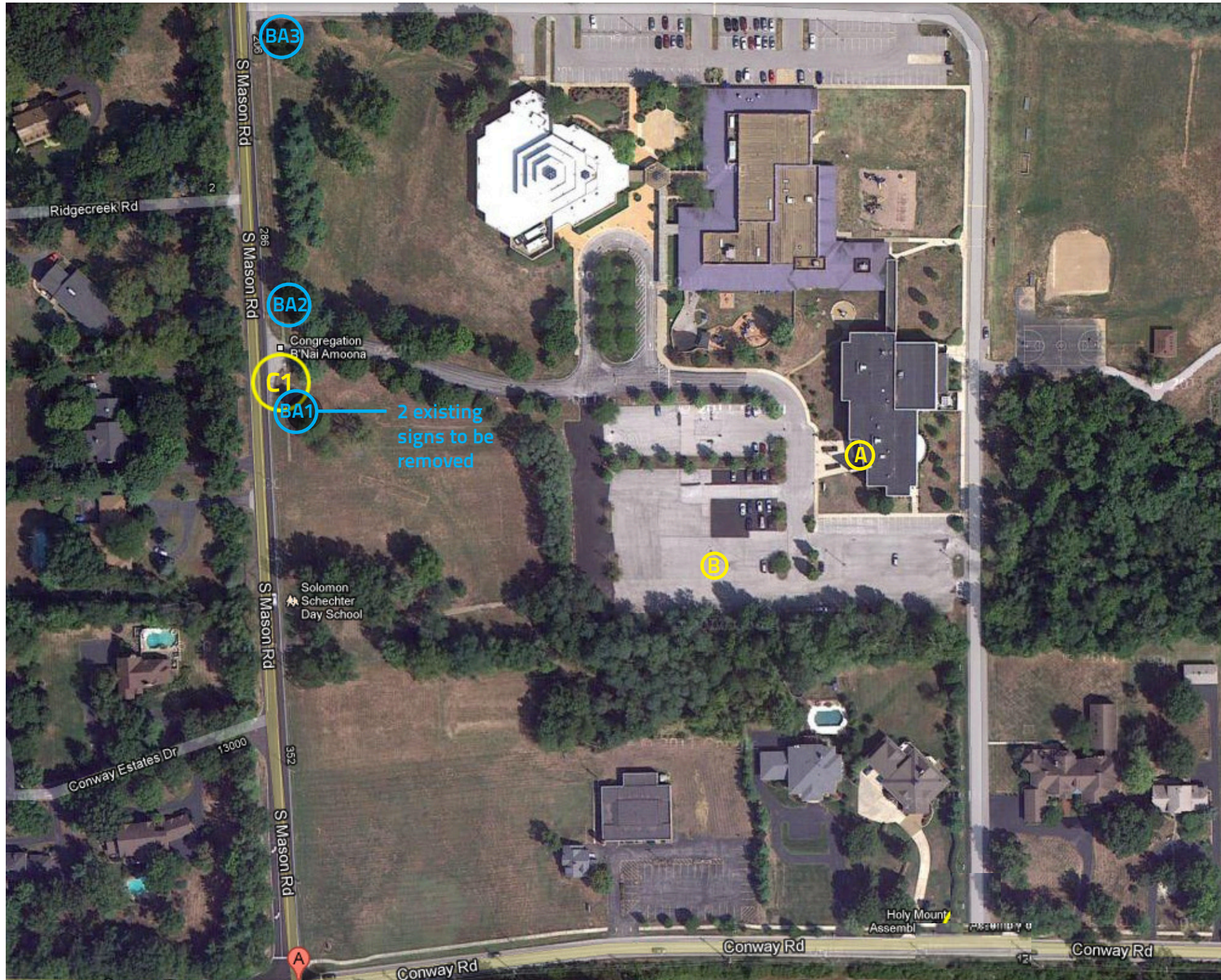
BILL NO. _____

ORDINANCE NO. _____

ATTEST:

MAYOR

**DEBORAH RYAN, MRCC
CITY CLERK**



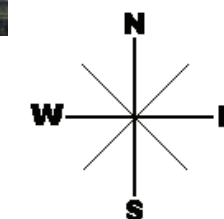
Proposed New Signage

- (A) Custom Fabricated Sign**
- located at front entrance
- (B) Pole Banners**
- located on light posts in parking lot
- (C1) Post and Panel Sign System**
- located at Mason Rd entrance

Existing Signage

- (BA1) B'Nai Amoona**
2 signs slated for removal
1-purple sign, 1- blade sign
located South side of entrance
at Mason Rd.
- (BA2) B'Nai Amoona-
Concrete Monument Sign**
located North side of entrance
at Mason Rd.
- (BA3) B'Nai Amoona-
Sanctuary Identification Sign**
located North side at Mason Rd.

Please go to page 2-5 for specific
Details of Signage



330 Southport Drive | Columbia, IL 62236
P 618.281.2639 | F 618.281.8703

summitsignandgraphics.com

Contacts

andy@summitsignandgraphics.com

abby@summitsignandgraphics.com

Drawn by: Abby Wiese

Permit Drawing

Project: Saul Mirowitz Jewish
Community School
Exterior Signage

Client: 501 Creative

Contact: Patty Bloom

Date: 6/05/2012

Revision:

348 South Mason 63141
(Corner of Mason and Conway Road)

Notes: Drawings are not to scale
and are for visual purposes only.
These are not production files and
are also permitting purposes only.

City of Creve Coeur, Missouri
Saint Louis County

Date _____

Proposed New Signage

A Custom Fabricated Sign
- located at front entrance

TOTAL QTY: 1

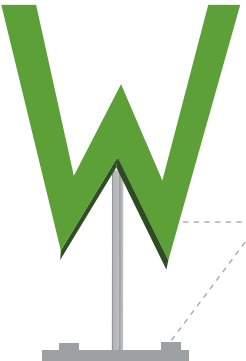
Steel beam to run the length of the awning—for strength and structural purpose



12" Flat Cut Metal Letters

- Letters Stud-Mounted to Awning
- .125" Flat Cut Out Aluminum letters
- Painted-edges painted
- to have nutserts welded on backs with 1/4" x 4" all threads

Color Details



Welded construction

- Letters Welded to steel beam
- Reverse channel letters (estimated 2" deep)
- Non Illuminated w/ aluminum backs
- 1/4" Nutserts with 6" long all thread
- Painted 4 different colors (matthew's paint finish)
- Mounted on square tube pedestals with 6" mounting platesrts with 6" long all thread



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Permit Drawing

Project: Saul Mirowitz Jewish Community School Exterior Signage

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City of Creve Coeur, Missouri
Saint Louis County

Date _____

Proposed New Signage

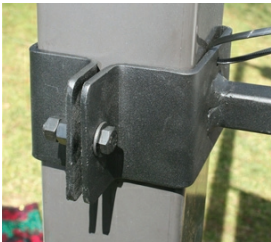
- Ⓑ Pole Banners
 - located on light posts in parking lot

TOTAL QTY: 10 (5 of each color)

These designs will alternate on each side of the pole



- Vinyl Banners**
- Durable 13 oz scrim vinyl (extra strong)
 - Digitally Printed and Double-sided
 - Mounted with two way iron straight arm brackets to light poles



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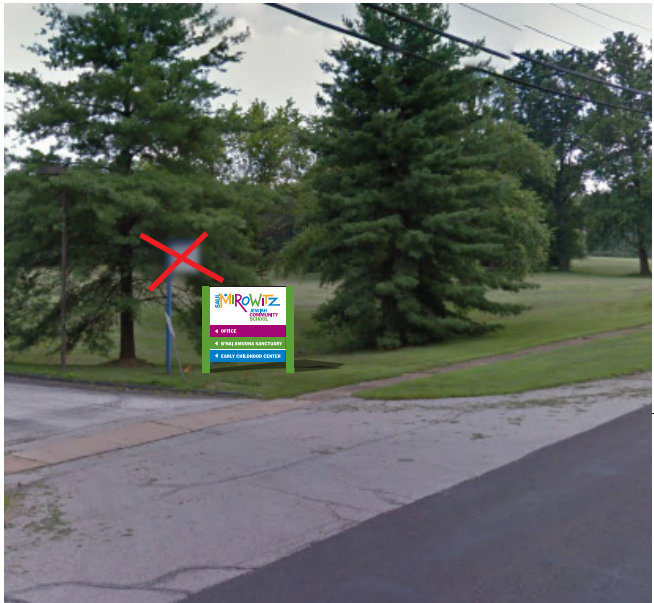
City of Creve Coeur, Missouri
Saint Louis County

Date _____

Proposed New Signage

C1 Post and Panel Sign System-
located at Mason Rd. entrance

TOTAL QTY: 1

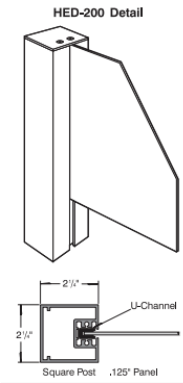


Color Details



Frameless Post & Panel Sign System

- Double Post aluminum
- Single Face aluminum face
- Painted 4 different colors (matthew's paint finish)
- 24" below ground extension of pole for installation



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Permit
Drawing

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Community School
Exterior Signage

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City of Creve Coeur, Missouri
Saint Louis County

Date _____

Existing Signage

BA1

B’Nai Amoona
2 signs slated for removal

TOTAL QTY: 2

1-purple sign, 1- blade sign
located South side of entrance
at Mason Rd.



BA2

B’Nai Amoona-
Concrete Monument Sign

TOTAL QTY: 1

located North side of entrance
at Mason Rd. - **WILL REMAIN**



BA3

B’Nai Amoona-
Sanctuary Identification Sign

TOTAL QTY: 1

located North side at Mason Rd. -
WILL REMAIN



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City of Creve Coeur, Missouri
Saint Louis County

Date _____



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

**APPLICATION TO PLANNING AND ZONING COMMISSION
#12-020 FOR SITE DEVELOPMENT PLAN APPROVAL OF MISSOURI
BAPTIST UNIVERSITY BOOKSTORE, AND DINK MARLER PARKING
FOR THE MEETING OF: July 16, 2012**

LOCATION: One College Park Drive

REQUEST:

Rick Keisker, of Ittner Architects, on behalf of Ken Revenaugh, Senior VP Business Affairs for Missouri Baptist University, has submitted an application for site development plan approval of a 4,800 square foot addition to the existing library building for a new bookstore, and 36 additional parking spaces along Dink Marler Drive. The property is located north of North Outer 40 Road and south of Conway Road, and is currently zoned "HE" Higher Education District.

ADDITIONAL INFORMATION:

In August 2008, Missouri Baptist University received approval of a new Site Concept Plan for the entire campus. On November 16, 2009, the Planning and Zoning Commission approved the new sports and recreation building (gymnasium) and Phase I of the Spartan Village student housing. The Planning and Zoning Commission the approved Phase II-dormitory building of the student housing complex on March 19, 2012.

Key Issues:

- Does the project substantially conform to the previously approved Site Concept Plan?

Comp. Plan References

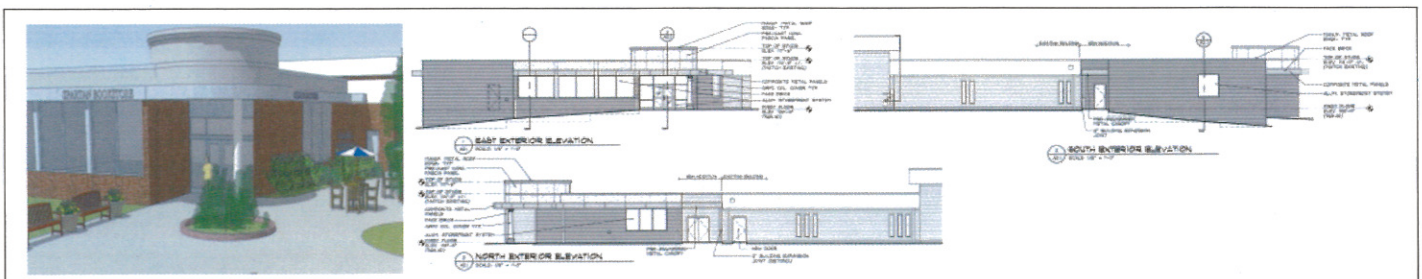
- Residential Neighborhoods District.
- Design Guidelines

Zoning Code References

- Section 405.300 "HE"
Higher Education District

APPLICANTS: Ken Revenaugh
Senior VP Business Affairs
One College Park Drive
Saint Luis, MO 63141

REPRESENTATIVE: Rick Keisker, AIA
Ittner Architects
611 N. 10th Street
Saint Louis, MO 63101



REPORT PREPARED BY:

Whitney Kelly
Whitney Kelly, AICP, City Planner

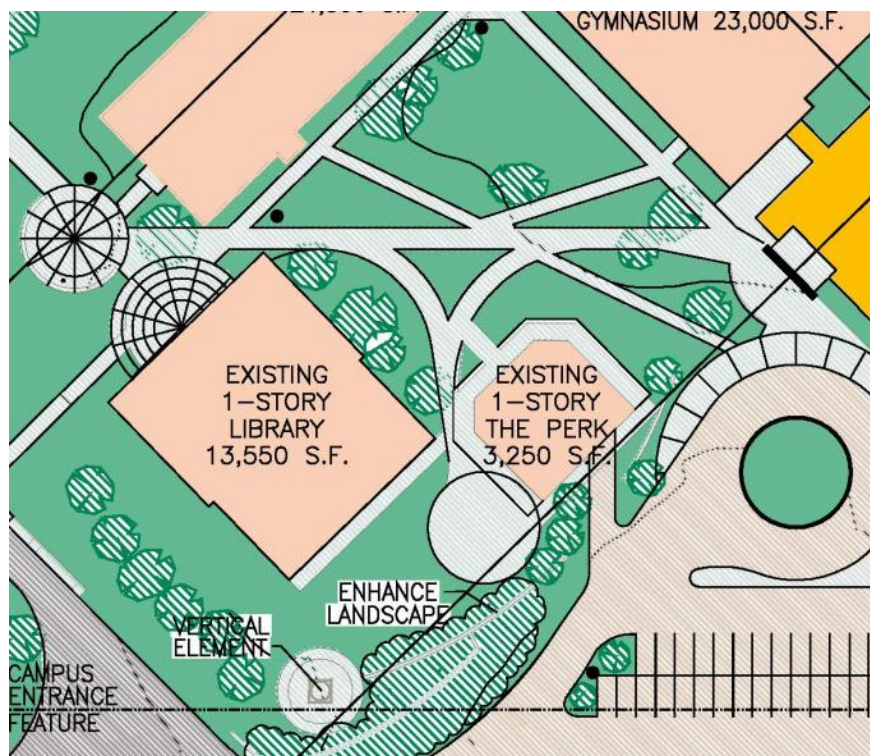
7/13/2012
Date

ATTACHMENTS: Applicant's Application received June 20, 2012 and Revised Materials submitted July 3, 2012
Approved 2008 Site Concept Plan

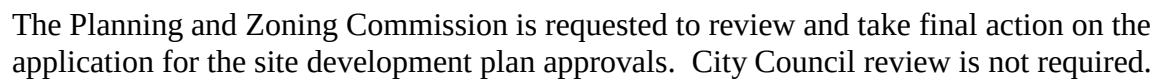
SITE HISTORY AND PROPOSAL SUMMARY

The Missouri Baptist University campus consists of approximately 68 acres located between Conway Road and Interstate 64. On September 19, 1994, the Planning and Zoning Commission approved a Site Concept Plan for the entire campus. This plan showed five existing buildings and associated parking, with seven proposed new buildings and one building addition. On September 21, 1999 and October 18, 1999 the Commission approved a maintenance facility and a chapel/fine arts center building. On February 21, 2006, the Planning and Zoning Commission voted to approve a Site Development Plan for the construction of a new student center building, approximately 3,060 square feet in size, and located adjacent to the library building. These additions and the proposed student center building were part of the previously approved Site Concept Plan.

In August 2008, Missouri Baptist University, received approval of a new Site Concept Plan for the entire campus. Elements of the plan include an addition to the Chapel and Fine Arts Building, an Academic/Welcome Center, an athletic facility/gymnasium, and a new student housing area, as well as parking and landscaping improvements. In November 2009, the Planning and Zoning Commission approved the site development plan of a new 48,510 square foot sports and recreation building (gymnasium) and of two new student housing structures within the “Spartan Village” complex. And, on March 19, 2012, the Planning and Zoning Commission approved the site development plan for Phase II housing for the Spartan Village dormitory building consistent concept plan. Below is a close-up of the 2008 Concept plan of the existing Library building:



The applicants are now seeking approval of a 4,800 square foot addition to the Library for a new bookstore, and additional parking of 36 spaces along Dink Marler Drive. A close-up of the site development plan is below (the dark shaded area represents the proposed new bookstore).



The adjacent zoning and land uses are as follows:

COMPREHENSIVE PLAN REVIEW

New construction or development within the boundaries of existing institutional uses will be permitted only upon demonstration that negative impacts on surrounding residential areas related to site planning, building design and material, landscaping, buffering, access, signage, and other land use impacts will be mitigated.

The proposed building addition and parking is towards the interior of the campus and will not create any foreseeable negative impacts on neighboring residential properties.

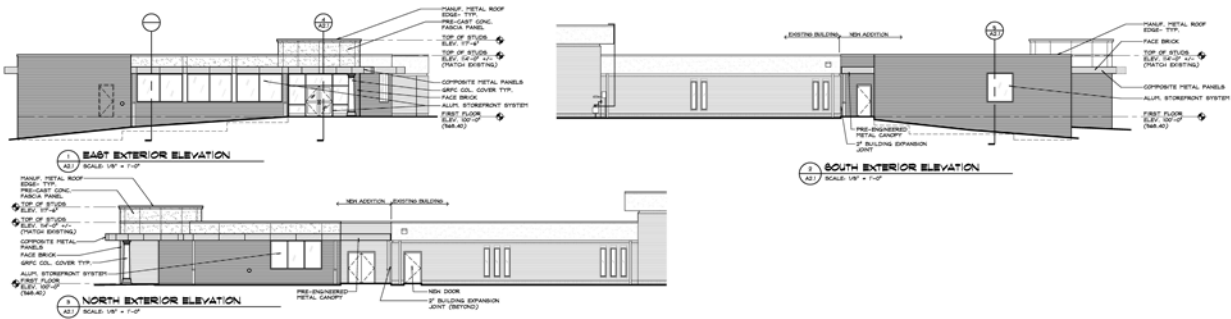
Design Guidelines Analysis

Although none of the buildings will be visible to anyone other than those on campus, it is still important to verify that the Design Guidelines are being observed to ensure continued high quality of development throughout the city. In this setting, there are a variety of guidelines that apply, but they can be summarized as follows:

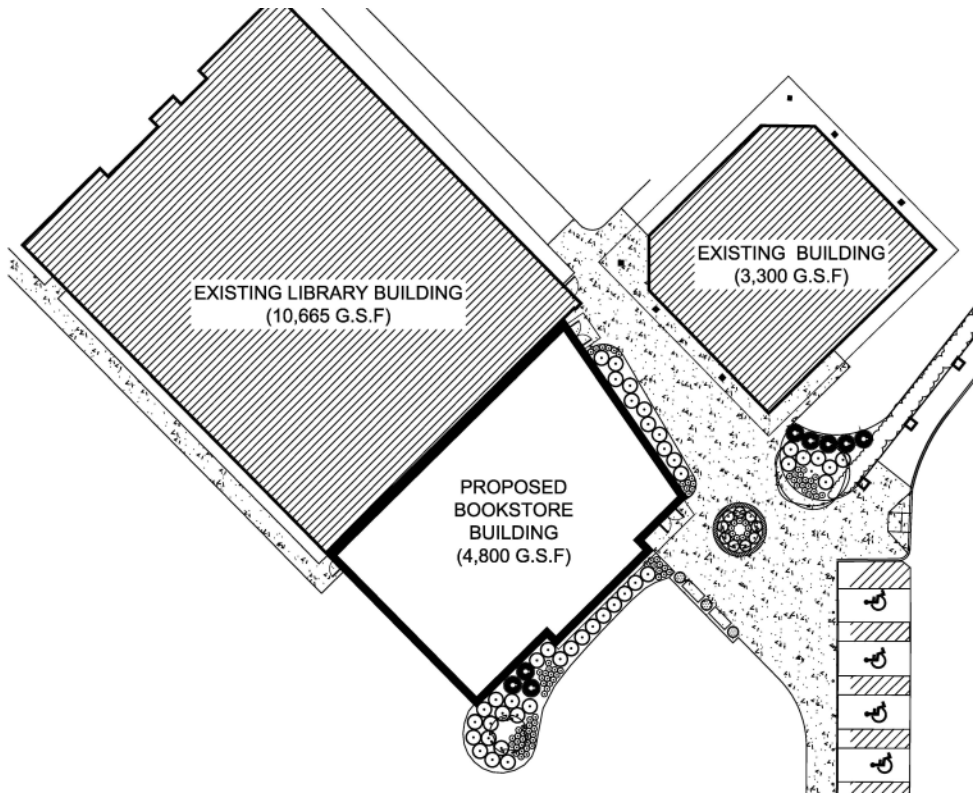
- The buildings should have varied façades with pedestrian-scale details at the street level and quality materials throughout that are also appropriate for the use and the setting.
- The buildings should receive a complementary treatment on all sides.
- The primary building entrance should be clearly defined and provide a sense of entry.
- The buildings should not be used as advertising devices.
- The site layout should respect the topography, allow for safe and interesting pedestrian passage, and provide efficient and attractive management of accessory facilities such as parking, stormwater control and utility services.

The bookstore addition will be of similar style and brick material as the existing library building, with a pre-cast concrete fascia panel along the top of the building. Below is a rendering of the new addition entrance and elevations.





The main entrance provides for pedestrian-scale interest, as well as a sense of entry. Further, the addition to the library in relation to the other buildings, along with the proposed landscaping, adds to the campus “quad” enclosure of the buildings and provides a sense of entry to the area. Below is a close up of the proposed addition and landscaping.



The uses of materials are consistent with the existing buildings and generally provided on all sides of the building addition, except for the discontinuation of the pre-cast concrete band along the south elevation. Indeed, the lack of any architectural detail, including the pre-cast concrete band that has been carried around to all of the other sides of the structure, is inconsistent with the Design Guidelines. The issue is further heightened because it is the south elevation of the addition that will be most visible to those entering the campus from the main entrance. Therefore, Staff recommend a condition of approval requiring revisions to the south elevation to include elements of architectural interest from the other sides of the building, subject to Staff approval prior to building permit issuance.

Overall though, Staff consider the addition to be consistent with the original site concept plan, as it furthers the goals and objectives of the Comprehensive Plan and Design Guidelines, and is consistent with the district regulations, as discussed further below.

ZONING REVIEW

The Zoning regulations for "HE" Districts require Site Concept and Site Development Plan approval by the Planning and Zoning Commission. District regulations include:

SECTION 405.300: "HE" HIGHER EDUCATION DISTRICT

E. *Dimensional Regulations. The following area and yard regulations apply in the "HE" Higher Education District.*

2. *Building bulk regulations.*

- a. *Maximum structure height. No building or structure shall exceed three (3) stories or forty-five (45) feet, except faculty or student housing shall not exceed three (3) stories or thirty-five (35) feet in height. The City Council may allow a twenty percent (20%) increase in the height of chapels, gymnasiums and auditoriums if it determines the increase will not be detrimental to surrounding property owners.*
- b. *Maximum site coverage. Fifty percent (50%).*
- c. *Maximum floor area ratio. Twenty-five hundredths (0.25).*
- d. *Residential density. The total number of dwelling units for faculty and students shall not exceed three (3) dwelling units per net acre of the total site zoned "HE" in accordance with a site development plan.*

The applicant has provided the table below regarding all site information. The project meets with all of the district requirements. The bookstore addition and parking increases the site coverage by 1.1% to 23.3%, well within the district regulations. No additional traffic is created with the proposed additions.

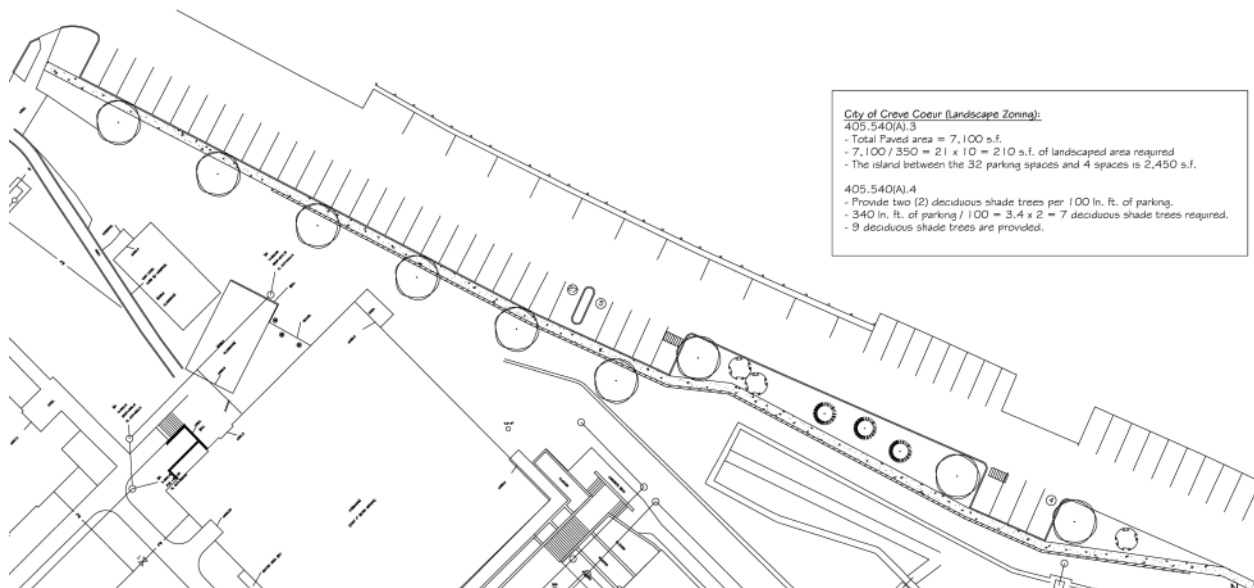
SITE INFORMATION:	July, 2012				
	"Existing (March, 2012)"	"Proposed Bookstore Addition"	Proposed Dink Marler Parking	FUTURE Spartan Village (Phase 3)	Proposed (Total) with Future Spartan Village Phase 3
Site Area (Acres)	65.00				65.00
Site Area (Squarefootage)	2,831,400				2,831,400
Site Coverage (Squarefootage)	628,917	9,110	10,650	10,130	658,807
Site Coverage (Percentage)	22.2%	0.3%	0.4%	0.4%	23.3%
Building Squarefootage	369,861	4,800	N/A	19,800	394,461
Parking					
Students	1,039				1039
Faculty / Staff	211				211
Total	1,250				1,250
Parking Spaces Required	730.5				730.5
Parking Spaces Actual	735		36		771
Dwelling Units (All on Campus)					
Phillsbury Huff Hall	26				26
North Hall	25				25
Spartan Village	27			10	37
Total Dwelling Units	78			10	88
Number of Dwelling Units per Acre	1.20	0.00	0.00	0.15	1.35
Spartan Village					
Footprint (S.F.)	18,267			6,600	24,867
Building Areas (S.F.)	54,801			19,800	74,601
Number of Beds for Students	140			40	180

Parking:

Section 405.820 Required Off-Street Parking regulations, provides for one space for two students based on the maximum design capacity of the school plus one space for every employee (Section 405.820.10.b). The table provided by the applicant shows that the parking provided meets with the regulations with 731 spaces required and 771 provided with the addition of the 36 spaces along Dink Marler Drive.

Landscaping:

Section 405.540.F.3.of Design Standards for Landscape Plans requires a minimum of 10 sq. ft. of interior landscaped area shall be provided within the parking lot for each 350 sq./ft. of paved area within the parking lot including parking spaces and driving aisles. The landscaping shall be in one or more areas so as to minimize and reduce the apparent size of parking areas. Section 405.540.F.4 also states that there should be a minimum of 2 deciduous shade trees within and up to every 100 linear feet of parking for each parking row. The landscaping around the new parking area meets with these regulations.



CONCLUSION

The proposed site development plan appears to meet the goals of the Comprehensive Plan and Design Guidelines, and satisfies the regulations contained in the Zoning Code. Further, staff finds that the bookstore addition to the library is substantially in compliance with the prior approved site concept plan. Staff recommends approval with the following conditions:

1. The applicant is required to submit a Site Improvement Permit application, showing all exterior improvements, as required by Section 420.070 of the Land Disturbance Code. The permit application shall be in substantial conformance with the "Site/Grading Plan," and "Landscape Plan," dated July 3, 2012, as bound together and submitted in conjunction with Application #12-020 by Rick Keisker, of Ittner Architects, received on July 3, 2012.
2. The applicant is required to submit a Building Permit application, as required by Article II of the Building Code. Exterior elevations shall be in substantial conformance with the "Exterior Elevations" dated July 3, 2012, as bound together

and submitted in conjunction with Application #12-020 by Rick Keisker, of Ittner Architects, received on July 3, 2012, except that the South Elevation shall be revised to provide architectural details that are consistent with the north and east elevations subject to approval by the Zoning Administrator.

MOTION

The following is an example of an appropriate motion for this application:

“I move to approve of the site development plan for the addition to the library building or a new campus bookstore, and 36 parking spaces along Dink Marler Drive, subject to the conditions listed in the staff report on Application #12-020, for the meeting of July 16, 2012” (conditions may be added, eliminated, altered, and 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 PHOTO



APPENDIX 4: SITE PHOTOGRAPHS	Photo Date: 03/14/2012
	Description: View looking east along Dink Marler Drive. The area along the right side of the street will be the placement of the proposed parking spaces.
	Description: View looking northwest from the parking lot to the area of the proposed bookstore addition.
	Description: View looking southeast from the library, with the existing coffee shop on the left, toward the parking lot and a building within the Christian Brothers College in the distance.

	Description: View looking west from parking lot at the area for the addition onto the existing library, and the existing coffee shop on the right.
	View of the existing library building and area for the addition looking northeast from the campus main entrance.
	View looking north at the existing library building and coffee shop from further east along Spartan Village Drive.

TRANSMITTAL

TO: Whitney Kelly, AICP
City Planner
City of Creve Coeur, Missouri
300 N. New Ballas Road
Creve Coeur, MO 63141

PROJECT NAME: Missouri Baptist University
Bookstore and Dink Marler Parking

FROM: Rick W. Keisker, AIA

ITTNER PROJECT #: 201201.01

RE: Planning and Zoning Submittal - 1

DATE: 06-18-12

We are sending via:

- ☐ US Mail
☒ Hand Delivery
☐ Courier
☐ Fax Number _____
No. of Pages _____ (including cover page)

- ☒ Attached
☐ Under Separate Cover

Transmitted:

- ☒ For Approval
☐ For Your Use
☐ As Requested
☒ For Review & Comment
☐ _____ Other

☐ _____ Other

COPIES	DATE	REV. NO.	DESCRIPTION
4	06.18.12		Cover Letter dated 06.18.12
4	06.18.12		Planning and Zoning Commission Agenda Application
1	06.13.12		Fee: \$250 (non-refundable)
1	06.13.12		Fee: \$2,000 (refundable)
4	06.18.12		Architectural, Landscape and Civil drawings - 30"x42" format.

REMARKS:

COPIES TO: File

From the Office of Wm. B. Ittner, Inc.

- ☒ 611 N. Tenth Street, Suite 200 * St. Louis, Missouri 63101 * T: 314.421.3542 * F: 314.421.4821
☐ 333 Salem Place, Suite 110 * Fairview Heights, Illinois 62208 * T: 618.624.2080 * F: 618.624.2088



File No. _____

Planning and Zoning Commission Agenda Application
City of Creve Coeur, Missouri

Title of Project: Missouri Baptist Univeristy - Bookstore Addition and Dink Marler Parking
Location of Project: One College Park Drive **Locator #** _____
Subject for Agenda: Site Development Plan Approval

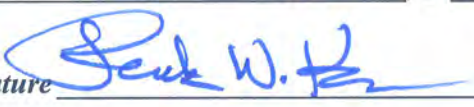
REPRESENTATIVE: **Name** Rick W. Keisker, AIA
Company Ittner Architects
Address 611 N. 10th Street
Saint Louis, MO 63101
Telephone # 314.421.3542 **Fax #** 314.421.4821
Email rickk@ittnerarchitects.com

OWNER: **Name** Ken Revenaugh, Senior VP Business Affairs
Address One College Park Drive
Saint Louis, MO 63141-8698
Telephone # 314.392.2356 **Fax #** _____

APPLICANT:

Architect X **Engineer** _____ **Contractor** _____ **Agent** _____ **Owner** _____

The undersigned hereby requests to be placed on the Agenda for the Planning and Zoning Commission meeting at 7:00 P.M. on Monday, _____ July 16, 20 12.

Signature 
Title Project Manager / Architect
Date 06.18.12

Paul Langdon, AICP, Director of Community Development
Whitney Kelly, AICP, City Planner
Julie Lowery, Secretary (872-2501)



June 18, 2012

Whitney Kelly, AICP
City Planner
City of Creve Coeur, Missouri
300 N. New Ballas Road
Creve Coeur, MO 63141

**RE: Missouri Baptist University
Bookstore and Dink Marler Parking
Ittner #201201.01**

Dear Whitney:

I have attached the following information for the planning and zoning submission for the above referenced project:

- Planning and Zoning Commission Agenda Application
- Fee: \$250 (non-refundable)
- Fee: \$2,000 (refundable)
- Architectural, Landscape and Civil Drawings dated 06.18.12

The Updated Site Development Plan dated 06.18.12 includes updated calculations for the parking and site data. I have also attached 3-D images of the proposed design for the Bookstore and existing photos of the Existing Library Building for your reference.

Please feel free to contact me if you have any questions, concerns or need any additional information.

Sincerely,
Wm. B. Ittner, Inc.

Rick W. Keisker, AIA, LEED AP

cc: Dennis M. Young, President & CEO, Ittner

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3-D Renderings:



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Existing Photos:



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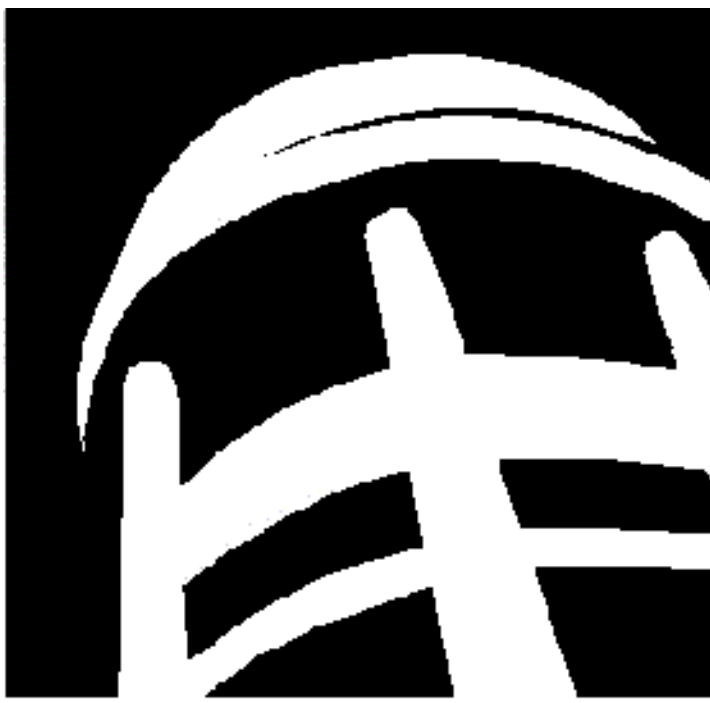
Page 5 of 5

P:\2012\201201.01 MBU Bookstore & Dink Marler Parking\4.0 Communications\4.5 Regulatory Authorities\P&Z\Mobap Bookstore and DM Parking_06-18-12.doc

Bookstore Addition and Dink Marler Parking

MISSOURI BAPTIST UNIVERSITY

ONE COLLEGE PARK DRIVE
ST. LOUIS, MISSOURI



MISSOURI BAPTIST
UNIVERSITY

Missouri Certificate of Authority No. 000004			Missouri Certificate of Authority No. 001596		
Owner: Missouri Baptist University		Architect: Wm. B. Ittner Inc.		Civil Engineer: Land Development Consultants, Inc.	
One College Park Drive Saint Louis, Missouri		611 North Tenth Street, Suite 200 St. Louis, MO 63101 Phone: (314) 421-3542 Fax: (314) 421-4821		1112 Rock Creek Elementary Road O'Fallon, MO 63366 Phone: (636) 240-9696 Fax: (636) 240-4949	

RENDERING



DRAWING INDEX

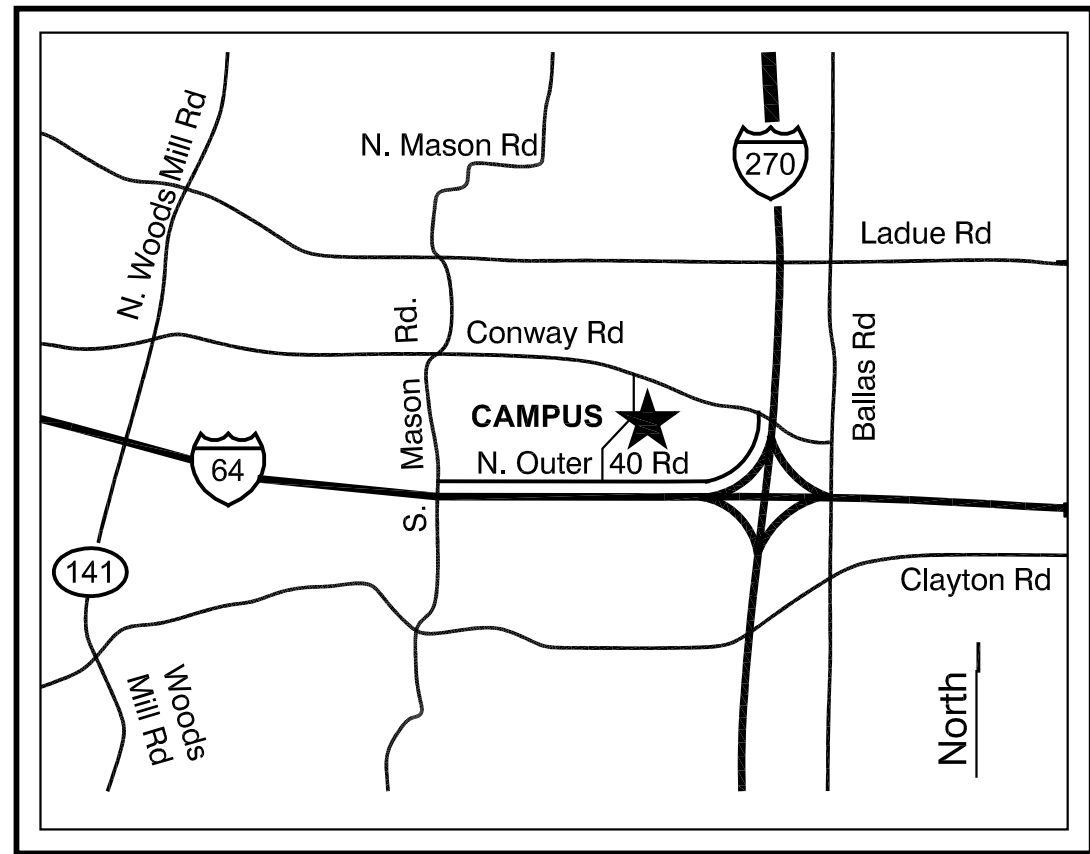
ARCHITECTURAL (WM. B. ITTNER INC.)	
T1.0	COVER SHEET, ABBREVIATIONS AND SYMBOLS
CIVIL (LCD)	
C1	CIVIL COVER SHEET
C2	SITE / GRADING PLAN
C3	SITE / GRADING PLAN
LANDSCAPING (ITTNER)	
L1.1	LANDSCAPING PLAN - BOOKSTORE AND DINK MARLER
ARCHITECTURAL (WM. B. ITTNER INC.)	
SDP	SITE DEVELOPMENT PLAN UPDATED (07/03/12)
CA1.1	ARCHITECTURAL SITE PLAN
A1.1	FLOOR PLAN
A2.1	EXTERIOR ELEVATIONS

MATERIALS

	CONCRETE		DETAIL/SECTION CALL-OUT
	EARTH		NEW COLUMN DESIGNATION
	GRAVEL / BALLAST		EXISTING COLUMN DESIGNATION
	CONCRETE MASONRY UNITS		BUILDING SECTION CALL-OUT
	RIGID INSULATION		WINDOW TYPE
	BATT INSULATION		ELEVATION CALL-OUT
	FINISH LUMBER		DATA HEIGHT DESIGNATION
	PLYWOOD		DOOR NO.
	CONTINUOUS WOOD BLOCKING/LUMBER		ROOM NAME & NUMBER
	WOOD BLOCKING		PARTITION TYPE
	BRICK		DESIGNATION NO.
	CUT STONE / PRE-CAST		P-PARTITION
	MARBLE / GRANITE		B-CMU
	STEEL		STUD OR CMU THICKNESS
			FEC-X
			FIRE EXTINGUISHER CABINET
			S - SURFACE MOUNTED
			SR - SEMI-RECESSED
			R - RECESSED

SYMBOLS

LOCATION MAP



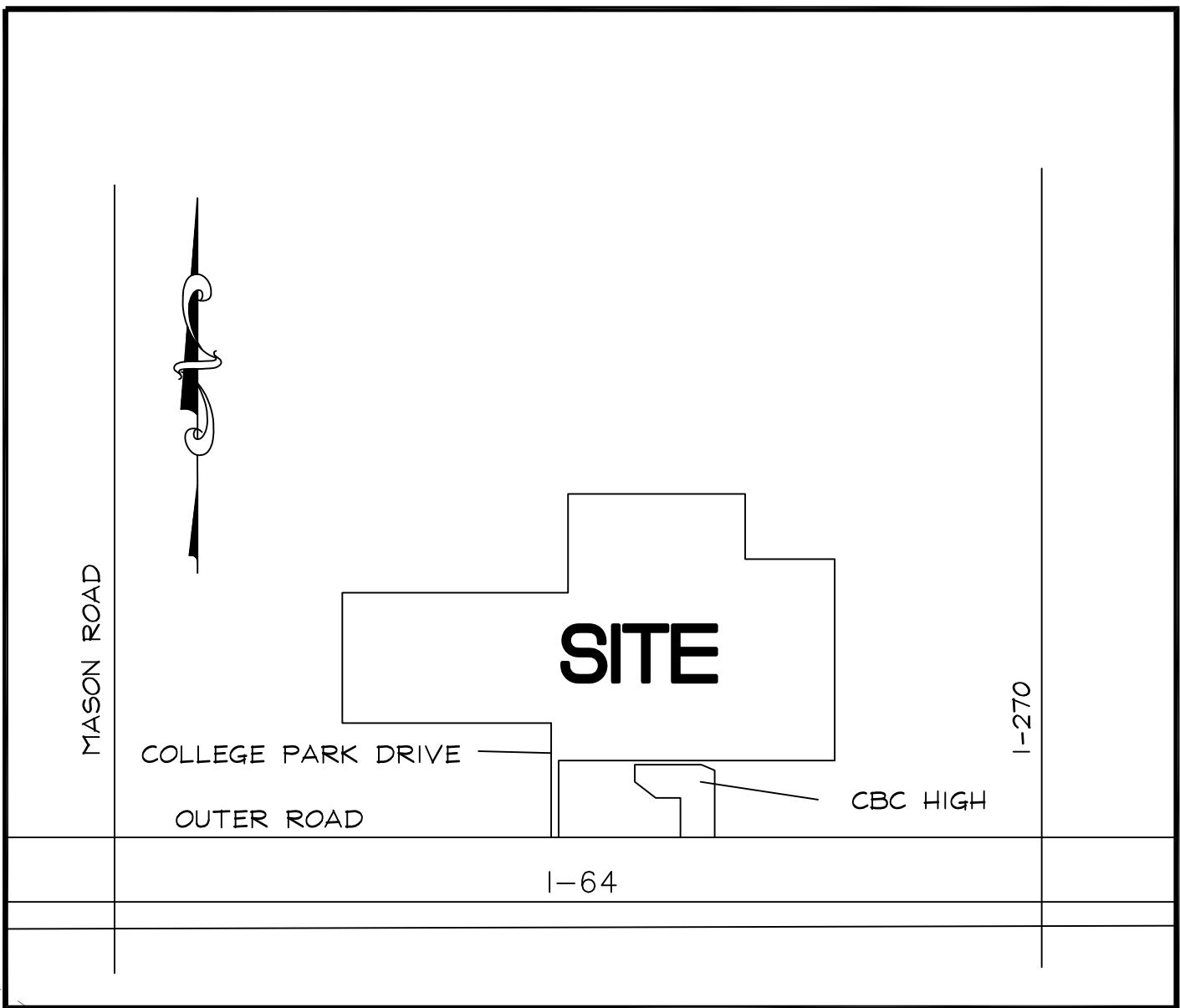
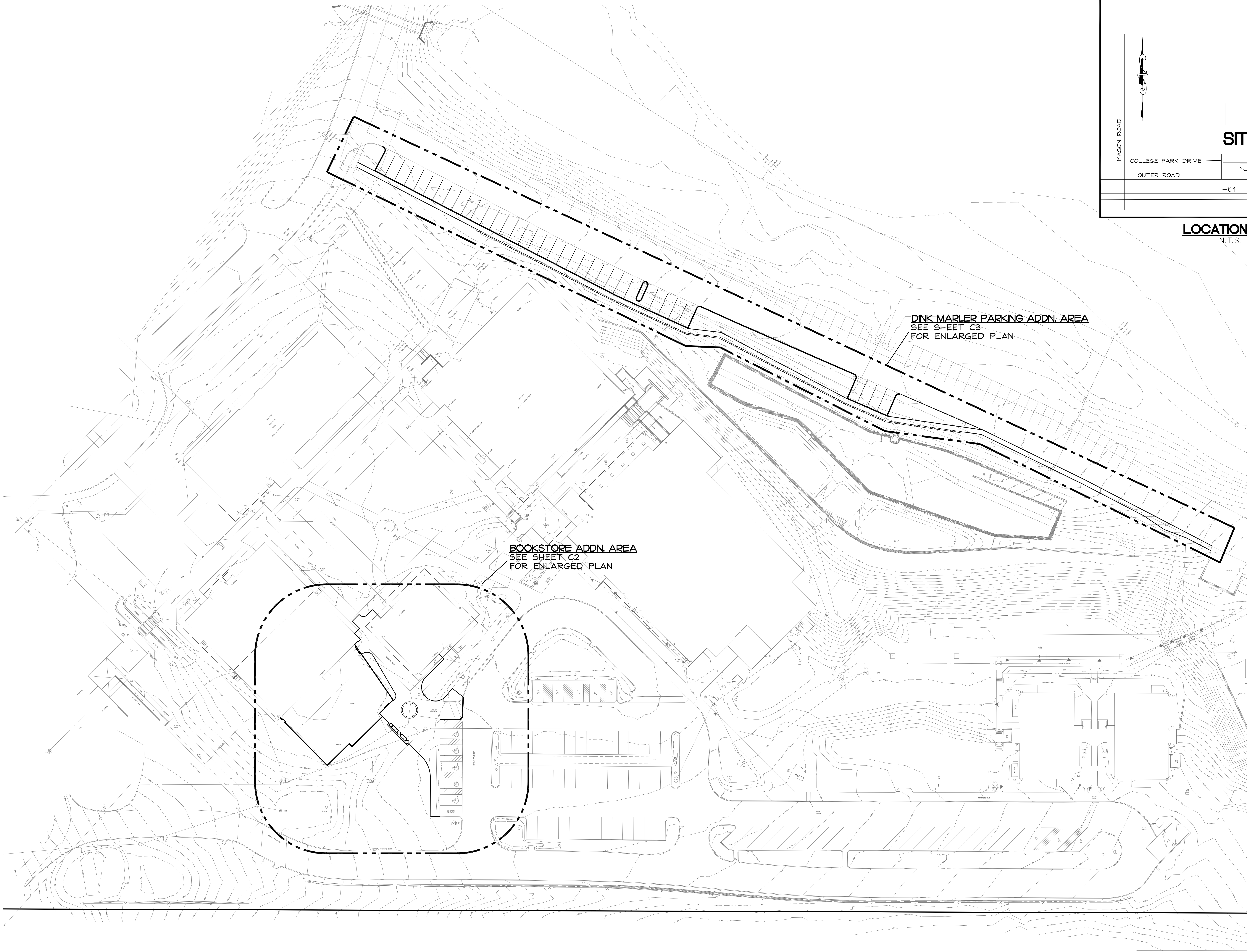
PLANNING AND ZONING SUBMITTAL

ITTNER JOB NO: 201201.01

Date: June 18, 2012 (July 3, 2012 REVISED)

ittner

PRINTED 3 July 2012



LOCATION MAP
N.T.S.

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WILLIAM AUGUST HEYSE, P.E. PROFESSIONAL ENGINEER, E-44927	
Original Issue Date:	
6-15-2012	
Revisions:	
No.	Date



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Structural Engineer
RPFF Consulting Engineers
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Missouri Baptist University
Bookstore Addition and
Dink Marler Parking
ONE COLLEGE PARK DRIVE
ST. LOUIS, MISSOURI

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WBI Project No.
201201.01

Drawing Title:
SITE/GRADING
PLAN

Drawn:

Checked:

Drawing No.

C1

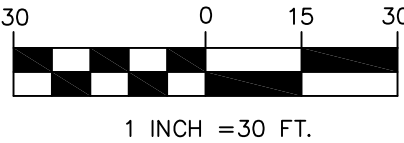
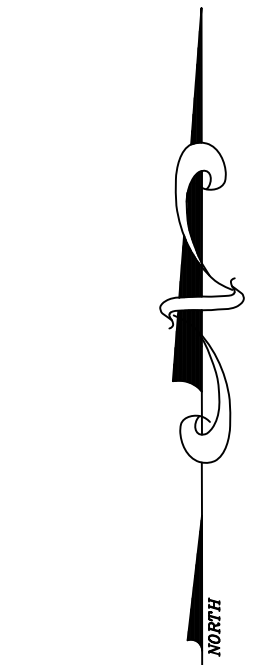
Bookstore
Dink Marler



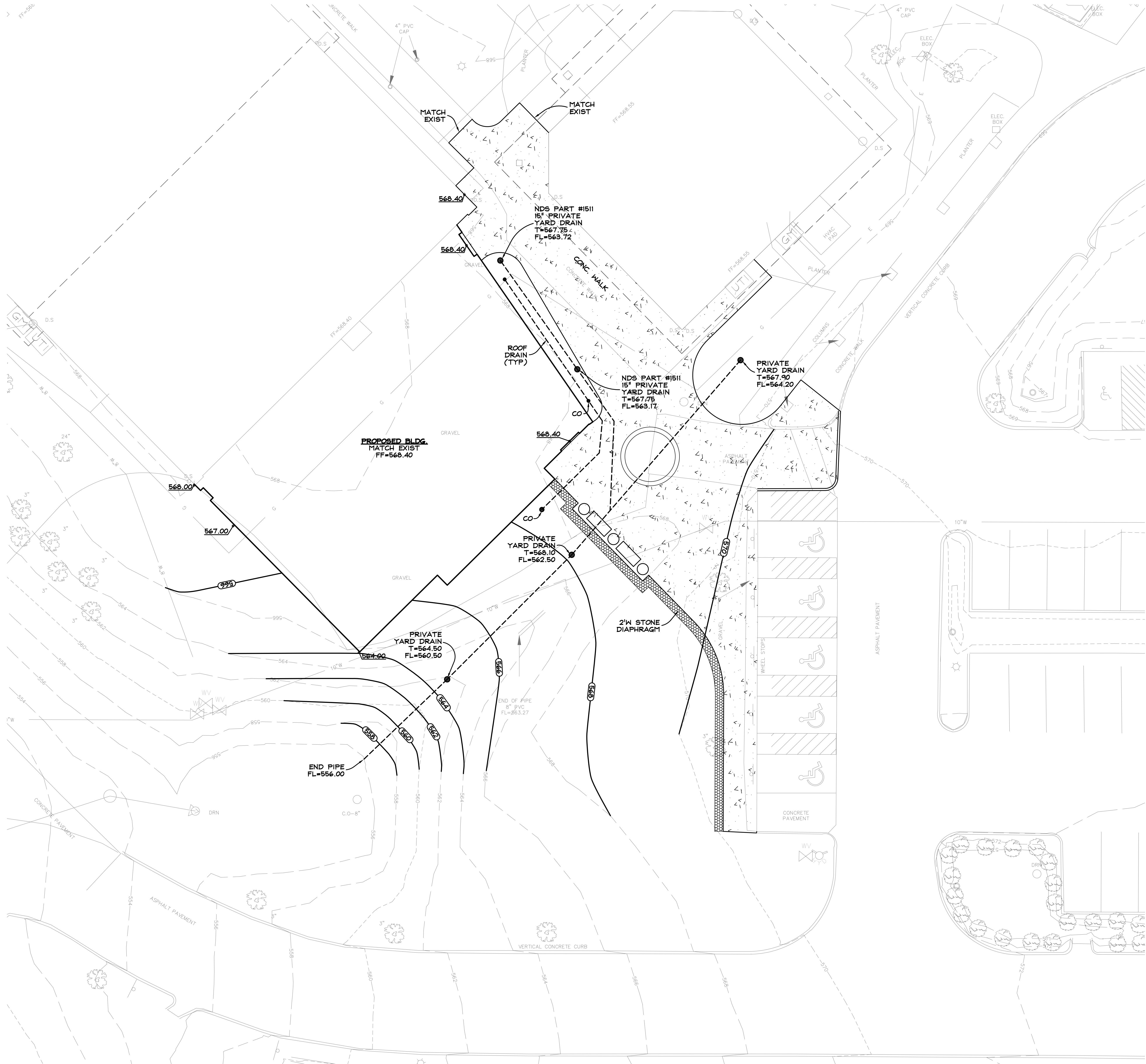
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MSD BASIC CONCEPT DRAINAGE PLANS
MSD P- BASE MAP 190



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314-340-4100
MODOT LOCATE

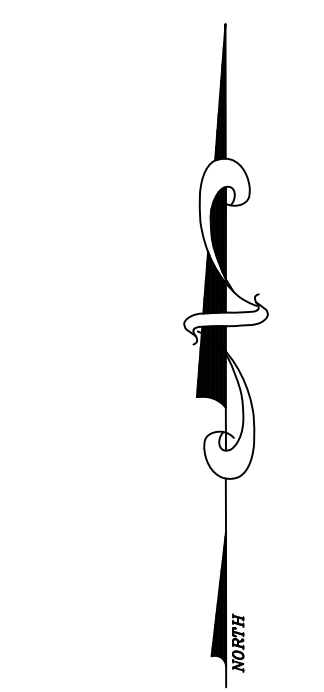
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LEGEND OF IMPROVEMENTS

- 530.00 SPOT ELEVATION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CLEAN OUT
- H.C. SIGN
- PRIVATE YARD DRAIN
- 4" CONC. PAVING
- TO BE REMOVED
- ADJUST TO GRADE
- SILTATION CONTROL



MSD P- BASE MAP 190

Seal

WILLIAM AUGUST HEYSE, P.E.
PROFESSIONAL ENGINEER E-45497

Original Issue Date:
6-15-2012

Revisions:

No.	Date

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MISSOURI BAPTIST UNIVERSITY

**Missouri Baptist University
Bookstore Addition and
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ONE COLLEGE PARK DRIVE
ST. LOUIS, MISSOURI**

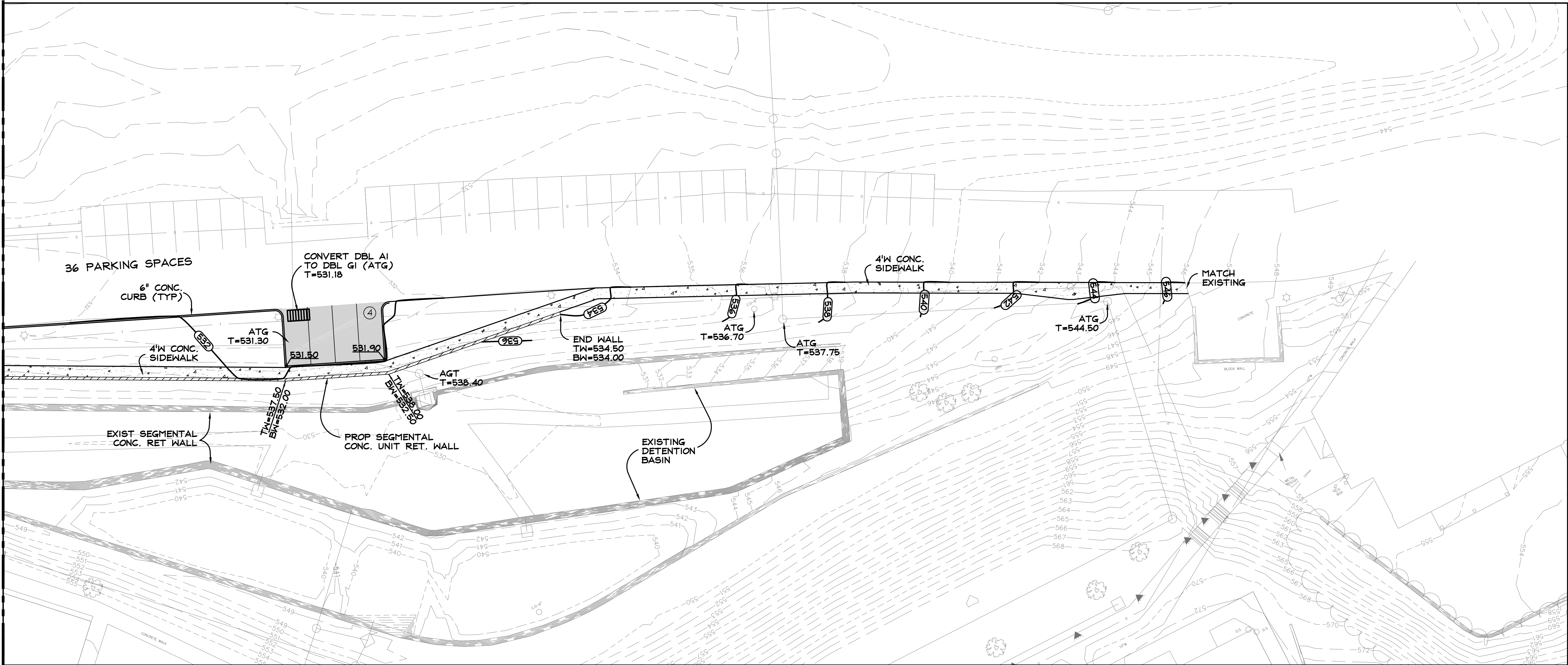
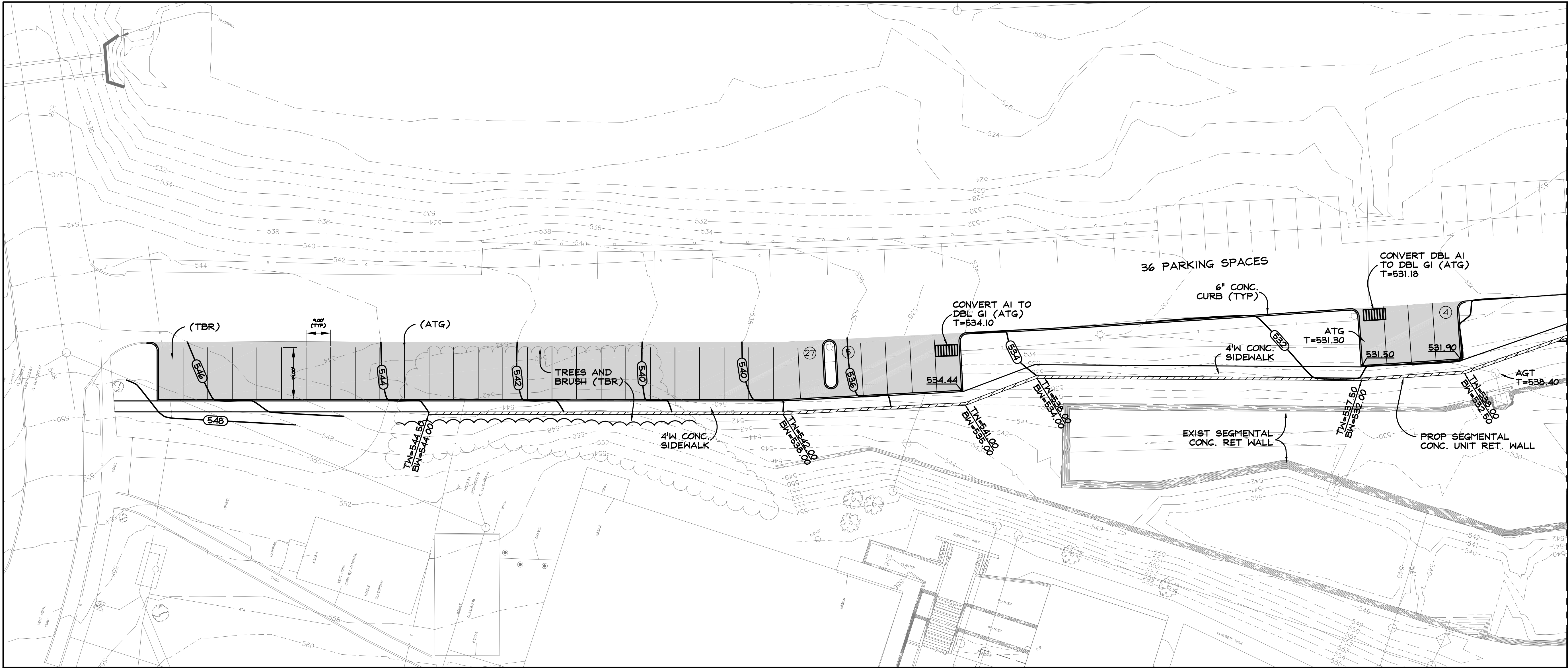
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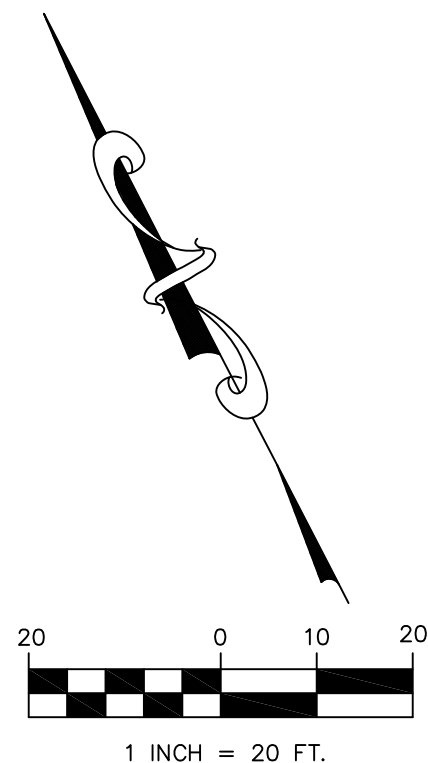
C2
Bookstore
Dink Marler



NOTE:
TOTAL PROPOSED PARKING: 36 SPACES

LEGEND OF IMPROVEMENTS

- 530.00 SPOT ELEVATION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- 6" CONCRETE CURB
- SEGMENTAL CONC. UNIT RET. WALL
- 4" CONC. PAVING
- ASPHALTIC CONC. PAVING
- (TBR) TO BE REMOVED
- (ATG) ADJUST TO GRADE
- TW TOP OF WALL ELEVATION
- BW BOTTOM OF WALL AT LINE OF BACKFILL
- SILTATION CONTROL



LAND DEVELOPMENT CONSULTANTS, INC. (LDC) CONSULTING ENGINEERS, AND 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. LDC 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.

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PROFESSIONAL ENGINEER, E-42497

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Missouri Baptist University

Bookstore Addition and

Dink Marler Parking

ONE COLLEGE PARK DRIVE

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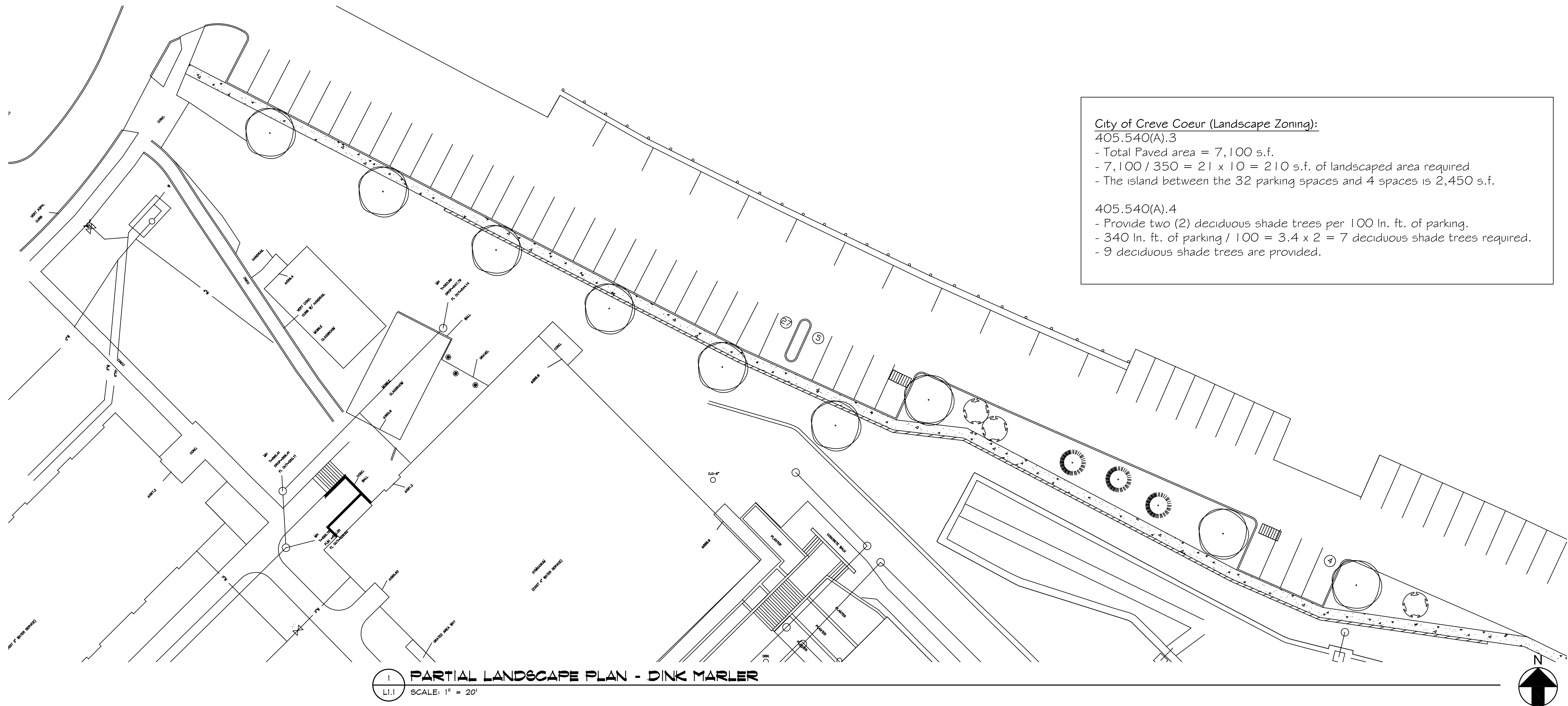
C3

Bookstore

Dink Marler

MSD P-

BASE MAP 190



City of Creve Coeur (Landscape Zoning):

405.540(A).3

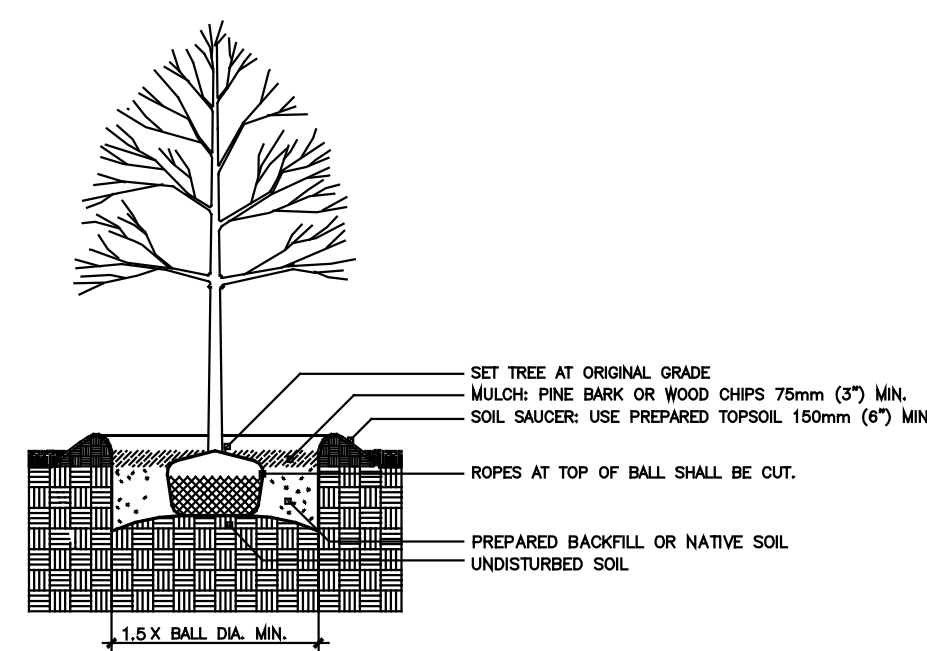
- Total Paved area = 7,100 s.f.
- $7,100 / 350 = 21 \times 10 = 210$ s.f. of landscaped area required
- The island between the 32 parking spaces and 4 spaces is 2,450 s.f.

405.540(A).4

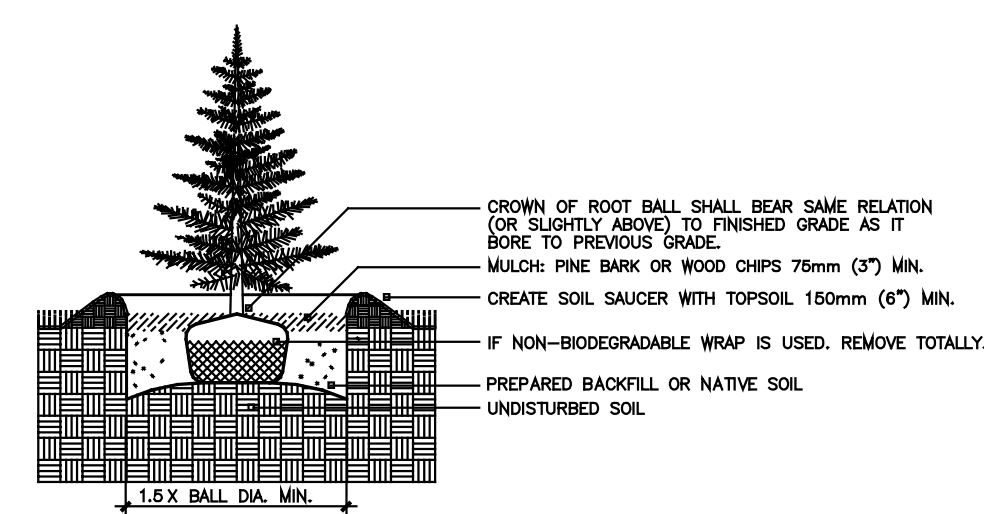
- Provide two (2) deciduous shade trees per 100 ln. ft. of parking.
- $340 \text{ ln. ft. of parking} / 100 = 3.4 \times 2 = 7$ deciduous shade trees required.
- 9 deciduous shade trees are provided.

Conceptual Landscape Legend					
Symbol	Description	Size	Symbol	Description	Size
	Deciduous Shade Tree Oak, Maple	3" Caliper		Pyramidal Evergreen Upright Juniper, Arborvitae	5' Ht.
	Ornamental Flowering Tree Crab, Pear, Redbud	2-2.5" Caliper		Evergreen Shrub -Boxwood, Holly, Yew, Juniper Deciduous Shrub -Viburnum, Roses, Spirea, Orn. Grasses	18-24" Ht.
	Evergreen Tree White Pine, Norway Spruce	6' Height		Perennial Color / Groundcover Linole, Hosta, Daylily Seasonal Annuals @ Planter Pots	1 Gallon

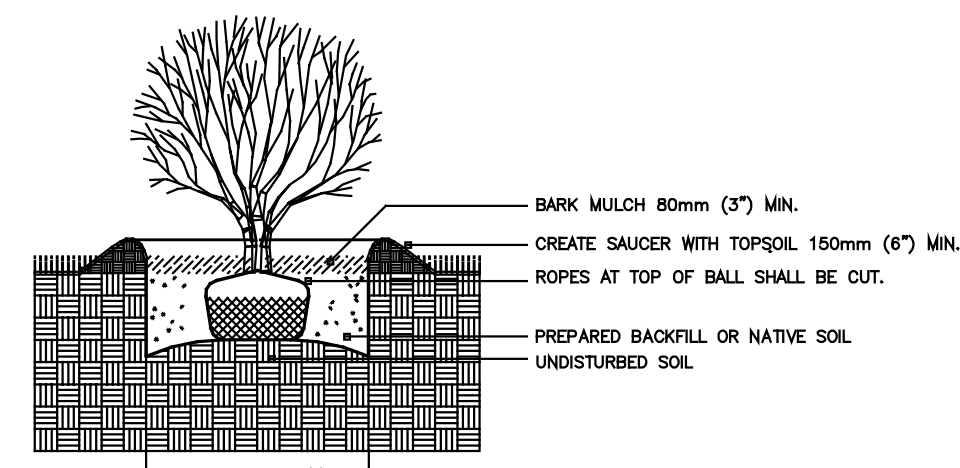
Existing Landscape



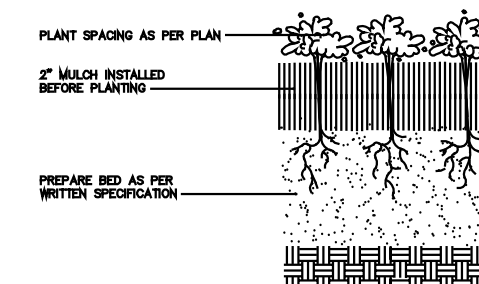
3 DECIDUOUS TREE PLANTING
L-1



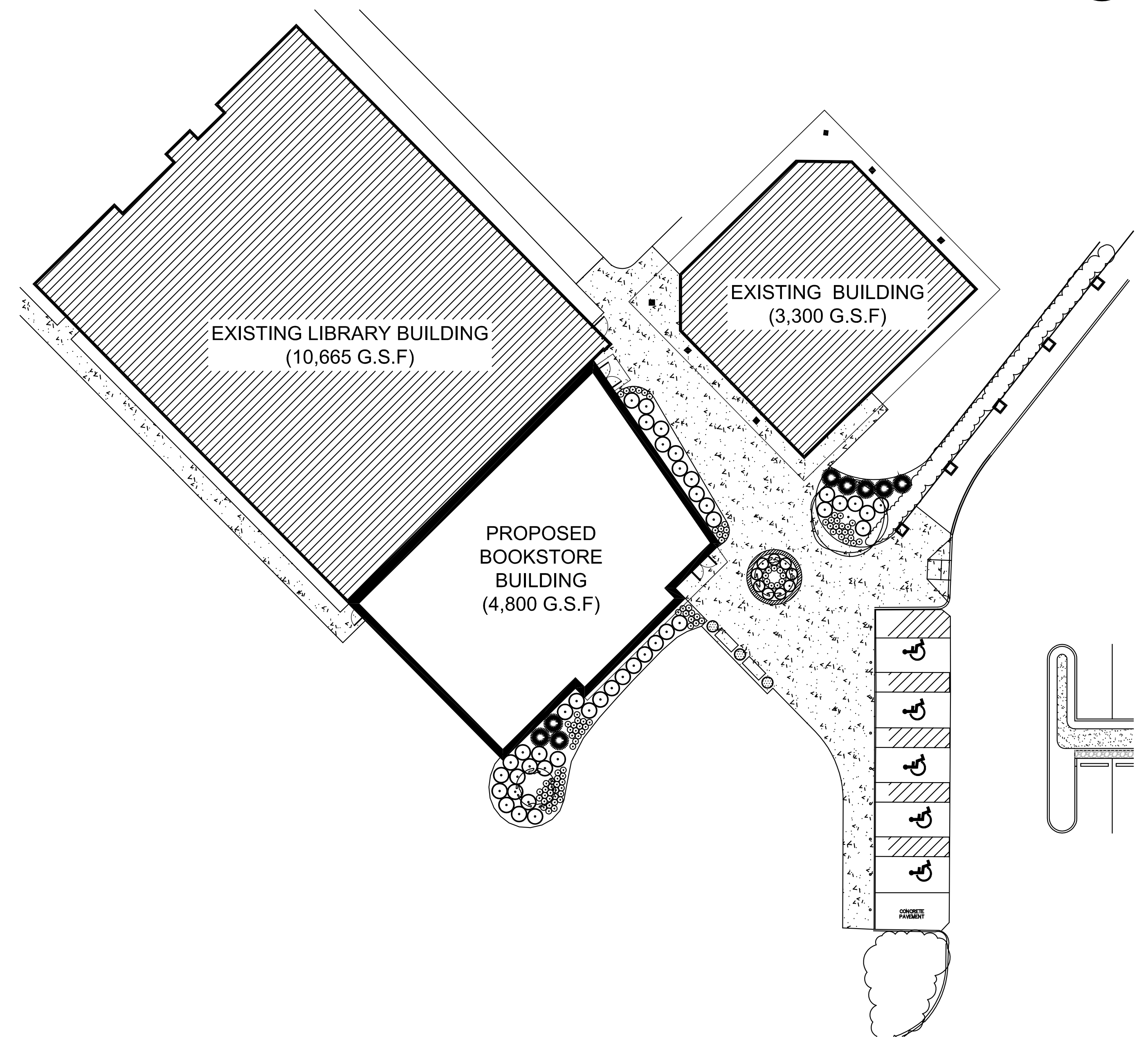
4 CONIFEROUS TREE PLANTING - MEDIUM DUTY
L-1



5 SHRUB PLANTING - BALL AND BURLAP
L-1



6 PERENNIAL/GROUNDCOVER PLANTING
L-1



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PRINTED 29 June 2012

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RICHARD W. KEISER, AIA
Architectural Registration No. 2001027388

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MISSOURI BAPTIST UNIVERSITY

Missouri Baptist University
Bookstore Addition and
Dink Marler Parking
ONE COLLEGE PARK DRIVE
ST. LOUIS, MISSOURI

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WB Project No.
201201.01

Drawing Title:
LANDSCAPING PLAN

Drawn:

Checked:

Drawing No.
L1.1
Bookstore
Dink Marler

SITE INFORMATION:	July, 2012				
	"Existing (March, 2012)"	"Proposed Bookstore Addition"	Proposed Dink Marler Parking	FUTURE Spartan Village (Phase 3)	Proposed (Total) with Future Spartan Village Phase 3
Site Area (Acres)	65.00				65.00
Site Area (Squarefootage)	2,831,400				2,831,400
Site Coverage (Squarefootage)	628,917	9,110	10,650	10,130	658,807
Site Coverage (Percentage)	22.2%	0.3%	0.4%	0.4%	23.3%
Building Squarefootage	369,861	4,800	N/A	19,800	394,461
Parking					
Students	1,039				1039
Faculty / Staff	211				211
Total	1,250				1,250
Parking Spaces Required	730.5				730.5
Parking Spaces Actual	735		36		771
Dwelling Units (All on Campus)					
Phillsbury Huff Hall	26				26
North Hall	25				25
Spartan Village	27			10	37
Total Dwelling Units	78			10	88
Number of Dwelling Units per Acre	1.20	0.00	0.00	0.15	1.35
Spartan Village					
Footprint (S.F.)	18,267			6,600	24,867
Building Areas (S.F.)	54,801			19,800	74,601
Number of Beds for Students	140			40	180

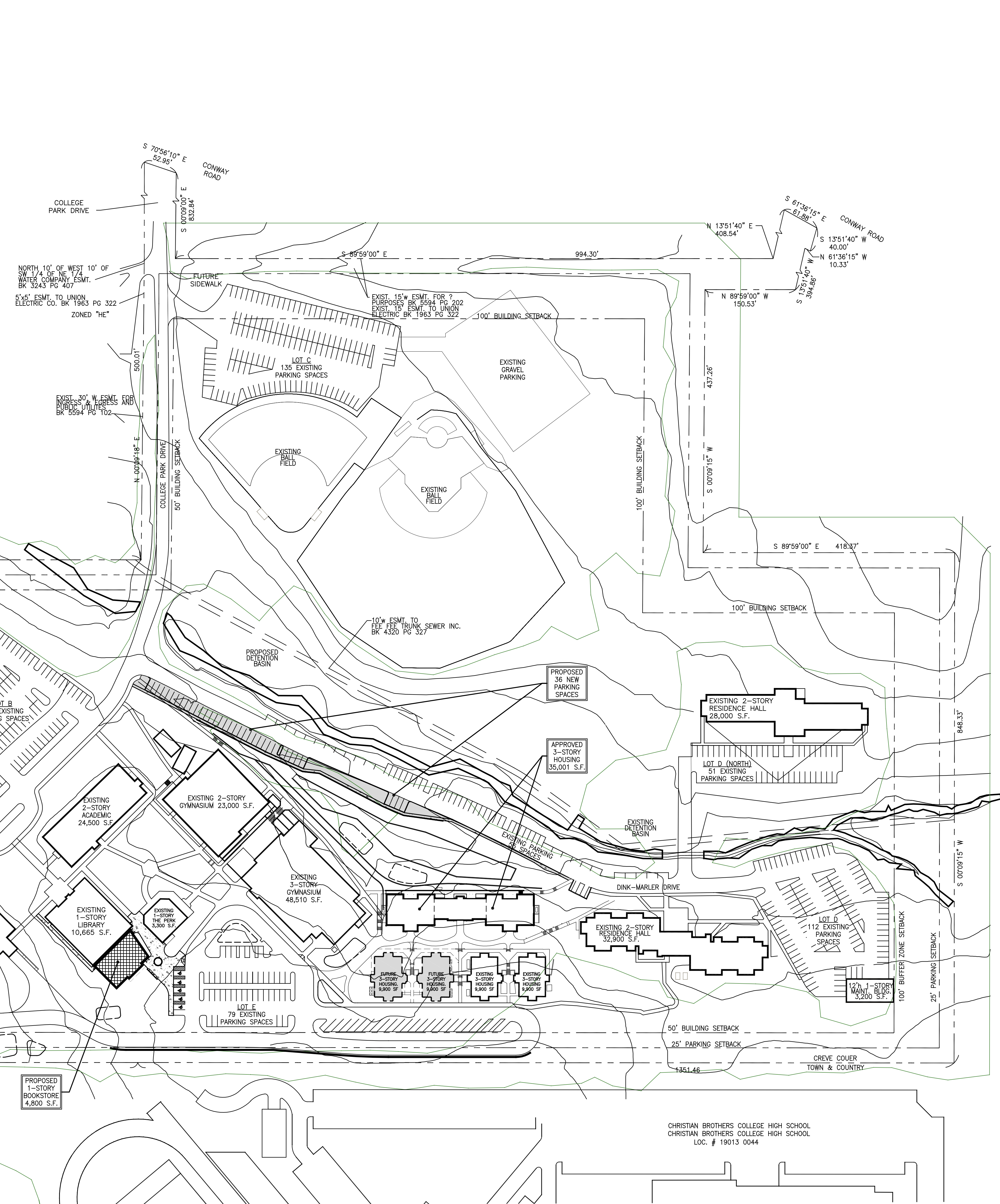
PARKING	
Lot A (Main Entry)	48
Lot B (Main Lot)	223
Lot B (Lower Lot)	32
Lot C (Baseball)	135
Lot D (PHH dorm and Maint)	112
Lot D (North dorm)	51
Lot E (Spartan Village)	79
Dink Marler	55
Total Existing	735
Dink Marler Proposed Added Parking	36
Total Parking	771

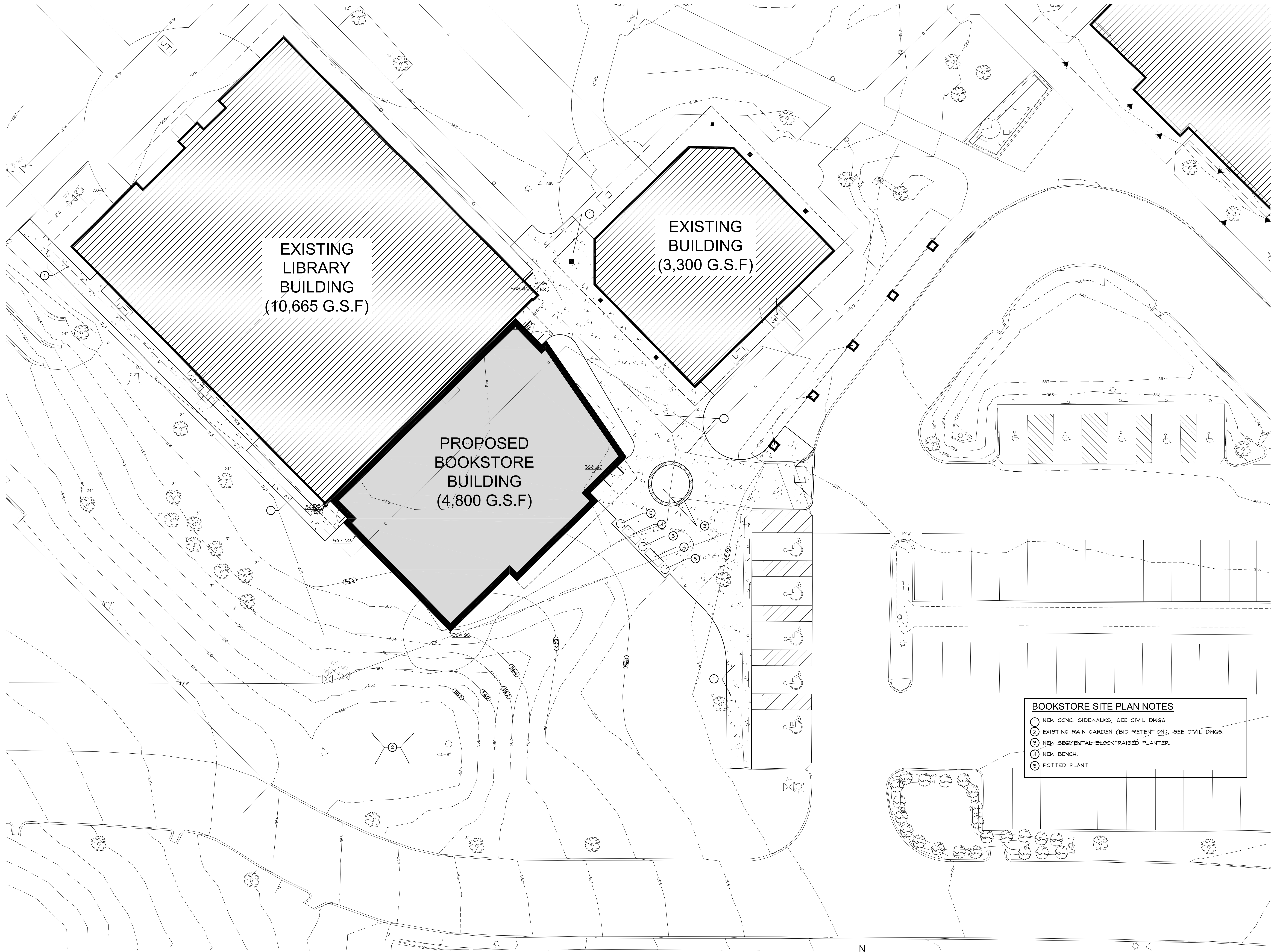
LEGEND:

PROPOSED BUILDINGS

PROPOSED SIDEWALKS

FUTURE BUILDINGS





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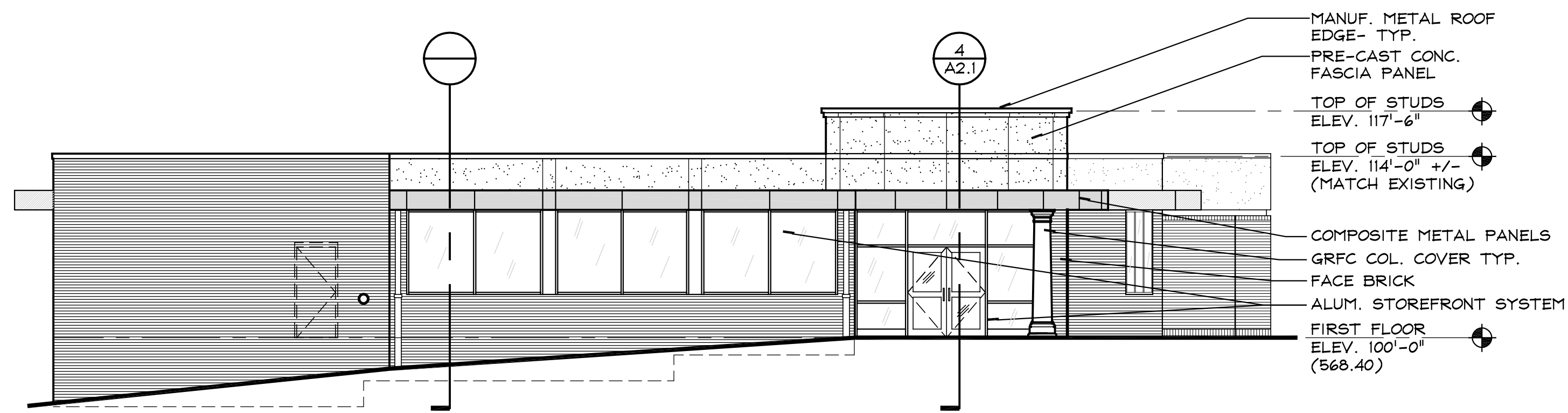
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201201.01

Drawing Title:
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SITE PLAN**

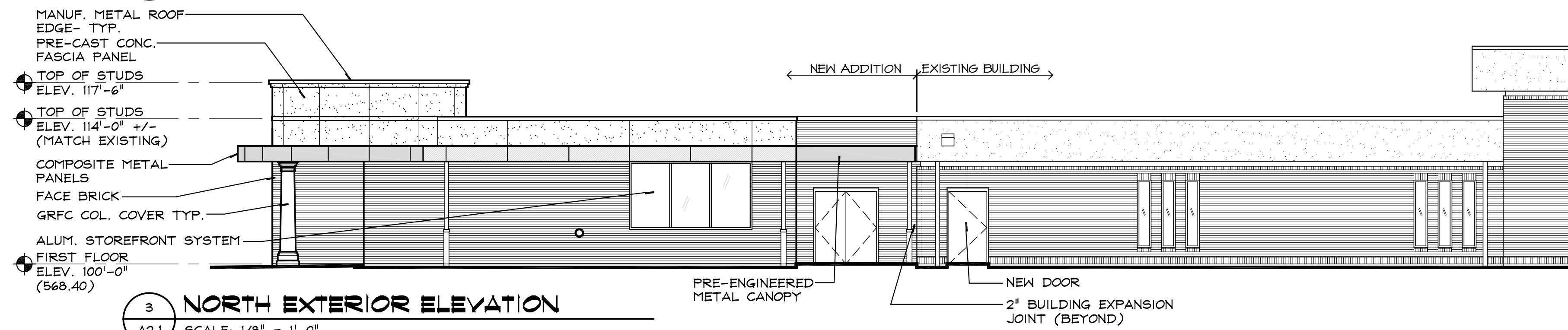
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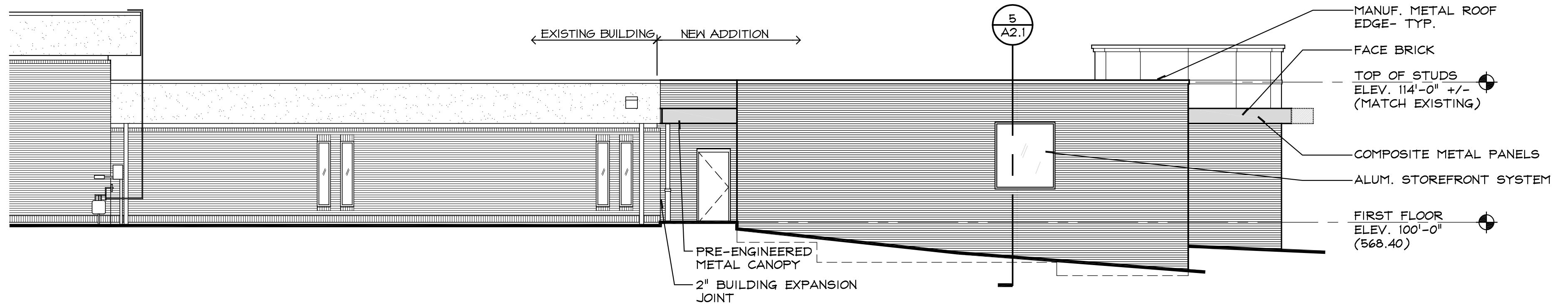
Drawing No.
CA1.1
Bookstore
Dink Marler



1 EAST EXTERIOR ELEVATION
A2.1 SCALE: 1/8" = 1'-0"



3 NORTH EXTERIOR ELEVATION
A2.1 SCALE: 1/8" = 1'-0"



2 SOUTH EXTERIOR ELEVATION
A2.1 SCALE: 1/8" = 1'-0"

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ELEVATIONS &
WALL SECTIONS

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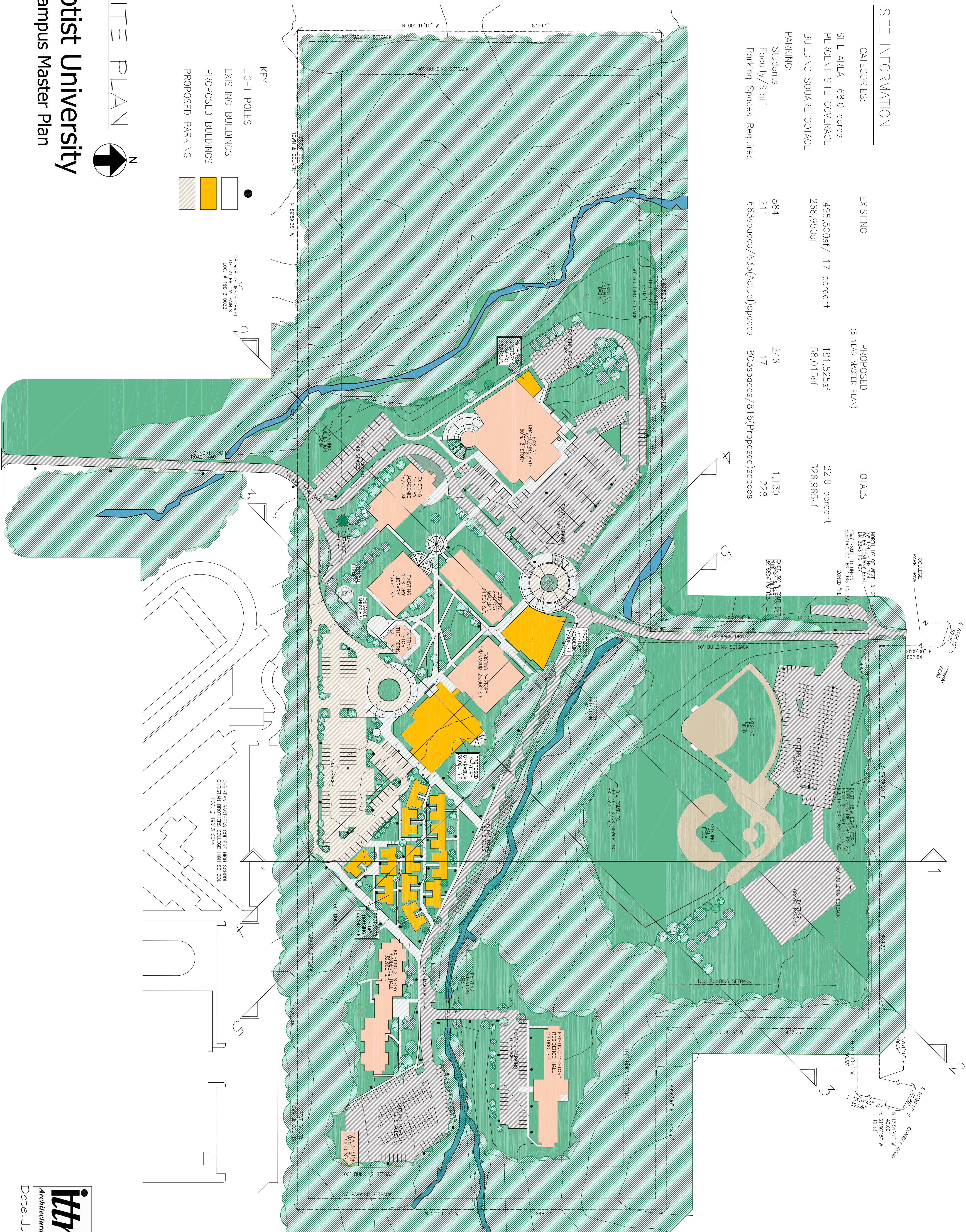
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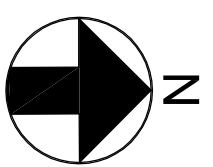
102

TOTALS

SITE AREA	68.0 acres		
PERCENT SITE COVERAGE	495,500sf / 17 percent	181,525sf	22.9 percent
BUILDING SQUAREFOOTAGE	268,950sf	58,015sf	326,965sf
PARKING:			
Students	884	246	1,130
Faculty/Staff	211	17	228
Parking Spaces Required	663(spaces)/633(Actual)spaces	803(spaces)/816(Proposed)spaces	



MASTER SITE PLAN

$$100-0=100$$


Missouri Baptist University

Proposed 5 Year Campus Master Plan



DEPARTMENT OF PUBLIC WORKS STAFF MEMORANDUM

DATE: July 12, 2012

TO: Creve Coeur Planning and Zoning Commission

CC: Paul Langdon, Director of Community Development
Jim Heines, Director of Public Works

FROM: Matt Wohlberg, P.E., City Engineer

SUBJECT: Final Draft Review
Storm Water Master Plan Update

As the Commission might recall, the City retained the professional engineering services of Horner & Shifrin, Inc., beginning in the spring of 2011 to evaluate various storm water concerns in an effort to update the City's storm water master plan. The City's Storm Water Master Plan had last been updated in 1999, and much of the report had been either addressed or become outdated. The work by Horner & Shifrin was to update the master plan to incorporate new concerns and to make the master plan easier to navigate.

The field investigations and site assessments for this project are now complete, and the results have been compiled into the draft report included in the Commission's packet. This draft report also reflects various comments that resulted from reviews by City staff and by the City's Storm Water Committee.

City staff seeks the Commission's review of the draft Storm Water Master Plan Update report in order to determine whether the Commission has any questions or comments about the report that need to be addressed. The goal is to address any pertinent concerns and to seek the Commission's recommendation for approval to the City Council at a future meeting.

Given the length of the report, City staff is simply introducing the report at the current meeting. Staff plans to return to the Commission after approximately one month to hear the Commission's concerns. Staff hopes that this time will be sufficient for review of the draft report.

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1.0 INTRODUCTION

The City of Creve Coeur experiences multiple stormwater problems within its boundaries. To benefit its citizens, the City has identified the need to assess the multitude of drainage related problems by updating its last Watershed Plan done in 1999 to develop a new path to implement comprehensive and technically sound solutions to these problems.

Many of the problems stem from increased runoff from development. Changes in land use have a major effect on both the quantity and quality of stormwater runoff. Urbanization, if not properly planned and managed, can dramatically alter the natural hydrology of an area because it increases impervious cover. Impervious cover decreases the amount of rainwater that can naturally infiltrate into the soil and increases the volume and rate of stormwater runoff. These changes lead to more frequent and severe flooding, streambank erosion, and therefore potential damage to public and private property.

One solution that helps mitigate these effects is to enacting ordinances requiring elements of low-impact development (LID). LID is a stormwater management system that works by utilizing the natural processes of the water cycle. LID treatment networks are designed not to exceed the carrying capacity of a site's landscape and can incorporate a number of stormwater best management practices such as rain gardens, vegetated filter strips, bioswales, pervious pavement, and green roofs.

The scope of the Watershed Management Plan Update has been to review the existing Master Plan, collect the available watershed information (including a stormwater questionnaire distributed to citizens in 2010), evaluate known problems, develop appropriate project alternatives to solve them and prioritize the projects in a fair and equitable manner.

1.1 Purpose

The purpose of this report is to develop a current, prioritized master plan that incorporates any concerns from the previous master plan, problem areas identified in the recent stormwater questionnaire, and any other issues brought to the City's attention. In addition, the report will serve as a tool to determine appropriate stormwater funding and help determine which projects receive this funding.

2.0 GENERAL WATERSHED DESCRIPTIONS

The City of Creve Coeur consists of two primary watersheds: Creve Coeur Creek and Deer Creek as illustrated in Figure 2-1. Each is comprised of smaller sub-watersheds. Within the Creve Coeur Creek watershed are: Creve Coeur Creek, Fernridge Creek, Smith Creek, and Maryville Creek. Contained by the Deer Creek Watershed are: Deer Creek Main Branch, Windrush Creek, Monsanto Sunswept, Pebble Creek, Tributary 4, Tributary 5, Black Creek, Hampton Branch, Claytonia Creek, Two Mile Creek, Sebago Drainage, and Shady Grove Creek.

2.1 Creve Coeur Creek

The Creve Coeur Creek Watershed is 16,888 acres in size and is located in west St. Louis County as shown in Figure 2-1. It lies between Dorsett Road to the north, Clarkson Road to the west, Clayton Road to the south, and Interstate 270 to the east. The watershed drains to the northeast with the main branch of Creve Coeur Creek running through Creve Coeur Lake and discharging to the Missouri River.

2.1.1 Terrain

The watershed is composed almost entirely of gently to moderately sloping terrain, with a few areas of steep slopes. In addition, there are significant portions of level ground lying along the main branch of Creve Coeur Creek and its tributaries.

2.1.2 Topography

General topographic data for the Creve Coeur Creek watershed can be obtained from the following USGS 7.5 minute quadrangle maps:

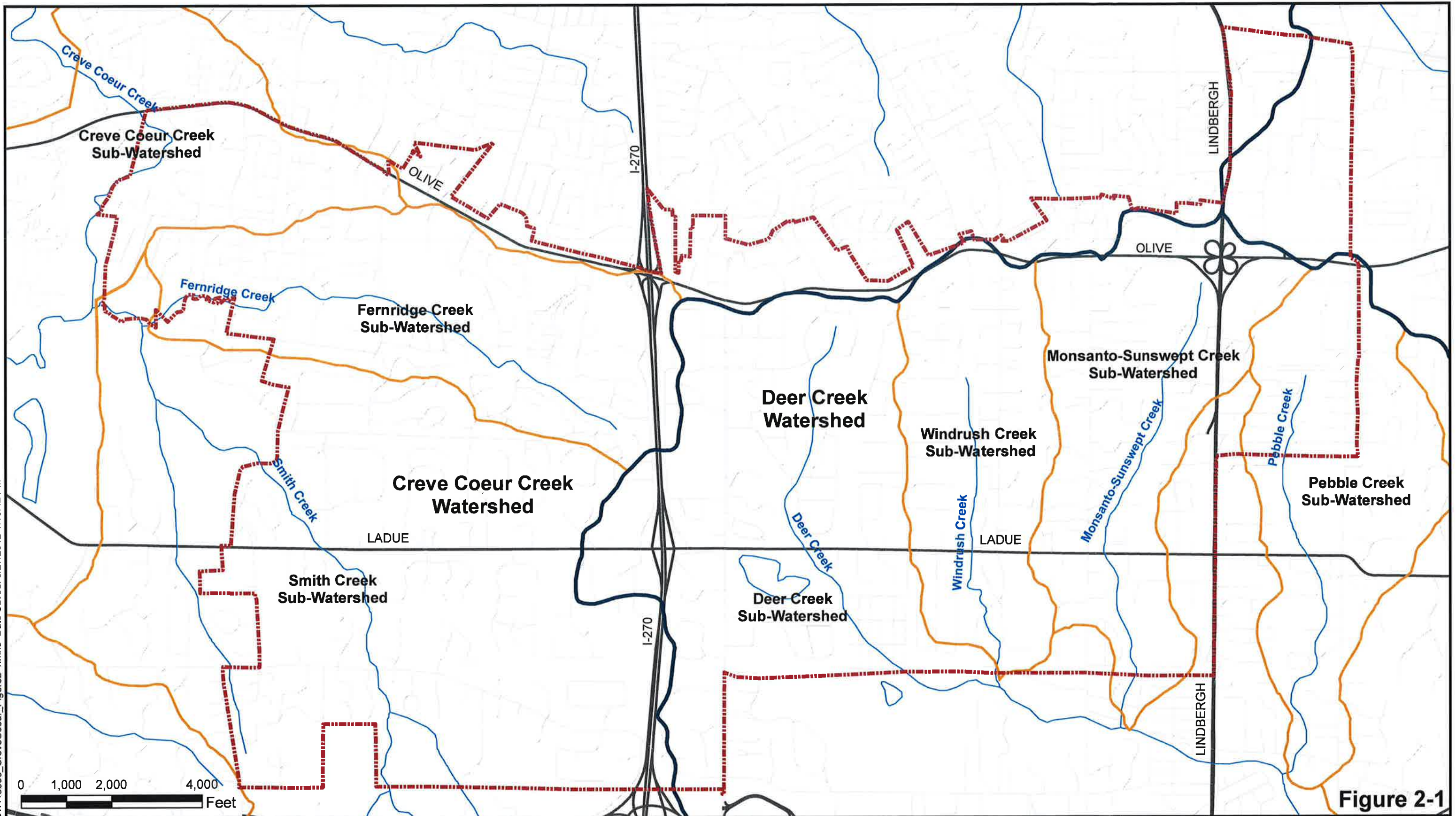
- Creve Coeur
- Chesterfield
- Kirkwood
- Manchester

2.1.3 Soil Types & Properties

Approximately thirty percent of the watershed consists of uplands, which are classified as the Menfro-Windfield-Urban land association by the USDA - SCS. Soils in this classification have the following characteristics:

- Gently sloping to very steep (slopes from 2 to 45 percent)
- Well drained and moderately well drained (Hydrologic class B)

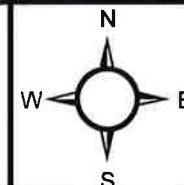
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- Legend**
- Creve Coeur Boundary
 - Watershed Boundary
 - Sub-Watershed
 - Streams
 - Major
 - Minor

City of Creve Coeur by Watershed

City of Creve Coeur, Missouri



Approximately sixty percent of the watershed is comprised of uplands, terraces and bottom lands, classified as the Urban land-Harvester-Fishpot association, and are defined with the following characteristics:

- Nearly level to moderately steep (slopes from 0 to 20 percent)
- Moderately well drained and somewhat poorly drained (Hydrologic class B and C)

The bottomland found along the main branch of Creve Coeur Creek, classified as the Wilbur-Haymond-Elsah association, comprises less than ten percent of the watershed and is defined with the following characteristics:

- Nearly level to gently sloping (slopes from 0 to 2 percent)
- Moderately well drained to somewhat excessively drained (Hydrologic class B and C)

Additional information about soil hydrologic properties is provided in The United States Department of Agriculture (USDA) - Soil Conservation Service (SCS) Soil Survey of St. Louis and St. Louis County.

2.1.4 Jurisdiction (Area of City w/in Watershed)

Approximately 45% of the City lies within the Creve Coeur Creek Watershed.

2.2 Deer Creek

The Deer Creek watershed is 23,539 acres in size as shown in Figure 2-1. The watershed is located in Central St. Louis County. It lies between Olive Boulevard to the north, I-270 to the west, I-44 and Essex to the south, and Big Bend Road to the east. The watershed drains to the southeast, with the main branch of Deer Creek discharging into River Des Peres. The southwestern portion of the watershed was formerly known as the Two Mile Creek watershed and the northeastern portion was formerly known as the Black Creek watershed.

2.2.1 Terrain

The watershed is comprised almost entirely of sloping terrain with a few areas of flat ground and a few moderate slopes. There are several significant sections of level ground lying along the main branch of Deer Creek. The watershed's drainage network is comprised of a main branch and eleven major tributaries. The average slope of the creek is 19 feet per mile.

2.2.2 Topography

General topographic data for the Deer Creek watershed can be obtained from the following USGS 7.5 minute quadrangle maps:

- Kirkwood
- Webster Groves
- Clayton
- Creve Coeur

2.2.3 Soil Types & Properties

Approximately fifty to sixty percent of the watershed consists of uplands, which are classified as the Menfro-Windfield-Urban land association by the USDA - SCS. Soils in this classification have the following characteristics:

- Gently sloping to very steep (slopes from 2 to 45 percent)
- Well drained and moderately well drained (Hydrologic class B)

The remaining forty to fifty percent of the watershed is comprised of Urban land-Harvester-Fishpot association, and are defined with the following characteristics:

- Nearly level to moderately steep (slopes from 0 to 20 percent)
- Moderately well drained and somewhat poorly drained (Hydrologic class B and C)

Additional information about soil hydrologic properties is provided in The United States Department of Agriculture (USDA) - Soil Conservation Service (SCS) Soil Survey of St. Louis and St. Louis County.

2.2.4 Jurisdiction (Area of City w/in Watershed)

Approximately 55% of the City lies within the Deer Creek Watershed.

3.0 DATA DEVELOPMENT

This section discusses the methodology used to gather information about the current stormwater issues and concerns in the City of Creve Coeur. Data from previous studies was used and current site visits were conducted.

3.1 Previous Studies

The City of Creve Coeur seeks to maintain a current account of stormwater issues and concerns within the City's limits. The City developed a stormwater master plan in 1986 and an update to this plan in 1999. Additional stormwater concerns have been brought to the City's attention through the issuance of a stormwater questionnaire in the fall of 2010. Site locations are outlined in Figure 3-1.

3.1.1 1999 Master Plan

The 1999 Master Plan was developed by distributing a stormwater questionnaire to all City residents. Residents could express a stormwater concern by identifying the location and nature of problem on the questionnaire. Field crews visited the sites to verify the conditions. Of the 385 responses, 294 were deemed problem areas. The 294 responses were grouped together into 100 project areas made up of locations reporting related complaints.

The City has reviewed the 1999 Master Plan and *44 projects* remain a concern as listed in Table 3-1.

3.1.2 2010 Questionnaire

As similarly done for the 1999 Master Plan, a stormwater questionnaire was issued in the fall of 2010 for residents to report current issues.

The result was *33 projects* as listed in Table 3-2.

In some cases, projects from the 2010 questionnaire were related to a similar problem identified in the 1999 Master Plan. If there was a correlation, it was noted in both Table 3-1 and Table 3-2.

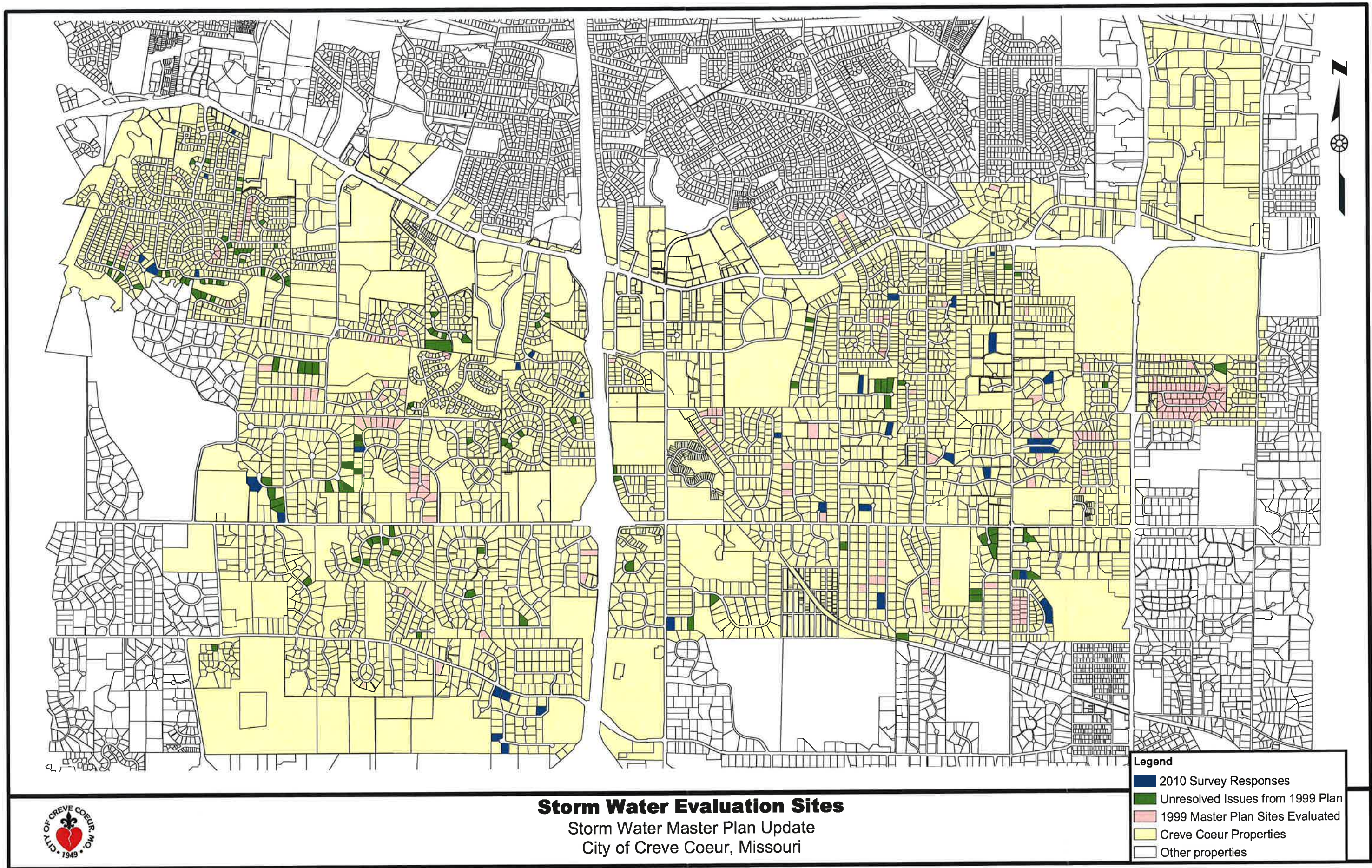


Figure 3-1

**Remaining Concerns from 1999 Master Plan
Table 3-1**

Count	Orig. ID #	Project Name	Issue/Problem	Project Corresponding to 2010 Questionnaire
1	13-1	Beauvais Court	Terraced subdivisions - water entering home	
2	13-4	Fernridge Creek - Mason to D'Artagnan	Creek flooding and erosion - water entering homes	1, 15
3	13-6	Litchford Court	Terraced subdivisions - water entering home	
4	13-9	Chasselle-Chamblee Lane	Creek flooding and erosion - water entering homes	5, 6, 8
5	11-1	Royal Gate-Royal Manor Drive	Damaged or inadequate storm sewers - ponding in street	
6	11-3	North Walling Drive	Inadequate curb, gutter and inlets - ponding in street	
7	11-6	Emerald Green & Emerson Intersection	Inadequate curb, gutter and inlets - ponding in street	
8	11-7	Montauben Drive	Damaged or inadequate storm sewers - ponding in street	
9	7-1	Mosely Acres	Dam failure or overtopping - threatens building	
10	5-1	Winrock Drive	Inadequate curb, gutter and inlets - damaging landscaping	
11	5-3	Ridgecorde Place #485	Creek flooding and erosion - damaging landscaping	
12	5-4	Tealwood North #47	Creek flooding and erosion - damaging driveway retaining wall	
13	5-5	Stratford Ridge Court	Creek flooding and erosion - threatens yards and landscaping	2
14	5-6	Balcon Estates #7	Creek flooding and erosion - damaging landscaping	
15	5-7	Ladue Woods Drive	Terraced subdivisions	
16	5-8	Fernview Drive #1009 and #1020	Creek flooding and erosion - threatens fences	
17	4-2	Broadview Farm #9	Minor yard flooding and erosion - threatens maintained area	
18	4-4	Royal Manor Drive	Creek flooding and erosion - threatens maintained area	
19	4-5	Booth Bay Lane	Creek flooding and erosion - threatens maintained area	28
20	4-6	Spoele Acres	Creek flooding and erosion - threatens maintained area	
21	4-7	Spoele View Court #10667	Creek flooding and erosion - threatens maintained area	29
22	4-8	Tarrytown-Lakeshore Drive	Creek flooding and erosion - threatens maintained area	
23	4-9	Somerton Court	Creek flooding and erosion - threatens maintained area	
24	4-10	Clion and Chamblee Lane	Creek flooding and erosion - threatens maintained area	
25	4-11	Ladue Court Drive	Creek flooding and erosion - threatens maintained area	
26	3-2	Fenway - 900 Block	Terraced subdivisions - ponding in yards	
27	3-7	Fairways Circle - 600 Block	Inadequate drainage swales - ponding in yards	
28	3-10	Hibler Court	Terraced subdivisions - ponding in yards	12
29	3-20	Country View Drive #10671	Terraced subdivisions - ponding in yards	
30	3-24	Foxbrook Drive	Terraced subdivisions - ponding in yards	
31	3-27	Spoele Road at Ramblewood	Inadequate curb, gutter and inlets	
32	3-30	Sackston Ridge Lane	Inadequate curb, gutter and inlets - ponding in yards	
33	3-32	Conway Homes Circle	Minor yard flooding and erosion - ponding in yards	
34	2-1	Hibler Oaks	Inadequate drainage swales - minor yard erosion	
35	2-4	Villa Coublay Drive	Creek flooding and erosion - erosion in ravine	
36	2-5	Fairways Circle - 500 Block	Creek flooding and erosion - erosion in ravine	
37	1-1	Haverton Drive #812	Damaged or inadequate storm sewers - sinkhole	
38	1-2	Robinview Court	Damaged or inadequate storm sewers - sinkhole	
39	1-3	D'Artagnan Court	Damaged or inadequate storm sewers - sinkhole	
40	1-6	Ladue Estates Dr. #5	Minor yard flooding and erosion - erosion in yard	
41	1-7	Oak Park Drive	Minor yard flooding and erosion - erosion in yard	
42	1-8	Oak Park Court	Inadequate curb, gutter and inlets - ponding in street	
43	0-3	Ambois Drive Sewers	Sewer backups due to high groundwater and leaky joints	
44	0-5	Ramblewood Lane	Sewer backups due to high groundwater and leaky joints	

Concerns from 2010 Questionnaire
Table 3-2

ID No.	Location	Issue/Problem	Project Corresponding to 1999 Master Plan
1	12995 Ambois	Creek flooding threatens residential street	13-4
2	7 Balcon Estates	Creek flooding and erosion	5-6
3	24 Balcon Estates	Creek flooding and erosion	
4	26 Balcon Estates	Creek flooding and erosion	
5	13 Chamblee	Creek flooding and erosion	13-9
6	15 Chamblee	Creek flooding and erosion	13-9
7	12-17 Chaminade	Creek erosion threatens pedestrian bridge	
8	1 Chasselle	Creek flooding and erosion	13-9
9	77 Colonial Hills	Inadequate drainage swales-yard erosion and flooding	
10	12410 Conway Road	Yard ponding	
11	12295 Country Manor	Yard erosion at discharge of storm pipe	
12	10671 Country View	Yard erosion	3-20
13	12970 Ferntop	Creek flooding and erosion	
14	12921 Fernway	Yard ponding and erosion	
15	13119 Gascogne	Creek erosion	13-4
16	11076 Graeser	Inadequate curb, gutter, inlets- yard flooding	
17	12318 Halsgame	Yard erosion	
18	73 Ladue Estates, East	Yard ponding	
19	287 Ladue Lake	Terraced subdivisions-yard erosion and flooding	
20	104 Ladue Meadows	Terraced subdivisions-yard erosion	
21	859 Larkin	Inadequate drainage swales-yard erosion and flooding	
22	3-6 Middlebrook Lane	Creek erosion threatens residential culvert	
23	16 Mosley Acres	Inadequate curb and gutter-yard erosion	
24	121 Mystic Meadows	Terraced subdivisions-yard erosion and flooding	
25	10835 Rondelay Drive	Yard erosion	
26	12121 Royal Valley Drive	Yard erosion	
27	434 Runnymede Drive	Terraced subdivisions-yard flooding	
28	2 Spoede Acres Street	Yard ponding and erosion	4-6
29	11732 Tarrytown	Creek erosion	4-8
30	11205 Tureen Drive	Yard erosion	
31	6 Wedgewood Lane	Yard ponding and erosion	
32	7 Wedgewood Lane	Yard ponding and erosion	
33	6 Windrush Creek, East	Creek erosion	

3.2 Field Reconnaissance

Field crews performed site visits on the 77 problem areas from both the 1999 Master Plan and the 2010 questionnaire. Site observations were photographed and documented to help evaluate each problem description. Property, aerial, and MSD maps were obtained to supplement and substantiate field observations. In addition to site observations, both in person and phone conversations with home owners were employed to gain a better understanding of the issue. Complete field observations are found in standalone Appendix A.

Field crews assessed current site conditions and determined if the problem areas still existed. Projects were combined if the same problem affected multiple properties and if a common solution was possible. Projects that have been resolved were documented and removed from the list.

4.0 DEVELOPMENT AND EVALUATION OF ALTERNATIVES

This section discusses the observations obtained from the site visits and recommends solutions to each current identified problem.

4.1 Introduction

Erosion and flooding problems exist within the City's limits as evident from the 1999 Master Plan and the 2010 questionnaire. In addition to the 77 projects previously identified, three projects have been added since the beginning of field investigations. They include two identified in a Stormwater Committee Meeting from October 2011 and another identified by a home owner encountered during the site visits.

- 10 projects were removed due to home owner indicating there was no issue
- 14 projects are pending to be removed once home owner verification is received
- 8 projects were combined with other projects that had common issue

A total of 48 projects have a current stormwater issue.

4.2 Projects to Remove

After site visit and verification with home owners, a total of 10 projects can be removed from the list of City concerns. Each project is described below.

× 0-5 (1999 Master Plan)

Location: 830 and 833 Spoede Road

Comments: No issue with sewer backups per phone discussion with home owner.

× 0-3 (1999 Master Plan)

Location: 12944 - 13006 Ambois Drive

Comments: No issue with sewer backups per discussion with home owners. MSD has installed new trunk sewer to eliminate sewer backups.

× 1-3 (1999 Master Plan)

Location: 13138, 13143, 13203, 13200 Dartagnan Court

Comments: No issue with sink holes in area per phone discussion with home owners.

× **1-2 (1999 Master Plan)**

Location: 12521, 12529 Robinview Court

Comments: No issue with sink holes in area per phone discussion with home owners.

× **1-1 (1999 Master Plan)**

Location: 812 Haverton Drive

Comments: No issue with sink holes in area per phone discussion with home owner.

× **3-27 (1999 Master Plan)**

Location: 830 and 833 Spoede Road

Comments: No issue with sewer backups or street flooding per phone discussion with home owner.

× **3-24 (1999 Master Plan)**

Location: 432 Foxbrook Drive

Comments: No erosion or flooding issue per discussion with home owner.

× **4-9 (1999 Master Plan)**

Location: 12226, 12206 Sommerton Court

Comments: No erosion or flooding issue per phone discussion with home owners.

× **5-3 (1999 Master Plan)**

Location: 485 Ridgecorde Place

Comments: No erosion or flooding issue per discussion with home owner.

× **13-6 (1999 Master Plan)**

Location: 228 Litchford Court

Comments: Home owner has installed inlet and drainage pipe along retaining wall to control runoff. After a follow-up visit with home owner, it was confirmed that there are no stormwater issues present.

4.3 Projects Pending to Remove

Nine projects appear to have no visible issue and five appear to have issue resolved as observed during site visits. Contact with the home owners of these issues was attempted by phone and during site visit, however all residents were unavailable. Further verifying is required to ensure no stormwater concern exists. Each project is described in the following section.

4.3.1 No Visible Issue

This section lists all projects that had no apparent issue at the time of field investigation.

× **1-7 (1999 Master Plan)**

Location: 33, 34 Oak Park Drive

Comments: Runoff from street and yards drain to grate inlet located on west and east side of Oak Park Drive. Street has been resurfaced and there appears to be no areas for flooding to occur.

× **3-30 (1999 Master Plan)**

Location: 11967 Sackston Ridge Lane

Comments: No visible flooding or erosion observed at culdesac. Street appears to have adequate curb and gutter.

× **4-2 (1999 Master Plan)**

Location: 9 Broadview Farm Drive

Comments: Backyard does not appear threatened by creek flooding or street runoff.

× **11-7 (1999 Master Plan)**

Location: Intersection of Montauban and Nimes

Comments: No visible yard damage observed in area. Street appears to have adequate slopes, curbs, and gutters. Per discussion with home owner of 742 Montauban, there is no street flooding present. Could not reach other home owners in the area.

× **11-6 (1999 Master Plan)**

Location: 11982, 11995 Emerald Green Drive

Comments: No evidence of flooding visible.

× **11-3 (1999 Master Plan)**

Location: 21, 22, 23, 27 North Walling Drive

Comments: Street appears to have adequate slope to drain. No sink holes observed along storm line.

× **11-1 (1999 Master Plan)**

Location: 12459, 12466, 12518 Royal Manor Drive/ 111 Royal Gate/ 131 Petite Royal

Comments: Street appears to have sufficient inlets and slopes. Home owner of 12518 Royal Manor had no knowledge of current flooding issues in area. Could not reach other home owners in the area.

× **10 (2010 Questionnaire)**

Location: 12410 Conway Road

Comments: Minimal tributary area appears to be contributing to site runoff. Home appears elevated and flooding does not seem possible. Could not reach home owner to discuss.

× **Extra Project Identified During Stormwater Committee Meeting**

Location: 12535, 12542, 12550 Mason Forest Drive

Comments: There appears to be adequate inlets and a cross-pavement grated trench drain to collect runoff. Steep sloping street and yards sloping to street may cause large amount of water on pavement during a storm.

4.3.2 Issue Appears Resolved

This section lists all projects where the issue appears to have been resolved.

× **3-32 (1999 Master Plan)**

Location: 12534 Conway Holmes Circle

Comments: Erosion in southwest corner of yard appears to be controlled by the rip rap placed along hillside and around inlet.

× **5-6 (1999 Master Plan) / 2 (2010 Questionnaire)**

Location: 7 Balcon Estates

Comments: Grouted rip rap has been placed upstream of bridge and standard rip rap has been placed downstream of bridge. Creek banks appear stable. No evidence of flooding or erosion observed.

× **5-5 (1999 Master Plan)**

Location: 12402, 12414, 12420, 12443 Stratford Ridge Court / 12380 Whitworth Terrace/ 665 Questover Lane

Comments: Grouted rip rap has been constructed along creek banks behind Stratford Ridge Court. 12443 Stratford Ridge is not impacted by creek and has no drainage issue visible. 12380 Whitworth Terrace has visible creek erosion, but rip rap has been placed to mitigate issue.

× **5-1 (1999 Master Plan)**

Location: 12248, 12283, 12290 Winrock Drive

Comments: New curb has been installed at 12283 and 12290 which appears adequate to control street runoff.

4.4 Remaining Projects

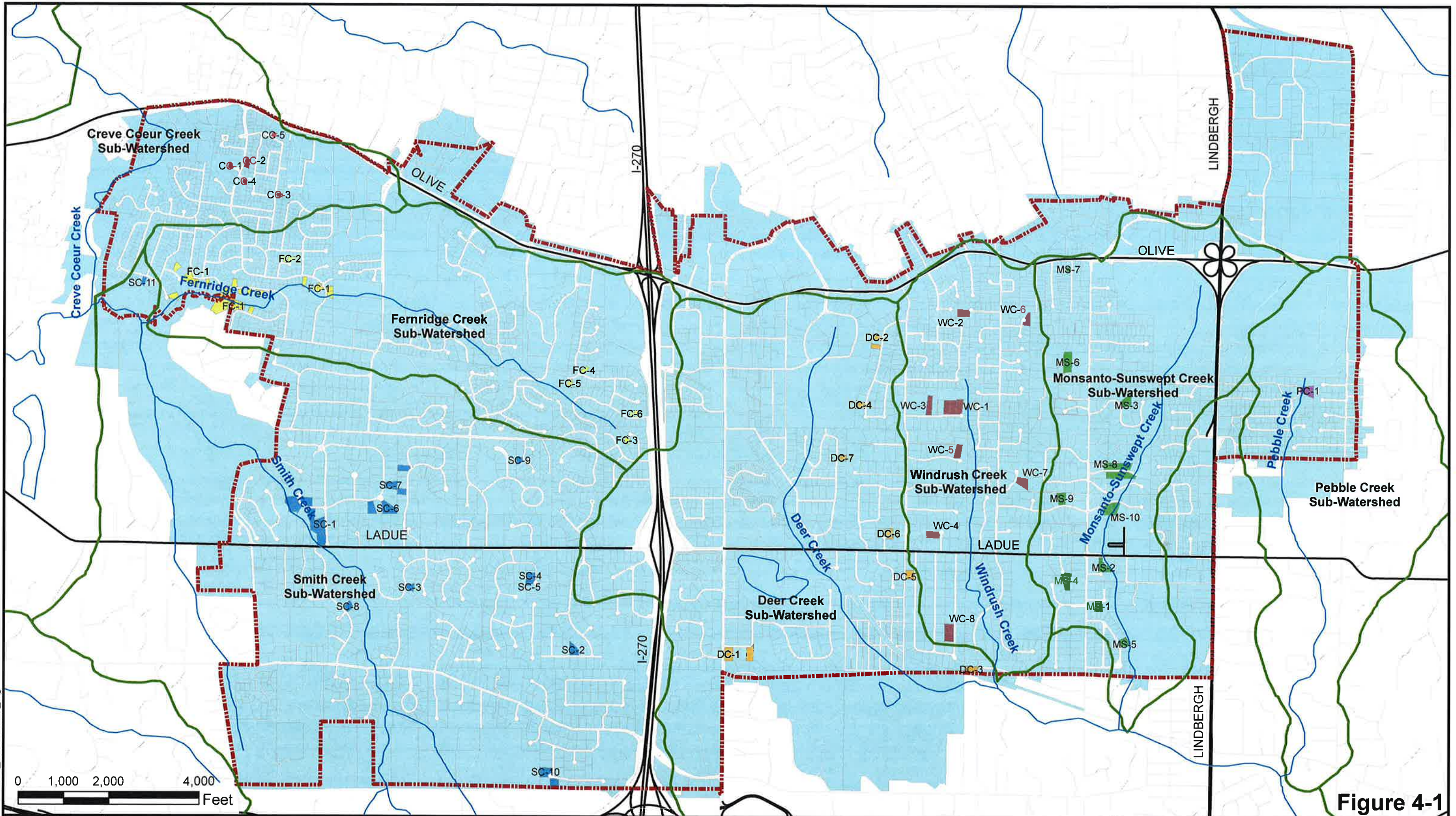
This section discusses are current problem areas within the City of Creve Coeur assorted by watershed.

4.4.1 Problem Designation

Each current problem has been given a new project number based on the watershed in which the problem area is located. A letter prefix designates the problem watershed as follows:

- CC: Creve Coeur Creek Main Branch
- SC: Smith Creek
- FC: Fernridge Creek
- DC: Deer Creek Main Branch
- WC: Windrush Creek
- MS: Monsanto Sunswept Creek
- PC: Pebble Creek

The watersheds and problem areas are illustrated in Figure 4-1. Where feasible, some problem areas have been combined into a single project when a solution is mutual.

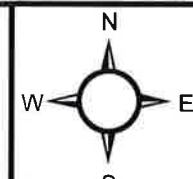


**Problem Areas by Watershed
City of Creve Coeur, Missouri**

Figure 4-1



CC	SC	Creve Coeur Boundary	Streams
DC	PC	Sub-Watershed	Minor Roads
FC	WC	Creve Coeur Parcels	Major Roads
MS			



4.4.2 Alternative Analysis

Rehab and repair alternatives were explored for each problem site. Each alternative met the applicable requirements of the current Metropolitan St. Louis Sewer District (MSD) and Missouri Department of Natural Resources (DNR) guidelines. Two solutions were developed for each site unless otherwise noted. The preferred solution is the most effective option that best corrects the problem. Where both solutions were equally effective, the preferred solution was decided by lowest cost. In some cases it was suggested that a watershed wide approach be taken to analyze the issues to recommend a better solution.

For residential yard erosion and flooding, alternatives varied from reconstructing natural swales to constructing new storm systems. For creek erosion, alternatives included providing a creek biostabilization method or constructing vegetated gabions. Biostabilization refers to the use of soil blankets and plantings. Vegetated gabions refer to gabion baskets that incorporate vegetation. For creek flooding, alternatives included constructing berms and planting vegetation along the banks.

4.4.3 Descriptions

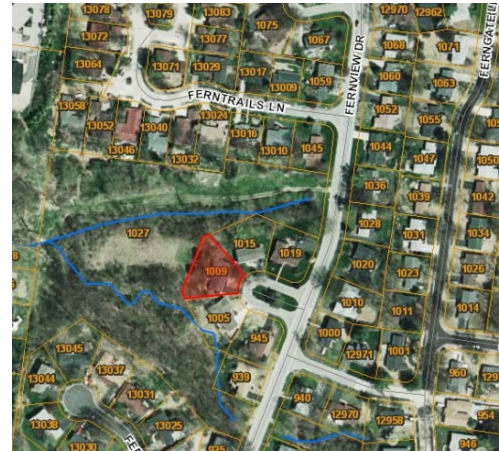
The following lists all problem areas that lie within the City of Creve Coeur. Location, problem description, and solutions are provided for each. The original problem designations (from 1999 Master Plan and/or 2010 Questionnaire) are cited for reference. A complete site assessment for each can be found in Appendix A and a detailed cost estimate is provided in Appendix D.

➤ **CC-1 - Fernview Drive #1009**

LOCATION: Fernview Drive is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 5-8 (1999 Master Plan)

PROBLEM DESCRIPTION: Erosion at discharge of pipe at north section of backyard. Discharge of pipe was covered with yard waste and debris.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Construct reno mattress at end of discharge pipe to allow for dissipation of energy at outlet.

COST ESTIMATE: \$52,000

ALTERNATE SOLUTION: Place rip rap at end of discharge of pipe and along drainage path.

COST ESTIMATE: \$35,000

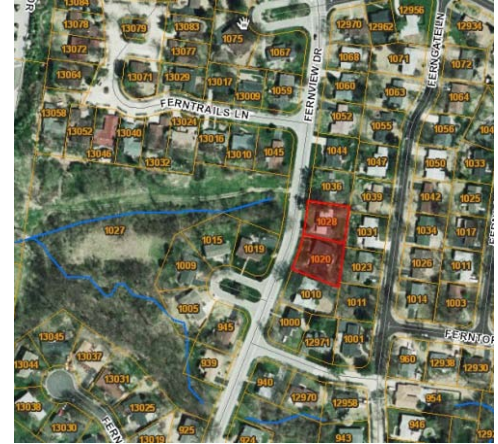


➤ **CC-2 - Fernview Drive #1020, 1028**

LOCATION: Fernview Drive is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 5-8 (1999 Master Plan)

PROBLEM DESCRIPTION: Yard erosion observed in backyard of lot 1020 and 1028 Fernview due to runoff from homes behind on Ferngate Lane. Resident at lot 1028 has placed rocks along drainage path in an attempt to divert flow.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
TOTAL				20

PREFERRED SOLUTION: Construct grass swale using turf reinforcement mat.

COST ESTIMATE: \$39,000

ALTERNATE SOLUTION: Construct a new storm system in place of the existing grass swale to collect surface runoff and connect to existing storm sewer. The system would include 1 area inlet and 180' of 12" RCP.

COST ESTIMATE: \$52,000



➤ **CC-3 - Fernway Lane #928**

LOCATION: Fernway Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 3-2 (1999 Master Plan)

PROBLEM DESCRIPTION: The original problem had two addresses affected. Per phone discussion with home owner at 952 Fernway Lane, yard has been regraded and an area inlet has been constructed to prevent ponding. Ponding still occurs at bottom of hillside of lot 928. Runoff is contributed from properties to the east. There is an area inlet located in backyard, but is not functioning properly because the sides of inlet have become backfilled. Home owner explained that water ponds in backyard and threatens patio.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
Infrequent Structural Flooding-miscellaneous structure-patio	7	Field Investigation	1	7
TOTAL				17

PREFERRED SOLUTION: Clear openings of inlet and regrade backyard to allow runoff to be collected at area inlet.

COST ESTIMATE: \$63,000

ALTERNATE SOLUTION: Construct a double area inlet in place of existing inlet. Regrade yard as required.

COST ESTIMATE: \$68,000

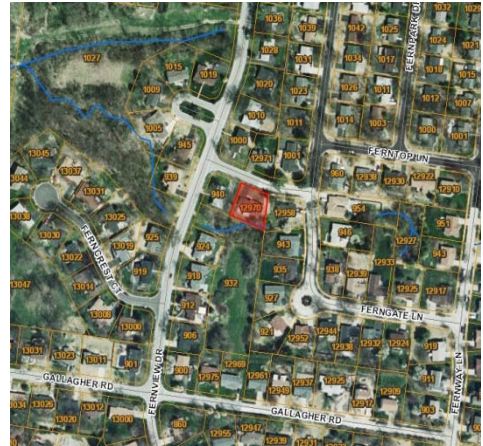


➤ **CC-4 - Ferntop Lane #12970**

LOCATION: Ferntop Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 13 (2010 Questionnaire)

PROBLEM DESCRIPTION: Creek erosion observed behind backyard. The most noticeable signs of erosion are along banks on south side. Creek banks are relatively shallow and are susceptible to flooding. There is fair amount of vegetation along creek. Pockets of standing water were present.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			20	

PREFERRED SOLUTION: Place rip rap along channel to prevent further erosion. Build up creek banks to mitigate flooding.

COST ESTIMATE: \$71,000

ALTERNATE SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings. Build up creek banks to mitigate flooding.

COST ESTIMATE: \$61,000

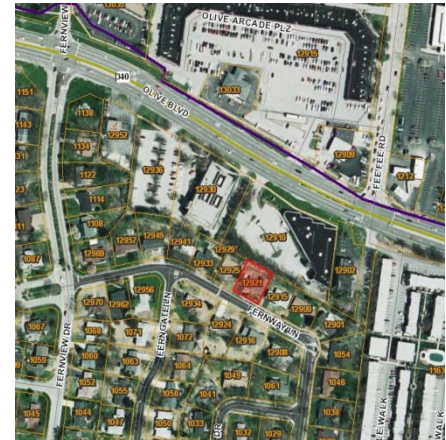


➤ **CC-5 - Fernway Lane #12921**

LOCATION: Fernway Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 14 (2010 Questionnaire)

PROBLEM DESCRIPTION: Existing swale has been disturbed. Runoff from upstream is rotting away wood retaining wall. Backyard has potential areas to pond if runoff flows over or through wall. There is an area inlet as well as curb along parking lot behind home which appears to control runoff.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Reconstruct swale to existing condition by regrading yard. Resident's retaining wall will need to be removed.

COST ESTIMATE: \$45,000

ALTERNATE SOLUTION: Construct a new storm system to collect surface runoff and connect to existing system. The system would include 1 area inlet and 160' of 12" RCP. Resident's retaining wall will need to be removed.

COST ESTIMATE: \$63,000



➤ **SC-1 - Chasselle Lane # 1,3,5 and Chamblee Lane #9,13,15,25**

LOCATION: Chasselle and Chamblee are residential streets west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 13-9 (1999 Master Plan) / 5, 6, 8 (2010 Questionnaire)

PROBLEM DESCRIPTION: Severe creek erosion observed. There were several fallen tree limbs and trunks. Utility poles are threatened. Creek has been rehabbed with gabion walls and rip rap at erosion locations. However, many areas along the creek remain affected by localized erosion. Backyards along creek have been disturbed by construction activity of a new sanitary sewer line so it was difficult to find evidence of flooding by field observation. Resident at 1 Chasselle has not experienced any issues within last few years, but no changes were made since the widespread flooding of August 1996. All homes along creek, with exception of lot 1, are distant from creek.



PREFERRED SOLUTION (Erosion): Place rip rap at locations along creek affected by erosion.

PREFERRED SOLUTION* (Flooding): Construct an earth berm to mitigate flooding issues.

* Chamblee Ct. Flooding along Smith Creek has no “preferred solution” *per se*.

The solutions examined in the MSD Stormwater System Master Improvement Plan for Creve Coeur Watershed included methods to prevent flooding by increasing stream capacity, and were projected to cost over \$3.4 M, and to floodproof individual homes at a combined cost of approximately \$335K at the time of the Master Plan (ca 1998). The creek improvements would require additional improvements to the Mason Road bridge, which belongs to St. Louis County (and as of 2012 is still only in the planning stages). Individual home floodproofing would have significant effects on aesthetics and accessibility for the homeowners.

In the summer of 1999, the City staff and the Stormwater Committee were asked to look into possible solutions to flooding of homes between Chamblee Lane and Smith Creek.

An alternate was considered by the committee, that of a berm constructed to serve as a levee to protect these homes from up to a 100-year flood. The berm would vary from one foot to three feet high, with the greatest portion about 18 inches high. This height would match the 100-year flood elevation but without freeboard; therefore the nominal level of protection would be approximately 50-year flood frequency. The earth berm would be sloped at a maximum of 3:1 (horizontal to vertical), and have approximately a four-foot wide top. This would require a total width of 10 to 22 feet wide, and would be grass covered or planted with shrubs. A variation using a low floodwall would require very little width, constructed much the same as a concrete retaining wall, and could be faced with brick or other material for aesthetics. Cost for a 4-foot wall (without allowance for facing) would range from \$100 to \$200 per lineal foot.

Stormwater inlets and drainpipes would be required to collect rainfall on the protected yards and convey it under the berm or wall, into the creek, using one-way valves to prevent high water in the creek from flowing backwards into the yards.

An on-site meeting was held in September 1st with homeowners in the affected area, to describe the above approach to flood prevention and get their impressions, objections and opinions. In general the response was favorable. Some homeowners wanted to know if the proposal would work without 100% participation. The answer is that while it could be made to work, it would be more expensive on a per-house basis, and it might be impractical for houses at certain locations. There were concerns with aesthetics, and the amount of space that would either be lost to or hidden by the berm. They wanted see the actual location of the berm to have a better idea of its effects on their property.

At the subsequent stormwater committee meeting it was decided to conduct a preliminary investigation of the berm alignment and design. The city engaged a firm to perform an on-ground elevation survey which would locate and mark (flag in field) the floodway, ground and house elevations, and the proposed location, height and width of the berm (or where a berm would exceed 3' high also show an alternate floodwall for planning purposes.

Another meeting was held with residents after the survey and field layout was completed. After seeing the height and width of the proposed facility in place, residents decided that they did not want it in their yards, and the issue was not advanced any further. It is unlikely that the flood protection will be pursued again.

Floodproofing of the individual homes is doable and could prevent a repeat of the damage incurred in 1996. The issue that remains is determination of what, if any, degree of participation there would be from the city. There is a logical reluctance to spend public funds on private property. However if the city does at times pay for channel and bank protection with the acknowledgment that such projects serve primarily to protect homes from flooding, then it maybe be to the city's fiscal advantage to participate in individual floodproofing at far less cost than expensive channel improvements. Unlike channel and bank improvements that require easements and 100% participation by property owners, individual owners could opt-in or –out of such a program.

Refer to Appendix B for past references in regards to this problem area.



➤ **SC-2 - Ladue Woods Drive #12229**

LOCATION: Ladue Woods is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 5-7 (1999 Master Plan)

PROBLEM DESCRIPTION: Runoff from homes on Ladue Oaks Drive causing yard erosion in backyard. Original swale has been disturbed by subsequent development. Silt fence and undersized drain has been installed. Home owner experiences no flooding into house, however driveway has been replaced to due runoff damage.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
Infrequent Structural Flooding-miscellaneous structures (pool)	7	Field Investigation	1	7
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL				27

PREFERRED SOLUTION: Construct a new storm system to collect surface runoff and connect to existing storm sewer. The system would include 1 area inlet, 230' of 12" RCP, and 135' of 15" RCP.

COST ESTIMATE: \$87,000

ALTERNATE SOLUTION: Reestablish existing grass swale to intercept runoff and route to curb at Ladue Woods Drive. Install turf reinforcement mat to prevent erosion and regrade yard as needed.

COST ESTIMATE: \$59,000

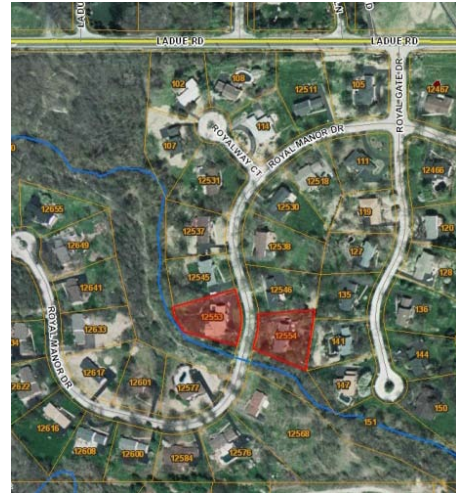


➤ **SC-3 - Royal Manor #12554**

LOCATION: Royal Manor is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-4 (1999 Master Plan)

PROBLEM DESCRIPTION: The original problem had two addresses affected. Per observation and discussion with home owner at 12553 Royal Manor Drive, creek has been rehabbed with rip rap and vegetation. Area is well maintained. Creek located along east side of lot 12554 has erosion at banks. Resident's yard is being loss. Honeysuckle is prevalent along creek banks.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings at 12554 Royal Manor. Clear all honeysuckle.

COST ESTIMATE: \$45,000

ALTERNATE SOLUTION: Construct rip rap along creek bank to prevent further erosion. Clear all honeysuckle.

COST ESTIMATE: \$43,000

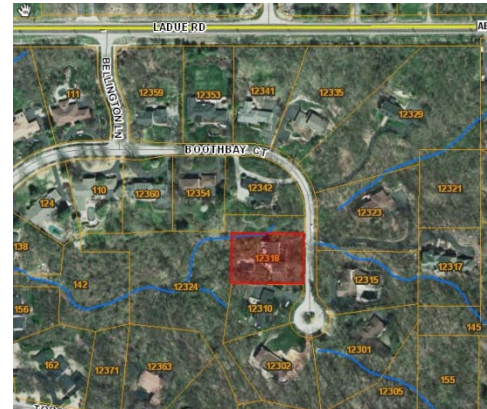


➤ **SC-4 - Booth Bay Lane #12318**

LOCATION: Booth Bay is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-5 (1999 Master Plan)

PROBLEM DESCRIPTION: Creek erosion at discharge of 18" RCP. There is a small section of concrete flume downstream of discharge pipe, however it only extends approximately 25'.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct vegetated gabions to prevent further erosion.

COST ESTIMATE: \$104,000

ALTERNATE SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$33,000

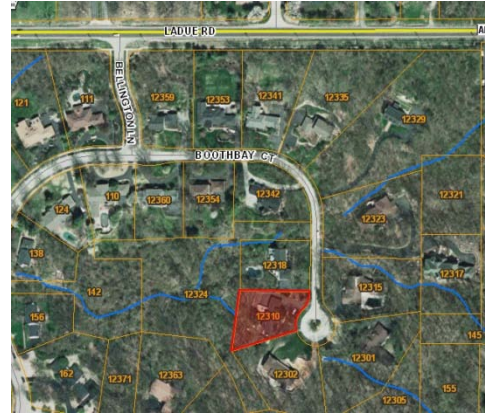


➤ **SC-5 - Booth Bay Lane #12310**

LOCATION: Booth Bay is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-5 (1999 Master Plan)

PROBLEM DESCRIPTION: Gully erosion present in backyard. Resident reported that he has seen storm manhole lid (MSD 1804-074D) blown off. Resident also reported that street flooding occurs in culdesac.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Infrequent Roadway Flooding-residential	2	Field Investigation	1	2
TOTAL				12

PREFERRED SOLUTION: Replace existing storm manhole with an area inlet and increase size of discharge pipe from 12" to 24". Further analysis is recommended to determine if storm sewer has sufficient capacity to prevent street flooding, however this is beyond the scope of work.

COST ESTIMATE: \$68,000

ALTERNATE SOLUTION: Improve existing swale using turf reinforcement mat and plant vegetation along swale. This solution corrects erosion issues, but further analysis is still needed to determine cause of street flooding.

COST ESTIMATE: \$41,000



➤ **SC-6 - Chamblee Lane #606, 622**

LOCATION: Chamblee Lane is a residential street west of Interstate 270 between Ladue and Olive.

ORIGINAL ID: 4-10 (1999 Master Plan)

PROBLEM DESCRIPTION: Creek erosion observed in backyards of Chamblee Lane. Tree limbs and trunks have been exposed. Resident's homes are greater than 100' from creek.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
			TOTAL	20

PREFERRED SOLUTION: Construct vegetated gabions to stabilize the creek banks and prevent further erosion.

COST ESTIMATE: \$265,000

ALTERNATE SOLUTION: Regrade creek bank and provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$143,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **SC-7 - Clion Lane #212 & Ladue Lake Drive #225, 287**

LOCATION: Clion and Ladue Lake are residential streets west of Interstate 270 between Ladue and Olive.

ORIGINAL ID: 4-10 (1999 Master Plan) / 19 (2010 Questionnaire)

PROBLEM DESCRIPTION: Gully erosion observed along grass swale in backyards of 212 Clion and 225, 287 Ladue Lake. Resident of 287 Ladue Lake explained that water runs like a creek through backyard and will pond in spots.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	3	30
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			40	

PREFERRED SOLUTION: Improve existing swale using turf reinforcement mat. At 287 Ladue Lake, regrade yard and plant vegetation to prevent ponding.

COST ESTIMATE: \$58,000

ALTERNATE SOLUTION: Construct a new storm system in place of the existing grass swale to collect surface runoff and discharge to nearby creek. The system would include 3 area inlets, 390' of 15" RCP, and 600' of 18" RCP.

COST ESTIMATE: \$208,000



➤ **SC-8 - Laduemont Drive #240**

LOCATION: Laduemont Drive is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-11 (1999 Master Plan)

PROBLEM DESCRIPTION: Severe erosion at creek located in north section of backyard. A storm pipe discharges at this location, forming the start of creek. Although a part resident's backyard is being eroded, there is no threat to home or pool.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				20

PREFERRED SOLUTION: Place rip rap at end of discharge pipe and along drainage path.

COST ESTIMATE: \$40,000

ALTERNATE SOLUTION: Construct reno mattress at end of discharge pipe and extend along drainage path.

COST ESTIMATE: \$41,000

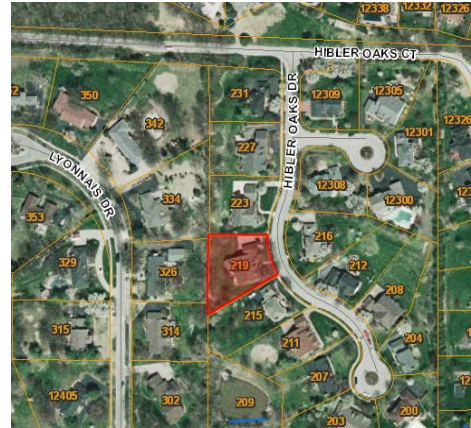


➤ **SC-9 - Hibler Oaks #219**

LOCATION: Hibler Oaks is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 2-1 (1999 Master Plan)

PROBLEM DESCRIPTION: Minor erosion observed in backyard. Tree roots have been exposed from erosion. Tributary area upstream has steep slopes. Yard has been recently seeded along drainage path.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct an area inlet at the property line of 219 and 223 Hibler Oaks to intercept runoff. The area inlet would then be connected to the existing MSD inlet using 190' of 15" RCP.

COST ESTIMATE: \$58,000

ALTERNATE SOLUTION: Reconstruct grass swale using a turf reinforced mat.

COST ESTIMATE: \$44,000



➤ **SC-10 - Balcon Estates #24,26**

LOCATION: Balcon Estates is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 3, 4 (2010 Questionnaire)

PROBLEM DESCRIPTION: 24 Balcon Estates- There is severe creek erosion at banks. Erosion is threatening yard, but not house. There is a gabion wall downstream of bridge which appears to have been washed away. There is no erosion protection available at banks.



26 Balcon Estates- Gabion wall has been installed along creek banks. There is an upstream section of creek with no gabion walls. This section has heavy erosion and trees uprooted. In backyard, runoff collects from hillside and ponding occurs. Resident has built temporary ditch to collect this runoff and convey to creek. Resident explained that creek reaches high water levels causing flooding of bridge and property. History and more info on issues are available from home owner.

**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Roadway Flooding-residential street	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				40

PREFERRED SOLUTION: Construct vegetated gabion walls upstream and downstream of existing gabion walls where erosion occurs. Construct swale with French drain to collect runoff in backyard and route to creek.

COST ESTIMATE: \$123,000

ALTERNATE SOLUTION: It is recommended to conduct a watershed analysis to better understand flow rates and volumes passing through creek.

*These solutions are spot repairs and do not resolve creek flooding. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **SC-11 - Dartagnan Court #13200**

LOCATION: Dartagnan Court is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: N/A (Added based on discussion with home owner)

PROBLEM DESCRIPTION: Per phone discussion with home owner, there is erosion at end of discharge pipe which is located on hillside. Dirt has been washed away from under pipe. Issue has been reported to MSD, but not the City of Creve Coeur



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Place rip rap at end of discharge of pipe and along drainage path.

COST ESTIMATE: \$42,000

ALTERNATE SOLUTION: Construct reno mattress at end of discharge pipe to allow for dissipation of energy at outlet.

COST ESTIMATE: \$36,000

➤ **FC-1 - Fernridge Creek between Dartagnan Court and Bellerive Estates Drive**

LOCATION: This reach of Fernridge Creek runs through a residential area near Ambois Drive.



ORIGINAL ID: 13-4 (1999 Master Plan) / 1, 15 (2010 Questionnaire)

PROBLEM DESCRIPTION: Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.

PREFERRED SOLUTION (Erosion): Construct vegetated gabions along the property banks affected by erosion.

PREFERRED SOLUTION* (Flooding):

* Fernridge Creek Flooding along Ambois Drive has no “preferred solution” *per se*.

A storm event that occurred in that location on August 23rd, 1996 flooded approximately 34 homes. The actual flooding was caused by a combination of circumstances. Following the entry of surface floodwater through basement windows and flooding basements (many of which were finished as recreation rooms etc.) the water in those basements with depths of up to 6’ entered floor drains and laundry drains, pressurizing the sanitary trunk and emerging into basements of homes that did not have openings below the floodwater elevation. In addition to the water entering the trunk sewer in that way, much apparently infiltrated through cracks or bad joints in the aging trunk sewer. In the years subsequent to the flood, MSD replaced the trunk sewer; that has likely reduced the chances of infiltration but there remains the issue of surface flooding. The “footprint” of the flood very closely followed the floodplain that is depicted on the effective Flood Insurance Rate Map (FIRM) for the area.

The solutions examined in the MSD Stormwater System Master Improvement Plan (SSMIP) for Creve Coeur Watershed included methods to prevent flooding by increasing stream capacity and to construct a major detention basin at the northwest quadrant of Mason Road and Mason Manor Drive. The costs of the proposed solutions were respectively estimated at that time (ca 1998) as \$4,611,000 and \$1,614,000. Additional studies as found in Appendix C were performed for the City of Creve Coeur following the SSMIP, but in all cases the remedies are extremely expensive.

While the cost to reduce the flood elevation is likely to remain prohibitive, floodproofing individual homes remains a alternative that may be viable.

Floodproofing of the individual homes is doable and could prevent a repeat of the damage incurred in 1996. The issue that remains is determination of what, if any, degree of participation there would be from the city. There is a logical reluctance to spend public funds on private property. However if the city does at times pay for channel and bank protection with the acknowledgment that such projects serve primarily to protect homes from flooding, then it maybe be to the city's fiscal advantage to participate in individual floodproofing at far less cost than expensive channel improvements. Unlike channel and bank improvements that require easements and 100% participation by property owners, individual owners could opt-in or –out of such a program.

Refer to Appendix C for past references in regards to this problem area.

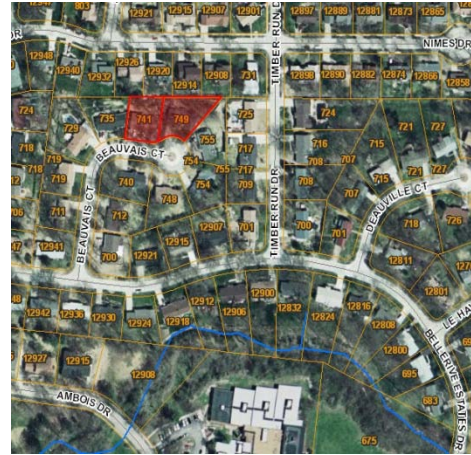


➤ **FC-2 - Beauvais Court #741, 749**

LOCATION: Beauvais Court is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 13-1 (1999 Master Plan)

PROBLEM DESCRIPTION: Original problem had five addresses affected. Per discussion and observation, Lot 735 has a new swale and area inlet constructed to collect runoff. Lot 712 and 729 have no current stormwater issue per discussion with home owners. Runoff from Nimes Drive is flooding and eroding backyards of 741 and 749. Lot 741 has greatest concern due to flooding endangering house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
Infrequent Structural Flooding-habitable first floor	45	Field Investigation	1	45
			TOTAL	85

PREFERRED SOLUTION: Construct a berm and area inlet to collect runoff and connect to nearby storm sewer with 200' of 12" RCP. Restore existing landscaping.

COST ESTIMATE: \$80,000

ALTERNATE SOLUTION: Construct a berm and swale to collect runoff and route to nearby storm sewer. Restore existing landscaping.

COST ESTIMATE: \$55,000

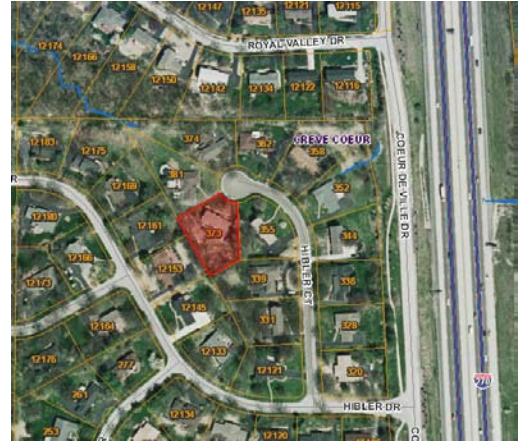


➤ **FC-3 - Hibler Court #373**

LOCATION: Hibler Court is a residential street west of Interstate 270 between Ladue and Olive.

ORIGINAL ID: 3-10 (1999 Master Plan)

PROBLEM DESCRIPTION: Concrete flume does not properly control runoff from neighboring subdivision. Flume was clogged with leaves. Home owner has placed rocks on side of flume as a barrier when water exceeds flume. Filter fabric placed in corner of yard to prevent further washout of yard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			20	

PREFERRED SOLUTION: Construct an area inlet near the beginning of each concrete flume to reduce the flow in each flume. A berm would be constructed around inlet to contain runoff to either inlet or flume.

COST ESTIMATE: \$51,000

ALTERNATE SOLUTION: Construct a berm along entire concrete flume to control runoff.

COST ESTIMATE: \$44,000



➤ **FC-4 - Country Manor Lane #12295**

LOCATION: Country Manor Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 11 (2010 Questionnaire)

PROBLEM DESCRIPTION: Significant erosion at end of discharge pipe. Resident has placed rocks and leaves in an attempt to mitigate issue. Erosion threatens nearby utility pole.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct reno mattress at end of discharge pipe to allow for dissipation of energy at outlet. Place heavy revetment at base of utility pole for protection.

COST ESTIMATE: \$49,000

ALTERNATE SOLUTION: Place rip rap at end of discharge of pipe and along drainage path. Place heavy revetment at base of utility pole for protection.

COST ESTIMATE: \$42,000



➤ **FC-5 - Halsgame Lane #12318**

LOCATION: Halsgame Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 17 (2010 Questionnaire)

PROBLEM DESCRIPTION: Minimal erosion observed along backyard fence line. Site was mostly covered in leaves and debris. Most noticeable yard erosion was evident in southwest corner of yard. Erosion does not threaten house or any structure.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

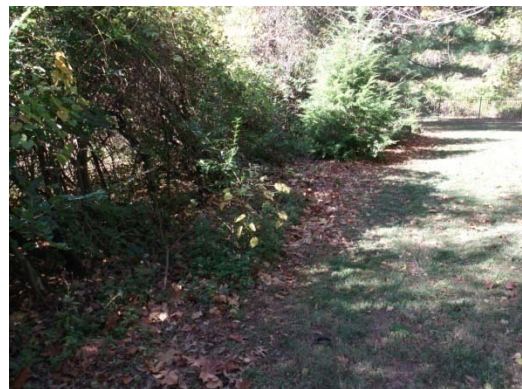
Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Reconstruct grass swale with turf reinforcement mat and route to creek.

COST ESTIMATE: \$42,000

ALTERNATE SOLUTION: Construct a new storm system to collect surface runoff and discharge to nearby creek. The system would include 1 area inlet and 260' of 18" RCP.

COST ESTIMATE: \$75,000

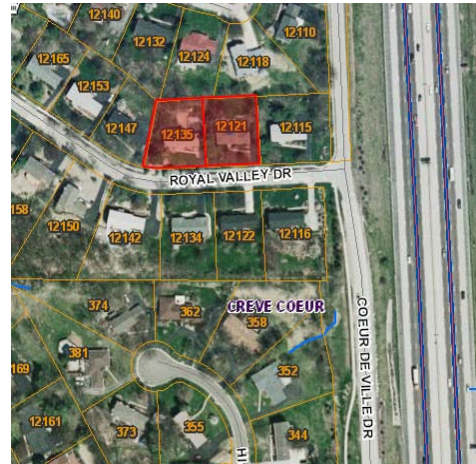


➤ **FC-6 - Royal Valley Drive #12121, 12135**

LOCATION: Royal Valley is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 26 (2010 Questionnaire)

PROBLEM DESCRIPTION: Rill erosion observed in backyard of 12121 Royal Valley. Yard has eroded most near fence line on west side of property. Surrounding tributary area appears relatively flat. Resident has place railroad ties to mitigate erosion. Backyard of lot 12135 has also been affected by runoff causing yard damage.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
			TOTAL	20

PREFERRED SOLUTION: Reconstruct grass swale with turf reinforcement mat to prevent erosion.

COST ESTIMATE: \$47,000

ALTERNATE SOLUTION: Construct a new storm system to collect surface runoff and connect to existing storm sewer. The system would include 3 area inlets and 520' of 12" RCP.

COST ESTIMATE: \$117,000



➤ **DC-1 - Tarrytown Drive #11732, 11700**

LOCATION: Tarrytown is a residential street east of New Ballas Road between Ladue and Interstate 64/40.

ORIGINAL ID: 4-8 (1999 Master Plan) / 29 (2010 Questionnaire)

PROBLEM DESCRIPTION: Original problem had three addresses affected. Per discussion and observation at 11600 Lakeshore Drive, no stormwater issue present. Evidence of severe creek erosion behind backyard fence of 11732 Tarrytown. Tree branches and other yard waste have been placed on the banks to prevent further creek erosion. Flooding appears to be main concern at 11700 Tarrytown. Resident explained that creek floods upstream and downstream of culvert. Water ponds causing a potential health issue. Resident has planted vegetation in an attempt to mitigate issue.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
TOTAL			40	

PREFERRED SOLUTION: Clear downstream area of culvert located at 11700 Tarrytown. Regrade creek bottom to ensure adequate slope. Construct heavy revetment 20' upstream and downstream of culvert. Provide a MSD creek biostabilization method consisting of a soil blanket and plantings at 11732 Tarrytown.

COST ESTIMATE: \$56,000

ALTERNATE SOLUTION: It is recommended to conduct a watershed analysis to better understand flow rates and volumes passing through creek.

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **DC-2 - Fairways Circle #631, 647**

LOCATION: Fairways Circle is a residential street east of New Ballas Road between Olive and Ladue.

ORIGINAL ID: 3-7 (1999 Master Plan)

PROBLEM DESCRIPTION: The original problem had three addresses affected. Per discussion and observation of 639 Fairways Circle, a French drain has been installed in backyard to mitigate runoff. Issues still present at 631 and 647 Fairways Circle. Runoff from hillside behind commercial properties drains to backyards where it ponds and causes yard erosion. Hillside has steep slope. Embankment at top of hill controls runoff from parking lot. Home owner at lot 647 explained that backyard runs full of water during a storm event, but has not experienced house flooding. Home owner of lot 631 has placed rock along drainage path to mitigate erosion damage.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
			TOTAL	40

PREFERRED SOLUTION: Construct an area inlet in the backyard of both lot 631 and 647. The area inlets would be routed to the existing curb inlet located at lot 631. Pipe required includes 250' of 12" RCP and 130' of 15" RCP. An additional manhole may be required between the two inlets to avoid an in ground pool.

COST ESTIMATE: \$92,000

ALTERNATE SOLUTION: Construct an area inlet in the backyard of both lot 631 and 647 that are not interconnected. Each area inlet would be connected to the existing storm sewer located along Fairways Circle. System would include 2 area inlets, 260' of 12" RCP, and possible addition of a new curb inlet.



COST ESTIMATE: \$71,000

➤ **DC-3 - Villa Coublay Drive #60**

LOCATION: Villa Coublay Drive is a residential street west of Spode Road between Ladue and Interstate 64/40.

ORIGINAL ID: 2-4 (1999 Master Plan)

PROBLEM DESCRIPTION: Significant creek erosion observed along old railroad right-of-way. Backyard surface elevation of lot 60 is approximately 25' above the creek.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Construct vegetated gabions to stabilize the tall, steep banks and prevent further erosion.

COST ESTIMATE: \$491,000

ALTERNATE SOLUTION: Regrade creek bank and provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$267,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **DC-4 - Fairways Circle #527**

LOCATION: Fairways Circle is a residential street east of New Ballas between Olive and Ladue.

ORIGINAL ID: 2-5 (1999 Master Plan)

PROBLEM DESCRIPTION: Erosion has occurred at top of bank from runoff from backyard. The eroded surface has been filled in with yard clippings. Creek along golf course discharges along side of headwall causing erosion. Stagnant water is present at headwall discharge. No evidence of damage to home owner's yard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$32,000

ALTERNATE SOLUTION: Construct a berm along the top of the bank to divert runoff to a new area inlet. Construct 60' of 12" RCP to then convey water to creek.

COST ESTIMATE: \$39,000



➤ **DC-5 - Ladue Estates Drive #5**

LOCATION: Ladue Estates is a residential street west of Spode Road between Ladue Road and Interstate 64/40.

ORIGINAL ID: 1-6 (1999 Master Plan)

PROBLEM DESCRIPTION: Minor erosion observed along backyard near landscaping. Landscaping does not appear damaged. Home owner has placed yard waste in backyard to possibly alleviate problem. Honeysuckle vegetation is present.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Install turf reinforcement mat and restore vegetation along back slope of property.

COST ESTIMATE: \$28,000

ALTERNATE SOLUTION: Construct a berm along the top of the bank to divert runoff to a new area inlet. Construct 220' of 12" RCP to then convey water to existing curb inlet.

COST ESTIMATE: \$66,000

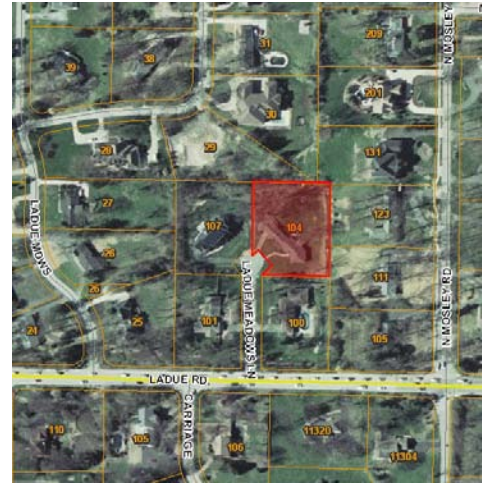


➤ **DC-6 - Ladue Meadows Lane #104**

LOCATION: Ladue Meadows Lane is a residential street east of New Ballas between Olive and Ladue.

ORIGINAL ID: 20 (2010 Questionnaire)

PROBLEM DESCRIPTION: Rill erosion observed along west side of property line contributed from runoff of Ladue Meadows. Yard damage observed in backyard, but unable to determine if caused from ponding water. It may be a result from area inlets in backyards of Mosley not being capable of handling flow. Base of MSD inlet at southwest corner of property has eroded.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
			TOTAL	20

PREFERRED SOLUTION: Construct an area inlet to collect runoff from Ladue Meadows and connect to the existing curb inlet. Piping would include 150' of 12" RCP.

COST ESTIMATE: \$48,000

ALTERNATE SOLUTION: Reconstruct grass swale using a turf reinforced mat.

COST ESTIMATE: \$39,000

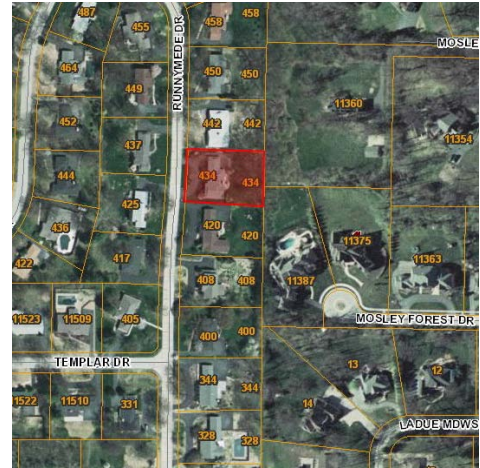


➤ **DC-7 - Runnymede Drive #434**

LOCATION: Runnymede Drive is a residential street east of New Ballas between Olive and Ladue.

ORIGINAL ID: 27 (2010 Questionnaire)

PROBLEM DESCRIPTION: Runoff from neighboring subdivision appears to be flowing down south side of property causing minor rill erosion and marshy ground conditions. Home owner has installed a drain to mitigate issue. Ponding may also be possible on north side of property near driveway, although not evident during site visit.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

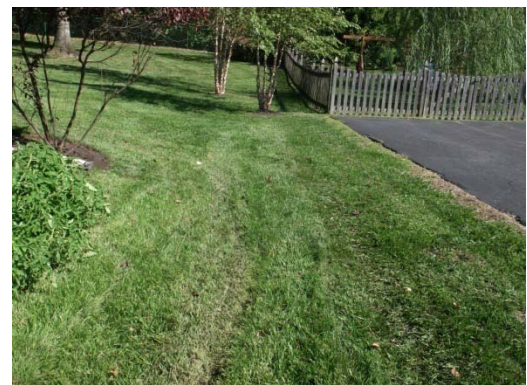
Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
			TOTAL	20

PREFERRED SOLUTION: Construct 2 area inlets in the backyard of lot 434. The area inlets would be routed to the existing storm inlet. Pipe required includes 300' of 12" RCP.

COST ESTIMATE: \$74,000

ALTERNATE SOLUTION: Regrade backyard and construct a swale to convey runoff to street. Plant vegetation in and around swale to reduce potential for ponding.

COST ESTIMATE: \$49,000



➤ **WC-1 - Mosely Acres Drive #10, 11, 12**

LOCATION: Mosely Acres is a residential street east of Mosley between Olive and Ladue.

ORIGINAL ID: 7-1 (1999 Master Plan)

PROBLEM DESCRIPTION: Overtopping of dam causing flooding at lot 10. Spillway (overflow) of dam is covered with debris and vegetation. Earth dam on east side of Mosley Lake covered in vegetation. Shore erosion along south side of lake.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				30

PREFERRED SOLUTION: Clear spillway area of debris and vegetation to allow overflow to function properly. Raise dam embankment to prevent flooding. Place rip rap along areas of dam that have been affected by shore erosion.

COST ESTIMATE: \$49,000

ALTERNATE SOLUTION: There is no other feasible alternative.



➤ **WC-2 - Graeser Lane #11076**

LOCATION: Graeser Lane is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 16 (2010 Questionnaire)

PROBLEM DESCRIPTION: Flooding occurs in front yard, despite the rip rap channel that exists, intended to collect flow. Water has entered through home's foundation according to resident. Resident explained that newly remodeled homes on Graeser Lane have created additional runoff. Resident has installed drain in sidewalk as well as French drain around front of house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct a new curb along resident's property to contain street runoff. Portion of street may need to be replaced to allow runoff to discharge through rip rap channel.

COST ESTIMATE: \$61,000

ALTERNATE SOLUTION: Install a trench grate in street to collect runoff. The trench grate would be routed to the nearby rip rap channel.

COST ESTIMATE: \$49,000



➤ **WC-3 - Mosley Acres #16**

LOCATION: Mosley Acres is a residential street east of Mosley Road between Olive and Ladue.

ORIGINAL ID: 23 (2010 Questionnaire)

PROBLEM DESCRIPTION: Mosley Acres has been resurfaced (asphalted) causing the curb and gutter not to function properly. Minor erosion damage observed 1'-2' next to street curb. Resident has seeded area. Other properties along Mosley Acres have similar problem.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	3	30
			TOTAL	30

PREFERRED SOLUTION: Remove and replace approximately 400' of curb and gutter. Seed resident's yards that have been damaged by erosion.

COST ESTIMATE: \$53,000

ALTERNATE SOLUTION: There is no other feasible alternative.



➤ **WC-4 - Mystic Meadows Lane #121**

LOCATION: Mystic Meadows is a residential street east of Mosley between Olive and Ladue.

ORIGINAL ID: 24 (2010 Questionnaire)

PROBLEM DESCRIPTION: Erosion observed along south and north property line (with most severe along south side). Evidence of ponding on south side. Home owner has constructed a berm to control water. Gully erosion at upstream side of property. Home owner has built a wall along driveway to prevent water from flowing onto driveway. A drain has also been installed in attempt to collect a portion of runoff, however, it is undersized. Priority shall be given to the south side of property.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Moderate Risk Structural Erosion-miscellaneous structures	25	Field Investigation	1	25
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				35

PREFERRED SOLUTION: Construct two area inlets in the backyard to collect runoff from adjacent properties. Each area inlet would be routed to the existing storm sewer. The system would include two area inlets and approximately 500' of 15" RCP.

COST ESTIMATE: \$136,000

ALTERNATE SOLUTION: Construct two grass swales to intercept runoff from the north and south side of property and discharge to street of Mystic Meadows.

COST ESTIMATE: \$74,000



➤ **WC-5 - Tureen Drive #11205**

LOCATION: Tureen Drive is a residential street east of Mosley Road between Olive and Ladue.

ORIGINAL ID: 30 (2010 Questionnaire)

PROBLEM DESCRIPTION: Backyard has slight erosion. The site had been disturbed by recent construction of a new retaining wall and was difficult to assess erosion conditions in backyard. Erosion observed at base of MSD area inlet. Resident explained that erosion in backyard has been worse in years past. Resident also explained that a sink hole is present in backyard along berm. Additional photos and history of the issues are available from home owner if needed.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Reconstruct natural swale to convey overland flow to area inlet. Install turf reinforcement mat along swale to prevent erosion. Further investigation is needed to verify if a sink hole exists.

COST ESTIMATE: \$45,000

ALTERNATE SOLUTION: Create a natural stream/pool environment in place of existing storm system and swale. However, this alternative was deemed uneconomical.



➤ **WC-6 - Wedgewood Lane #6, 7**

LOCATION: Wedgewood Lane is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 31, 32 (2010 Questionnaire)

PROBLEM DESCRIPTION: Per discussion with home owner of 6 Wedgewood, runoff from new homes on Deaver and Colonial Hills Parkway is adversely flooding backyard of 6 and 7 Wedgewood after every rain event. Water ponds for several days before draining. Resident explained that water has never entered home, but could if his French drain system ever clogged. Resident also explained that slight erosion occurs on the hillside of backyard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL				30

PREFERRED SOLUTION: Construct a new storm system to collect surface runoff and discharge to the existing storm system. The system would include 2 area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.

COST ESTIMATE: \$96,000

ALTERNATE SOLUTION: Construct a grass swale with turf reinforcement mat and route to street curb of Wedgewood.

COST ESTIMATE: \$54,000



➤ **WC-7 - Windrush Creek East #6**

LOCATION: Windrush Creek East is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 33 (2010 Questionnaire)

PROBLEM DESCRIPTION: Severe channel erosion observed in front yard. Resident explained that second pipe culvert was added after new home construction was completed upstream of creek. To relieve street flooding, new curb inlets have been constructed. This contributed additional flow to channel. Resident explained that creek has reached water levels up to top of bank. Erosion was visible on north side of headwall.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Improve existing swale by increasing width and installing turf reinforcement mat. Remove the existing two pipe culverts and replace with one box culvert.

COST ESTIMATE: \$114,000

ALTERNATE SOLUTION: Construct two parallel 24" RCP pipes to replace the existing open channel. Remove and replace the existing culverts and regrade yard as needed.

COST ESTIMATE: \$100,000



➤ **WC-8 - Ladue Estates Drive #71, 73**

LOCATION: Ladue Estates Drive is a residential street west of Spode between Ladue and Interstate 64/40.

ORIGINAL ID: 18 (2010 Questionnaire)

PROBLEM DESCRIPTION: Backyard between lot 71 and 73 was soggy during site visit. No erosion was observed. Resident of lot 71 explained that water runs through backyards and certain areas pond due to insufficient slope of land. At times, runoff diverts from backyard path and drains between the houses. Resident of lot 73 placed rock landscaping around trees as a possible measure to protect trees from flooding.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
			TOTAL	20

PREFERRED SOLUTION: Regrade backyards to provide adequate slope for drainage. Seed lawns after grading is complete.

COST ESTIMATE: \$52,000

ALTERNATE SOLUTION: Construct a storm sewer system to collect runoff and route to existing storm inlet. The system would include 2 area inlets and 300' of 12" RCP.

COST ESTIMATE: \$74,000



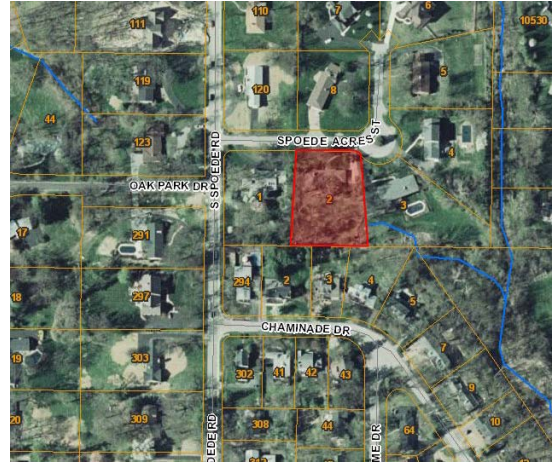
➤ **MS-1 - Spoele Acres Street #2**

LOCATION: Spoele Acres is a residential street east of Spoele between Ladue and Interstate 64/40.

ORIGINAL ID: 4-6 (1999 Master Plan) / 28 (2010 Questionnaire)

PROBLEM DESCRIPTION: Yard on west side of lot 2 has been damaged from runoff. Backyard has been eroded from runoff from adjacent yards. An area inlet exists in backyard, but runoff does not drain properly according to resident. Backyard of lot 1 has same issue in which runoff drains into yard.

Home owner has installed a drain to alleviate problem. Lot 3 has no evidence of erosion issues in backyard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				20

PREFERRED SOLUTION: Reconstruct natural swale to convey overland flow to area inlet. Install reinforcement mat along swale to prevent erosion. To mitigate erosion on west side of property, construct a curb along Spoele Acres to contain street runoff.

COST ESTIMATE: \$67,000

ALTERNATE SOLUTION: Create a natural stream/pool environment in place of existing storm system and swale. However, this alternative was deemed uneconomical.



➤ **MS-2 - Spoede View Court #10677**

LOCATION: Spoede View Court is a residential street east of Spoede Road between Ladue and Interstate 64/40

ORIGINAL ID: 4-7 (1999 Master Plan)

PROBLEM DESCRIPTION: Creek erosion evident along banks behind 10677 Spoede View Court. Severe creek erosion was observed along east side of creek, immediately downstream of culvert headwall. Baffle structures exist at culvert discharge.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Construct vegetated gabions to stabilize the creek banks and prevent further erosion. Heavy revetment is recommended on the east side of creek just downstream of culvert.

COST ESTIMATE: \$214,000

ALTERNATE SOLUTION: Regrade creek bank and provide a MSD creek biostabilization method consisting of a soil blanket and plantings. Heavy revetment is recommended on the east side of creek just downstream of culvert.

COST ESTIMATE: \$106,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.

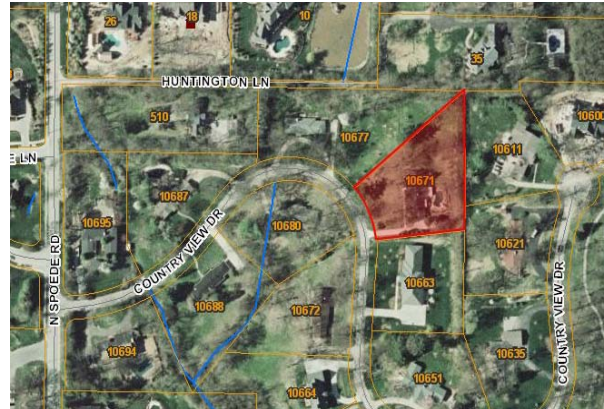


➤ **MS-3 - Country View Drive #10671**

LOCATION: Country View Drive is a residential street east of Spoele Road between Olive and Ladue.

ORIGINAL ID: 3-20 (1999 Master Plan) / 12 (2010 Questionnaire)

PROBLEM DESCRIPTION: After discussion with home owner, flooding and ponding occurs in backyard after every rainfall event. There is an insufficient drainage path for runoff from adjacent properties. Home owner installed six drains in an attempt to mitigate problem. Original swale has been disturbed by subsequent development. Swale is no longer functional. Home owner experiences no flooding into house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Construct grass swale to intercept runoff and discharge to street of Country View Drive.

COST ESTIMATE: \$47,000

ALTERNATE SOLUTION: Construct a new storm system to convey water directly to creek. The system would consist of an area inlet, manhole, and 525' of 12" RCP.

COST ESTIMATE: \$115,000

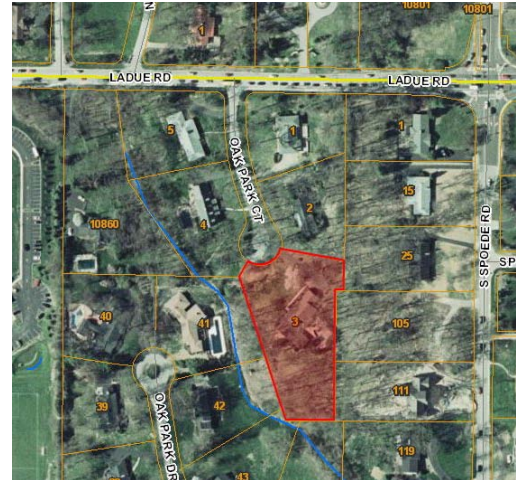


➤ **MS-4- Oak Park Court #3**

LOCATION: Oak Park Court is a residential street west of Spoede Road between Ladue Road and Interstate 64/40.

ORIGINAL ID: 1-8 (1999 Master Plan)

PROBLEM DESCRIPTION: End of street has potential to flood. Curb and gutter upstream of grate inlet covered with debris and leaves. A non-standard grate inlet was completely covered with debris and leaves when arriving at site. Runoff is collected at bottom of street before it exits through either the inlet or paved flume. The grate inlet discharges to the side of yard #3 before entering nearby creek. Side yard #3 appears to drain properly to creek. Riprap has been placed along drainage path.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

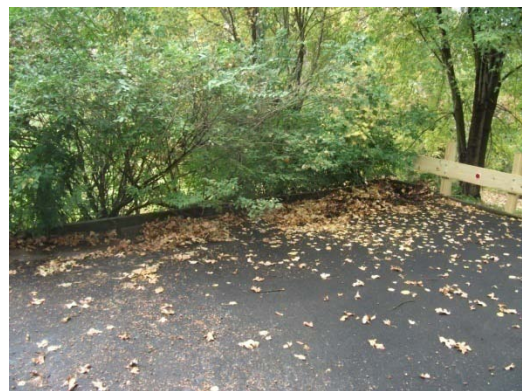
Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Roadway Flooding-traffic obstruction on residential streets	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12" RCP to convey runoff to creek.

COST ESTIMATE: \$47,000

ALTERNATE SOLUTION: Remove existing grate inlet. Construct grass swale to convey runoff to creek.

COST ESTIMATE: \$36,000

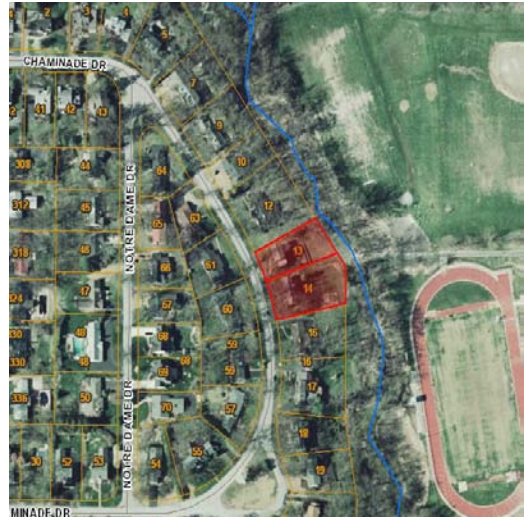


➤ **MS-5 - Chaminade Drive #13, 14**

LOCATION: Chaminade Drive is a residential street east of Spoele between Ladue and Interstate 64/40.

ORIGINAL ID: 7 (2010 Questionnaire)

PROBLEM DESCRIPTION: The problem area is located near the pedestrian bridge leading to Chaminade High School. Creek retaining wall upstream of pedestrian bridge has collapsed. Retaining wall downstream of bridge is cracked and eroded at bottom. There is significant creek erosion along upstream and downstream banks. Many tree roots have been exposed. Concrete slabs appear to have been placed under bridge to protect bridge piers.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Moderate Risk Structural Erosion-miscellaneous structures-bridge	25	Field Investigation	1	25
			TOTAL	25

PREFERRED SOLUTION: Clear and demolish damaged retaining wall. Install rip rap 50' upstream and downstream of bridge.

COST ESTIMATE: \$63,000

ALTERNATE SOLUTION: Clear and demolish damaged retaining wall. Provide a MSD creek biostabilization method consisting of a soil blanket and plantings 50' upstream and downstream of bridge.

COST ESTIMATE: \$60,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **MS-6 - Colonial Hills Drive #77**

LOCATION: Colonial Hills is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 9 (2010 Questionnaire)

PROBLEM DESCRIPTION: Resident's yard has visible erosion damage. There is gully erosion along west side of property line. Significant channel erosion was observed on downstream side of culvert. Three drainage pipes from neighboring property discharge onto resident's yard. Marshy and soft ground conditions were present after a week with no rainfall. Location of damage is greater than 100 feet from house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				20

PREFERRED SOLUTION: Construct a pipe system in place of the existing swale. Route the system to a nearby MSD inlet.

COST ESTIMATE: \$169,000

ALTERNATE SOLUTION: Reconstruct the existing grass swale with a heavy turf reinforcement mat. Plant vegetation in areas susceptible to ponding.

COST ESTIMATE: \$74,000



➤ **MS-7 - Larkin Avenue #859**

LOCATION: Larkin Avenue is a residential street west of Spodee between Olive and Ladue.

ORIGINAL ID: 21 (2010 Questionnaire)

PROBLEM DESCRIPTION: Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				20

PREFERRED SOLUTION: Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.

COST ESTIMATE: \$43,000

ALTERNATE SOLUTION: Construct a storm system in place of existing swale. The system would include 3 curb inlets, 400' 12" RCP, and 550' 15" RCP. New curb and gutter would also be constructed to control street runoff.

COST ESTIMATE: \$350,000



➤ **MS-8 - Middlebrook Lane #3 - 6**

LOCATION: Middlebrook Lane is a residential street east of Spoede between Olive and Ladue.

ORIGINAL ID: 22 (2010 Questionnaire)

PROBLEM DESCRIPTION: Bank washout was observed on both upstream and downstream of culvert. Street runoff from Middlebrook Lane has washed away dirt around culvert, exposing tree roots. North side of culvert was full of debris and tree limbs. Rip rap has been placed near street to prevent further erosion.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

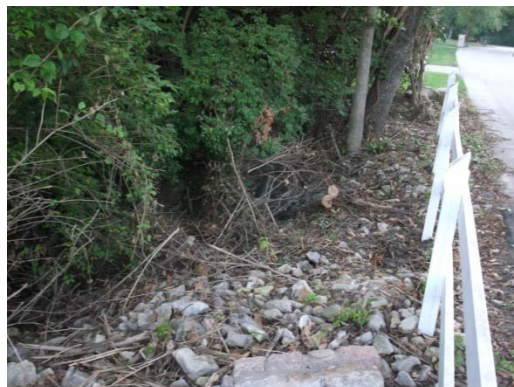
Category	Pts.	Documentation	Lots Affected	Points Allotted
High Risk Roadway Erosion-residential	25	Field Investigation	1	25
			TOTAL	25

PREFERRED SOLUTION: Improve upstream and downstream approach by placing rip rap. Place rip rap along street surface as well.

COST ESTIMATE: \$53,000

ALTERNATE SOLUTION: Improve upstream and downstream approach with a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$50,000



➤ **MS-9 - Rondelay Drive #10835**

LOCATION: Rondelay Drive is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 25 (2010 Questionnaire)

PROBLEM DESCRIPTION: Channel erosion observed upstream of MSD inlet. Home owner explained that runoff from adjacent properties has increased over the years causing erosion damage to yard. Home owner has installed two drains to alleviate flooding from street. Street has been overlaid with asphalt causing runoff to spill over street curb.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
			TOTAL	20

PREFERRED SOLUTION: Improve existing swale by installing turf reinforcement mat.

COST ESTIMATE: \$34,000

ALTERNATE SOLUTION: Construct 2 area inlets upstream of existing MSD inlet to intercept runoff. Connect the 2 new inlets to the existing storm sewer with 200' of 12" RCP.

COST ESTIMATE: \$70,000

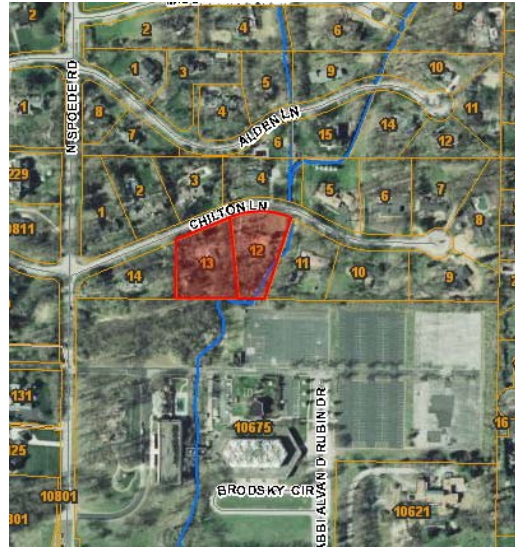


➤ **MS-10 - Chilton Lane #12 - 13**

LOCATION: Chilton Lane is a residential street east of Spoede between Olive and Ladue.

ORIGINAL ID: N/A (Added based on issue identified in Stormwater Committee Meeting)

PROBLEM DESCRIPTION: Erosion at culvert is threatening roadway. Active erosion on south side of Chilton Lane at culvert observed. There are no headwalls. The pipe outlet is damaged. There are several large tree branches/trunks in stream. The pipe appears to be a 24" CMP.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
High Risk Roadway Erosion-residential	25	Field Investigation	1	25
TOTAL				25

PREFERRED SOLUTION: Replace existing culvert with a new 3' x 3' box culvert. Install headwalls and place rip rap 10' upstream and downstream.

COST ESTIMATE: \$69,000

ALTERNATE SOLUTION: Replace existing culvert with a new 36" CMP. Install headwalls and place rip rap 10' upstream and downstream.

COST ESTIMATE: \$64,000



➤ **PC-1 - Tealwood North Drive #47**

LOCATION: Tealwood is a residential street in the Tealwood subdivision east of Lindbergh between Ladue and Olive.

ORIGINAL ID: 5-4 (1999 Master Plan)

PROBLEM DESCRIPTION: Slight erosion at culvert headwall and outlet. Timber bracing on upstream side. Resident says it was put there to help shore-up the headwall. According to resident, there are no flooding problems. Washout on right descending bank (looking downstream) approximately 60' upstream of culvert. Banks generally well-vegetated except for washout area.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
High Risk Roadway Erosion-residential	25	Field Investigation	1	25
			TOTAL	25

PREFERRED SOLUTION: Replace existing culvert.

COST ESTIMATE: \$62,000

ALTERNATE SOLUTION: Construct heavy revetment 20' upstream and downstream of culvert to prevent erosion. This solution helps with erosion, but does not improve the structural integrity of the culvert.

COST ESTIMATE: \$23,000



5.0 PRIORITIZATION

Problem areas were further analyzed using a benefit-cost system to determine the cost-effectiveness of each.

5.1 Methodology

One of the goals of the City's Stormwater Master Plan update is to evaluate the existing prioritization methodology and to recommend improvements to the system. To determine the best prioritization plan, the City's current prioritization system was compared to other methods being used. In general, most of the methods fell into one of the categories listed below.

- prioritization formula
- value matrix
- benefit vs. cost

In the sections that follow each methodology is described in more detail along with their advantages and disadvantages.

5.1.1 Current Prioritization Method

The City's existing prioritization methodology is a simple numeric rating system using a scale of 13-1 to prioritize stormwater problems. The rankings are based primarily on threats to property or vehicular access. Table 5-1 is the original City prioritization list.

Table 5-1 - City of Creve Coeur -Original Stormwater Priority Ranking Scale

Rank	Description
13	Flooding where water enters a habitable building
12	Flooding which causes damage to public or private streets
11	Flooding which causes obstruction of traffic on public streets
10	Flooding where water enters a garage or outbuilding
9	Flooding which causes obstruction of traffic on private streets

Table 5-1 (cont.) - City of Creve Coeur - Original Stormwater Priority Ranking Scale

Rank	Description
8	Flooding which causes damage to public or private utilities
7	Stream flow causing significant erosion or sedimentation problems and threatening a habitable building
6	Stream flow causing significant erosion and threatening a garage or outbuilding
5	Stream flow causing significant erosion and threatening a fence, wall or landscaping
4	Stream flow causing significant erosion and threatening a maintained grassed area
3	Flooding or ponding on yards and lots only
2	Stream flow that causes minor erosion or sedimentation problems in maintained areas or appreciable erosion in unmaintained areas, i.e. wooded ravines
1	Minor isolated drainage problems such as clogged or inadequate street inlets

Although this type of scale is the easiest to understand and explain to the public, it does have several drawbacks. For instance this type of ranking does not take into account the number of structures affected nor does it address the costs associated with resolving the problem. Furthermore it does not give a relative merit between projects since several projects can have the same priority ranking.

5.1.2 Other Methodologies

As mentioned above, the other methods considered for comparison fell into one of the categories listed below.

- prioritization formula
- value matrix
- benefit vs. cost

Each is discussed in more detail on the following page.

5.1.2.1 Prioritization Formula

Salt Lake City, Utah prioritized their stormwater projects using the following “prioritization formula”:

$$\text{priority score} = (B+C+D+E+F+G) - (A/H)$$

where: A = cost

B = damage estimate (high-2, medium-1, low-0)

C = potential loss of life (yes-5, no-0)

D = commercial building inundation (high-2, medium-1, low-0)

E = residential building inundation (high-2, medium-1, low-0)

F = inundation of streets > 2' (yes-1, no-0)

G = water quality objectives met (yes-1, no-0)

H = approximate area of flooding reduced by project (acres)

The variables included in this formula were selected by a stormwater committee based on what they thought was important to the citizens of Salt Lake City. The formula ranks each project based on the amount of flooding damage estimated without the project, the possibility of the loss of life if the project is not built, the amount of commercial and residential building inundation, the amount of street inundation, whether water quality objectives are met by the project, and a factor that accounts for the cost of the project. Each of the factors (B-G) are added together and then the cost factor (A/H) is subtracted from the value to determine the prioritization value. In this way the cost is considered a negative factor. The total project cost is divided by the approximate area of flooding that would be eliminated by implementing the proposed improvements so that large projects that reduce large areas of flooding would not be penalized by their high cost.

The main problem with this method is that it is complicated and difficult to explain to the public. Many citizens have an aversion to mathematics and the need to deal with a mathematical equation is antagonizing. To some people this type of formula would lead to a feeling of having something to hide. Another drawback is that their criteria are too vague. High, medium, and low need to be further defined. Also this formula only deals with flooding and it would be further complicated by adding variables to include erosion.

5.1.2.2 Value Matrix

A value matrix is a common way to rank projects. Criteria are chosen to prioritize the projects. Each of these is given a weight that reflects their importance in the community. Then each project is given a rating within the project ranking criteria. The rating is based on a set of parameters under each criterion. An example is shown in Table 5-2, from the stormwater prioritization matrix used in Columbus, Ohio.

Table 5-2 - Ranking a Project Using a Value Matrix - City of Columbus, Ohio

	Health & Safety	No. of People Affected	Size of Area Affected	Years Problem Has Existed	Damage	Leverage of Dollars
Weight	5	4	3	2	4	1
Project Rating	10	7	3	5	6	1
Wt. x Rating	50	28	9	10	24	1
Project Score	(equals the sum of wt. x rating) = 122					

In the example, the category “Years Problem has Existed” was given a “weight” of 2; the ratings within that category were as follows: greater than 40 years, 10 points; 20 to 40 years, 7 points; 10 to 19 years, 5 points; 1 to 9 years, 3 points; and less than one year, 1 point. The project being ranked in this example had existed for 14 years, therefore it was given a rating of 5 points.

This is a method that ranks projects objectively and fairly. It has the capability of allowing the community to select criteria that reflect their priorities. However, this method can be difficult to explain and hard for the public to understand.

5.1.2.3 Benefit vs. Cost

In this type of system an attempt is made to assess the benefits of each project and compare those to its cost of construction. Benefits are usually assigned by a point system that can be modified by the community doing the ranking. The benefit point assignment example shown in Table 5-3 on the next page is taken from a prioritization plan used in Maryland Heights.

			Severe	High	Moderate
		Type of structure threatened	Risk	Risk	Risk
		habitable structures, attached garages, office, commercial, or warehouses	600	150	25
		misc. structure-includes patio, deck, pool, detached garage, paved surface	50	13	5
		fences, sheds	25	6	2
		Yard erosion - top of bank (last five years)		> 4 ft.	2 to 4 ft.
		Points are allotted for yard erosion - top-of-bank based upon		100	25
		the amount of yard lost to creek erosion in the past five years			
		Yard erosion - drainage flow path (ruts, rivulets, kills vegetation)		Yes	No
		Points are allotted for yard erosion-drainage flow path		2	0
		based upon whether or not this process is evident			
		1.4 Erosion Threatening Roadway			
		Points are allotted for each 250 ft length of road affected			
		Single intersections count as two length of road affected			
		Severe erosion risk is defined as actively eroding bank within 10 feet of roadway			
		High erosion risk is defined as actively eroding bank within 11 to 40 feet of roadway			
		Moderate erosion risk is defined as actively eroding bank within 41 to 75 feet of roadway			
			Severe	High	Moderate
		Type of roadway threatened	Risk	Risk	Risk
		arterial	1000	250	50
		collector	800	200	25
		residential	600	150	10
		1.5 Erosion Threatening Utility			
		Points are allotted for each type of structure threatened			
		Severe erosion risk is defined as actively eroding bank within 25 feet of structure			
		High erosion risk is defined as actively eroding bank within 26 to 50 feet of structure			
		Moderate erosion risk is defined as actively eroding bank within 51 to 100 feet of structure			
			Severe	High	Moderate
		Type of structure threatened	Risk	Risk	Risk
		utility pole, sanitary sewer, gas, or water main	50	25	10
		2.0 SECONDARY BENEFITS OF STORMWATER PROJECTS			
				Unit Size	Points
		2.1 Public Multi-use Parks and/or Recreational Facility		min. 1 acre	10
		2.2 Intangible/Miscellaneous Factors		maximum of	
		other safety/health concerns addressed		200 points to be	
		increase in tax base		assigned by	
		reduction in O&M costs		evaluator and	
		aesthetic improvements		approved by the	
				stormwater	
				committee	
		3.0 PREVENTIVE POINTS			
		Points are allotted according to the above point system only when long-term damage is both			
		predictable and preventable. That point total is then discounted 50%			

To assign a ranking, the benefit points are divided by the cost of the project (in thousands of dollars). Below is a sample benefit point criteria table for a project in Maryland Heights that illustrates how it is used in prioritization.

Sample Benefit Point Allocation

**STORMWATER IMPLEMENTATION PLAN
PROJECT BENEFIT POINTS – DOCUMENTATION**

PROJECT: Alan Shepard/Saturn (Midland Creek N. Trib Flooding)				
Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Basement Flooding	50	Field Investigation	3	150
Yard Flooding within 25' of a habitable structure	10	Field Investigation	10	100
Occasional Flooding – Residential Street	50	Field Investigation	2	100
Preventive Points	125	"Conservation Stormwater Management Reconnaissance"	see below	125
TOTAL				475

Remarks/Assumptions:

Preventive points were added for the installation of grade controls and bank restoration upstream of the culvert. Opening the culvert will increase velocities in this reach and cause instability in that section of the creek. Points were allocated for Moderate Risk Erosion affecting 10 lots (25 x 10 = 250 points) discounted 50% as outlined in the Maryland Heights Stormwater Implementation Plan Benefit Points Table.

Sample Project Prioritization

PROJECT	STORM WATER COSTS (in thousands)	BENEFIT POINTS	BENEFITS PER THOUSAND \$	RANK
Venus Lane	333	325	0.98	1
11021 Saturn	155	150	0.97	2
Alan Shepard/Saturn (N. Trib flooding)	730	475	0.65	3
11767 Lackland	146	75	0.51	4
Midland Ck. w/ of Fee Fee Rd.	656	188	0.29	5
Vago Park Drainage	128	12	0.09	8
12022 Weshill	139	12	0.09	9
12014 Glenpark	150	10	0.07	10
Essex Tributary Flooding	1306	20	0.02	11

To assign a ranking, the benefit points are divided by the cost of the project (in thousands of dollars). Below is a sample benefit point criteria table for a project in Maryland Heights that illustrates how it is used in prioritization.

Sample Benefit Point Allocation

STORMWATER IMPLEMENTATION PLAN PROJECT BENEFIT POINTS – DOCUMENTATION

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Yard Flooding within 25' of a habitable structure	10	Field Investigation	10	100
Occasional Flooding – Residential Street	50	Field Investigation	2	100
Preventive Points	125	“Conservation Stormwater Management Reconnaissance”	see below	125
TOTAL				475

Remarks/Assumptions:

Preventive points were added for the installation of grade controls and bank restoration upstream of the culvert. Opening the culvert will increase velocities in this reach and cause instability in that section of the creek. Points were allocated for Moderate Risk Erosion affecting 10 lots (25 x 10 = 250 points) discounted 50% as outlined in the Maryland Heights Stormwater Implementation Plan Benefit Points Table.

Sample Project Prioritization

PROJECT	STORM WATER COSTS (in thousands)	BENEFIT POINTS	BENEFITS PER THOUSAND \$	RANK
Venus Lane	333	325	0.98	1
11021 Saturn	155	150	0.97	2
Alan Shepard/Saturn (N. Trib flooding)	730	475	0.65	3
11767 Lackland	146	75	0.51	4
Midland Ck. w/ of Fee Fee Rd.	656	188	0.29	5
Vago Park Drainage	128	12	0.09	8
12022 Weshill	139	12	0.09	9
12014 Glenpark	150	10	0.07	10
Essex Tributary Flooding	1306	20	0.02	11

5.1.3 Conclusion

It is our recommendation that the City of Creve Coeur adopt a benefit/cost approach to rank their stormwater projects. The system is being used with great success by both the City of Maryland Heights and the Metropolitan St. Louis Sewer District. Project benefits are assigned by a point system that can be selected by the community doing the ranking and, as a result, reflect the City of Creve Coeur's values.

This type of methodology minimizes subjective factors and prioritizes projects in an equitable and cost-effective manner that produces consistent results independent of the evaluator. This prioritization scheme is easily understood and accepted by the community and its objectivity eliminates concerns that socio-political factors would influence the actual implementation of projects. This transparency insulates staff and government officials from pressures unrelated to project merit and pre-empts charges of favoritism.

5.2 Cost Estimates

A cost estimate was computed for each proposed solution. The cost estimate provides an itemized breakdown of each item (i.e. area inlet, excavation, compacted backfill). Unit prices were based on MSD's current unit prices as found in Appendix D. Furthermore, contingency costs were applied to each alternative to account for unanticipated costs. Cost estimates for each project are found in Appendix E.

5.3 Benefit Points

After evaluation of other methods, it was decided that the benefit point system from the Metropolitan St. Louis Sewer District be implemented to provide a means of prioritizing each problem site. This was done, in part, because MSD is the jurisdictional authority for stormwater in the St. Louis Metropolitan Area and a sometimes partner in stormwater projects. As such, a plan compatible with theirs seemed prudent.

As seen in Table 5-4, points were awarded to each site based on the severity and frequency of the flooding and/or erosion. For example, frequent habitable first floor flooding receives 300 points/unit whereas infrequent yard flooding receives 2 points/lot.

5.4 Benefit-Cost Analysis

After reviewing benefit points and cost estimates of each problem, a prioritization of the sites was determined. The benefit-cost ratio was computed by dividing the benefit points

Table 5-4
Creve Coeur Creek Watershed
Benefit Points

	<u>Points</u>	<u>Units</u>
Frequent Structural Flooding (15 Year Flood)		
Habitable first floor	300	Unit
Basements	200	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	50	Unit
Yard flooding	10	Lot
Industrial building	300	2500 sf
Frequent Roadway Flooding (15 Year Flood)		
Emergency access restricted to any habitable structure	200	Lot
Traffic obstruction on arterial streets	50	250 ft
Traffic obstruction on collector streets	25	250 ft
Traffic obstruction on residential streets	10	250 ft
Infrequent Structural Flooding (100 Year Flood)		
Habitable first floor	45	Unit
Basements	30	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	7	Unit
Yard flooding	2	Lot
Industrial building	45	2500 sf
Infrequent Roadway Flooding (100 Year Flood)		
Emergency access restricted to any habitable structure	30	Lot
Traffic obstruction on arterial streets	7	250 ft
Traffic obstruction on collector streets	4	250 ft
Traffic obstruction on residential streets	2	250 ft
High Risk Structural Erosion (within 25 feet of structure)		
Habitable structures	200	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	100	Unit
Industrial buildings	200	2500 sf
High Risk Roadway Erosion (within 25 feet of structure)		
Arterial	100	250 ft
Collector	50	250 ft
Residential	25	250 ft
Low Risk Structural Erosion (greater than 100 feet from structure)		
Yard Erosion	10	Lot
Moderate Risk Structural Erosion (within 26 to 100 feet of structure)		
Habitable structures	50	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	25	Unit
Industrial buildings	50	2500 sf
Moderate Risk Roadway Erosion (within 26 to 100 feet of structure)		
Arterial	25	250 ft
Collector	13	250 ft
Residential	6	250 ft

by the cost, in thousands of dollars. The most cost-effective project will have the highest ratio value. Table 5-5 lists each project, its cost, benefit points, and benefit cost per thousand dollars. Table 5-6 sorts the projects in descending order from highest benefit cost ratio to lowest. The highest ranked project is FC-2 because it was the most efficient in terms of most benefits per the cost. Table 5-7 sorts the projects by original classification ID number pertaining to the 1999 Study or 2010 Questionnaire.

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
CC-1	5-8	Fernview Drive #1009	Erosion at discharge pipe that drains to creek.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$52,000	10	0.19
CC-2	5-8	Fernview Drive #1020, 1028	Yard erosion in backyard of 1020 and 1028 Fernview Drive.	Construct grass swale using turf reinforcement mat.	\$39,000	20	0.51
CC-3	3-2	Fernway Lane #928	Ponding in backyard of 928 Fernway Lane at bottom of hillside.	Clear openings of area inlet and regrade backyard.	\$63,000	17	0.27
CC-4	13	Ferntop Lane #12970	Creek flooding and erosion behind backyard of 12970 Ferntop Lane.	Place rip rap along channel and build up creek banks.	\$71,000	20	0.28
CC-5	14	Fernway Lane #12921	Ponding in backyard of 12921 Fernway Lane; runoff is rotting wood retaining wall.	Reconstruct swale to existing conditions; regrade yard and remove retaining wall.	\$45,000	10	0.22
SC-1	13-9, 5, 6, 8	Chasselle Lane #1, 3, 5 and Chamblee Lane #9, 13, 15, 25	Creek flooding and severe erosion - affecting seven homes along Chasselle and Chamblee Lane.	Construct a berm and place rip rap in areas affected by erosion.	N/A	N/A	N/A
SC-2	5-7	Ladue Woods Drive #12229	Flooding and erosion in backyard of 12229 Ladue Woods Drive; driveway has been previously damaged from runoff.	Construct storm system consisting of 1 area inlet, 230' of 12" RCP and 135' of 15" RCP.	\$87,000	27	0.31
SC-3	4-4	Royal Manor Drive #12554	Creek erosion along side property of 12554 Royal Manor Drive.	Creek biostabilization.	\$43,000	10	0.23
SC-4	4-5	Booth Bay Lane #12318	Creek erosion in backyard of 12318 Booth Bay Lane.	Vegetated gabions.	\$104,000	10	0.10
SC-5	4-5	Booth Bay Lane #12310	Gully erosion in backyard of 12310 Booth Bay Lane.	Replace existing storm manhole with an area inlet.	\$68,000	12	0.18
SC-6	4-10	Chamblee Lane #606, 622	Creek erosion behind homes on Chamblee Lane.	Creek biostabilization.	\$265,000	20	0.08
SC-7	4-10, 19	Clion Lane #212 and Ladue Lake Drive #225, 287	Gully erosion in backyards of 212 Clion Lane and 225, 287 Ladue Lake Drive; ponding in yard of 287 Ladue Lake Drive.	Improve existing swale using turf reinforcement mat; regrade and plant vegetation at ponding locations.	\$58,000	40	0.69
SC-8	4-11	Laduemont Drive #240	Creek erosion in backyard of 240 Laduemont Drive.	Place rip rap at end of discharge pipe.	\$40,000	20	0.50
SC-9	2-1	Hibler Oaks #219	Minor erosion in backyard of 219 Hibler Oaks.	Construct storm system consisting of 1 area inlet and 190' of 15" RCP.	\$58,000	10	0.17
SC-10	3, 4	Balcon Estates #24, 26	Severe Creek Erosion in yards of 24 and 26 Balcon Estates; flooding occurs in yard of 24 Balcon Estates; residential street flooding occurs.	Vegetated gabion walls.	\$123,000	40	0.33
SC-11	extra #2	Dartagnan Court #13200	Erosion at end of discharge pipe which is located on hillside of 13200 Dartagnan Court.	Place rip rap at end of discharge pipe.	\$42,000	10	0.24

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID		Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
#							Points	Benefit Points/\$1000
FC-1	13-4, 1, 15		Fernridge Creek between Dartagnan Court and Bellerive Estates Drive	Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.	Construct vegetated gabions along the property banks affected by erosion. Construct an earth berm to mitigate flooding issues.	N/A	N/A	N/A
FC-2	13-1		Beauvais Court #741, 749	Erosion and flooding in backyards of 741 and 749 Beauvais Court; flooding endangers home at 741 Beauvais Court.	Construct a berm and area inlet along with 200' of 12" RCP.	\$80,000	85	1.06
FC-3	3-10		Hibler Court #373	Erosion and flooding in backyard of 373 Hibler Court due to inadequate concrete flume.	Construct an area inlet and berm.	\$51,000	20	0.39
FC-4	11		Country Manor Lane #12295	Significant erosion at end of discharge pipe behind 12295 Country Manor Lane.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$49,000	10	0.20
FC-5	17		Halsgame Lane #12318	Minimal erosion along backyard fence line of 12318 Halsgame Lane.	Reconstruct grass swale with turf reinforcement mat.	\$42,000	10	0.24
FC-6	26		Royal Valley Drive #12121, 12135	Erosion in backyard of 12121 and 12135 Royal Valley Drive.	Reconstruct grass swale with turf reinforcement mat.	\$47,000	20	0.43
DC-1	4-8, 29		Tarrytown Drive #11732, 11700	Severe creek erosion behind backyard fence of 11732 Tarrytown Drive; creek flooding upstream and downstream of culvert at 11700 Tarrytown Drive.	Creek biostabilization at 11732 Tarrytown Drive; clear and regrade creek bottom at 11700 Tarrytown Drive.	\$56,000	40	0.71
DC-2	3-7		Fairways Circle #631, 647	Erosion and flooding in backyards of 631 and 647 Fairways Circle.	Construct storm system consisting two area inlets, 250' of 12" RCP, and 130' of 15" RCP.	\$92,000	40	0.43
DC-3	2-4		Villa Coublay Drive #60	Severe creek erosion in ravine behind backyard of 60 Villa Coublay Drive.	Vegetated gabion wall.	\$491,000	10	0.02
DC-4	2-5		Fairways Circle #527	Erosion at backyard hillside of 527 Fairways Circle.	Creek biostabilization.	\$32,000	10	0.31
DC-5	1-6		Ladue Estates Drive #5	Minor erosion in backyard of 5 Ladue Estates Drive.	Construct turf reinforcement mat.	\$28,000	10	0.36
DC-6	20		Ladue Meadows Lane #104	Rill erosion at side property of 104 Ladue Meadows Lane.	Construct area inlet and 150' of 12" RCP.	\$48,000	20	0.42
DC-7	27		Runnymede Drive #434	Ponding water in backyard of 434 Runnymede Drive.	Construct storm system consisting two area inlets and 300' of 12" RCP.	\$74,000	20	0.27
WC-1	7-1		Mosely Acres Drive #10, 11, 12	Overtopping of dam causing flooding of 10 Mosely Acres Drive; shore erosion along lake at 11 and 12 Mosely Acres Drive.	Clear spillway area of debris and vegetation to allow to function properly; rip rap areas of lake affected by shore erosion.	\$49,000	30	0.61

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
WC-2	16	Graeser Lane #11076	Flooding in front yard of 11076 Graeser Lane; resident reported water entering foundation in years past, however no flooding has occurred since installation of French drain.	New curb along street at 11076 Graeser Lane.	\$61,000	10	0.16
WC-3	23	Mosley Acres #16	Insufficient curb and gutter causing minor yard erosion on Mosley Acres .	Remove and replace approximately 400' of curb and gutter.	\$53,000	30	0.57
WC-4	24	Mystic Meadows Lane #121	Erosion at south and north property line of 121 Mystic Meadows Lane.	Construct storm system consisting of two area inlets and 500' of 15" RCP.	\$136,000	35	0.26
WC-5	30	Tureen Drive #11205	Erosion in backyard of 11205.	Reconstruct natural swale with turf reinforcement mat.	\$45,000	10	0.22
WC-6	31, 32	Wedgewood Lane #6, 7	Flooding in backyard of 6 and 7 Wedgewood Lane; minor erosion on hillside of 6 Wedgewood Lane.	Construct storm system consisting of two area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.	\$96,000	30	0.31
WC-7	33	Windrush Creek East #6	Severe channel erosion in front yard of 6 Windrush Creek East.	Improve existing swale by increasing width and installing turf reinforcement mat; remove existing culverts and replace with one box culvert.	\$114,000	10	0.09
WC-8	18	Ladue Estates Drive #71, 73	Ponding water in backyards of 71 and 73 Ladue Estates Drive.	Regrade backyards to provide adequate slope for drainage.	\$52,000	20	0.38
MS-1	4-6, 28	Spoele Acres Street #2	Ponding and erosion in backyard of 2 Spoele Acres Street; moderate erosion on west side of property.	Reconstruct natural swale to convey overland flow to inlet; construct curb along Spoele Acres to contain street runoff .	\$67,000	20	0.30
MS-2	4-7	Spoele View Court #10677	Creek erosion behind 10677 Spoele View Court.	Vegetated gabion walls.	\$214,000	10	0.05
MS-3	3-20, 12	Country View Drive #10671	Original swale disturbed by subsequent development; ponding in backyard of 10671 Country View Drive.	Construct grass swale and regrade backyard.	\$47,000	10	0.21
MS-4	1-8	Oak Park Court #3	Street flooding. Non-standard grate inlet completely covered w/ debris and leaves.	Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12 inch RCP to convey runoff to creek.	\$47,000	10	0.21
MS-5	7	Chaminade Drive #13, 14	Creek erosion threatening pedestrian bridge; retaining wall upstream and downstream of bridge has collapsed.	Clear and demolish damaged retaining wall; install rip rap 50' upstream and downstream of bridge.	\$63,000	25	0.40
MS-6	9	Colonial Hills Drive #77	Gully erosion in front yard of 77 Colonial Hills Drive.	Construct storm system in place of existing swale.	\$169,000	20	0.12

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Benefit Points/\$1000
MS-7	21	Larkin Avenue #859	Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.	Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.	\$43,000	20	0.47
MS-8	22	Middlebrook Lane #3-6	Street runoff eroding area around culvert; culvert crosses under Middlebrook Lane.	Improve upstream and downstream approach by placing rip rap; place rip rap along street surface as well.	\$53,000	25	0.47
MS-9	25	Rondelay Drive #10835	Channel erosion in backyard of 10835 Rondelay Drive upstream of MSD inlet; home owner has experienced flooding in years past.	Improve existing swale with turf reinforcement mat.	\$34,000	20	0.59
MS-10	extra #1	Chilton Lane #12-13	Erosion at culvert is threatening roadway; pipe outlet damaged.	Replace existing culvert with a new 3' x 3' box culvert.	\$69,000	25	0.36
PC-1	5-4	Tealwood North #47	Erosion at culvert headwall and outlet.	Construct heavy reventment 20' upstream and downstream of culvert.	\$62,000	25	0.40

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Priority Ranking)

Table 5-6

#	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
FC-2	13-1	Beauvais Court #741, 749	Erosion and flooding in backyards of 741 and 749 Beauvais Court; flooding endangers home at 741 Beauvais Court.	Construct a berm and area inlet along with 200' of 12" RCP.	\$80,000	85	1.06
DC-1	4-8, 29	Tarrytown Drive #11732, 11700	Severe creek erosion behind backyard fence of 11732 Tarrytown Drive; creek flooding upstream and downstream of culvert at 11700 Tarrytown Drive.	Creek biostabilization at 11732 Tarrytown Drive; clear and regrade creek bottom at 11700 Tarrytown Drive.	\$56,000	40	0.71
SC-7	4-10, 19	Clion Lane #212 and Ladue Lake Drive #225, 287	Gully erosion in backyards of 212 Clion Lane and 225, 287 Ladue Lake Drive; ponding in yard of 287 Ladue Lake Drive.	Improve existing swale using turf reinforcement mat; regrade and plant vegetation at ponding locations.	\$58,000	40	0.69
WC-1	7-1	Mosely Acres Drive #10, 11, 12	Overtopping of dam causing flooding of 10 Mosely Acres Drive; shore erosion along lake at 11 and 12 Mosely Acres Drive.	Clear spillway area of debris and vegetation to allow to function properly; rip rap areas of lake affected by shore erosion.	\$49,000	30	0.61
MS-9	25	Rondelay Drive #10835	Channel erosion in backyard of 10835 Rondelay Drive upstream of MSD inlet; home owner has experienced flooding in years past.	Improve existing swale with turf reinforcement mat.	\$34,000	20	0.59
WC-3	23	Mosley Acres #16	Insufficient curb and gutter causing minor yard erosion on Mosley Acres .	Remove and replace approximately 400' of curb and gutter.	\$53,000	30	0.57
CC-2	5-8	Fernview Drive #1020, 1028	Yard erosion in backyard of 1020 and 1028 Fernview Drive.	Construct grass swale using turf reinforcement mat.	\$39,000	20	0.51
SC-8	4-11	Laduemont Drive #240	Creek erosion in backyard of 240 Laduemont Drive.	Place rip rap at end of discharge pipe.	\$40,000	20	0.50
MS-8	22	Middlebrook Lane #3-6	Street runoff eroding area around culvert; culvert crosses under Middlebrook Lane.	Improve upstream and downstream approach by placing rip rap; place rip rap along street surface as well.	\$53,000	25	0.47
MS-7	21	Larkin Avenue #859	Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.	Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.	\$43,000	20	0.47
DC-2	3-7	Fairways Circle #631, 647	Erosion and flooding in backyards of 631 and 647 Fairways Circle.	Construct storm system consisting two area inlets, 250' of 12" RCP, and 130' of 15" RCP.	\$92,000	40	0.43
FC-6	26	Royal Valley Drive #12121, 12135	Erosion in backyard of 12121 and 12135 Royal Valley Drive.	Reconstruct grass swale with turf reinforcement mat.	\$47,000	20	0.43
DC-6	20	Ladue Meadows Lane #104	Rill erosion at side property of 104 Ladue Meadows Lane.	Construct area inlet and 150' of 12" RCP.	\$48,000	20	0.42

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Priority Ranking)

Table 5-6

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
PC-1	5-4	Tealwood North #47	Erosion at culvert headwall and outlet.	Construct heavy reventment 20' upstream and downstream of culvert.	\$62,000	25	0.40
MS-5	7	Chaminade Drive #13, 14	Creek erosion threatening pedestrian bridge; retaining wall upstream and downstream of bridge has collapsed.	Clear and demolish damaged retaining wall; install rip rap 50' upstream and downstream of bridge.	\$63,000	25	0.40
FC-3	3-10	Hibler Court #373	Erosion and flooding in backyard of 373 Hibler Court due to inadequate concrete flume.	Construct an area inlet and berm.	\$51,000	20	0.39
WC-8	18	Ladue Estates Drive #71, 73	Ponding water in backyards of 71 and 73 Ladue Estates Drive.	Regrade backyards to provide adequate slope for drainage.	\$52,000	20	0.38
MS-10	extra #1	Chilton Lane #12-13	Erosion at culvert is threatening roadway; pipe outlet damaged.	Replace existing culvert with a new 3' x 3' box culvert.	\$69,000	25	0.36
DC-5	1-6	Ladue Estates Drive #5	Minor erosion in backyard of 5 Ladue Estates Drive.	Construct turf reinforcement mat.	\$28,000	10	0.36
DC-10	3, 4	Balcon Estates #24, 26	Severe Creek Erosion in yards of 24 and 26 Balcon Estates; flooding occurs in yard of 24 Balcon Estates; residential street flooding occurs.	Vegetated gabion walls.	\$123,000	40	0.33
DC-4	2-5	Fairways Circle #527	Erosion at backyard hillside of 527 Fairways Circle.	Creek biostabilization.	\$32,000	10	0.31
WC-6	31, 32	Wedgewood Lane #6, 7	Flooding in backyard of 6 and 7 Wedgewood Lane; minor erosion on hillside of 6 Wedgewood Lane.	Construct storm system consisting of two area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.	\$96,000	30	0.31
SC-2	5-7	Ladue Woods Drive #12229	Flooding and erosion in backyard of 12229 Ladue Woods Drive; driveway has been previously damaged from runoff.	Construct storm system consisting of 1 area inlet, 230' of 12" RCP and 135' of 15" RCP.	\$87,000	27	0.31
MS-1	4-6, 28	Spoede Acres Street #2	Ponding and erosion in backyard of 2 Spoede Acres Street; moderate erosion on west side of property.	Reconstruct natural swale to convey overland flow to inlet; construct curb along Spoede Acres to contain street runoff.	\$67,000	20	0.30
CC-4	13	Ferntop Lane #12970	Creek flooding and erosion behind backyard of 12970 Ferntop Lane.	Place rip rap along channel and build up creek banks.	\$71,000	20	0.28
DC-7	27	Runnymede Drive #434	Ponding water in backyard of 434 Runnymede Drive.	Construct storm system consisting two area inlets and 300' of 12" RCP.	\$74,000	20	0.27
CC-3	3-2	Fernway Lane #928	Ponding in backyard of 928 Fernway Lane at bottom of hillside.	Clear openings of area inlet and regrade backyard.	\$63,000	17	0.27
WC-4	24	Mystic Meadows Lane #121	Erosion at south and north property line of 121 Mystic Meadows Lane.	Construct storm system consisting of two area inlets and 500' of 15" RCP.	\$136,000	35	0.26

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Priority Ranking)

Table 5-6

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
SC-11	extra #2	Dartagnan Court #13200	Erosion at end of discharge pipe which is located on hillside of 13200 Dartagnan Court.	Place rip rap at end of discharge pipe.	\$42,000	10	0.24
FC-5	17	Halsgame Lane #12318	Minimal erosion along backyard fence line of 12318 Halsgame Lane.	Reconstruct grass swale with turf reinforcement mat.	\$42,000	10	0.24
SC-3	4-4	Royal Manor Drive #12554	Creek erosion along side property of 12554 Royal Manor Drive.	Creek biostabilization.	\$43,000	10	0.23
CC-5	14	Fernway Lane #12921	Ponding in backyard of 12921 Fernway Lane; runoff is rotting wood retaining wall.	Reconstruct swale to existing conditions; regrade yard and remove retaining wall.	\$45,000	10	0.22
WC-5	30	Tureen Drive #11205	Erosion in backyard of 11205.	Reconstruct natural swale with turf reinforcement mat.	\$45,000	10	0.22
MS-3	3-20, 12	Country View Drive #10671	Original swale disturbed by subsequent development; ponding in backyard of 10671 Country View Drive.	Construct grass swale and regrade backyard.	\$47,000	10	0.21
MS-4	1-8	Oak Park Court #3	Street flooding. Non-standard grate inlet completely covered w/ debris and leaves.	Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12 inch RCP to convey runoff to creek.	\$47,000	10	0.21
FC-4	11	Country Manor Lane #12295	Significant erosion at end of discharge pipe behind 12295 Country Manor Lane.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$49,000	10	0.20
CC-1	5-8	Fernview Drive #1009	Erosion at discharge pipe that drains to creek.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$52,000	10	0.19
SC-5	4-5	Booth Bay Lane #12310	Gully erosion in backyard of 12310 Booth Bay Lane.	Replace existing storm manhole with an area inlet.	\$68,000	12	0.18
SC-9	2-1	Hibler Oaks #219	Minor erosion in backyard of 219 Hibler Oaks.	Construct storm system consisting of 1 area inlet and 190' of 15" RCP.	\$58,000	10	0.17
WC-2	16	Graeser Lane #11076	Flooding in front yard of 11076 Graeser Lane; resident reported water entering foundation in years past, however no flooding has occurred since installation of French drain.	New curb along street at 11076 Graeser Lane.	\$61,000	10	0.16
MS-6	9	Colonial Hills Drive #77	Gully erosion in front yard of 77 Colonial Hills Drive.	Construct storm system in place of existing swale.	\$169,000	20	0.12
SC-4	4-5	Booth Bay Lane #12318	Creek erosion in backyard of 12318 Booth Bay Lane.	Vegetated gabions.	\$104,000	10	0.10

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
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Table 5-6

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
WC-7	33	Windrush Creek East #6	Severe channel erosion in front yard of 6 Windrush Creek East.	Improve existing swale by increasing width and installing turf reinforcement mat; remove existing culverts and replace with one box culvert.	\$114,000	10	0.09
SC-6	4-10	Chamblee Lane #606, 622	Creek erosion behind homes on Chamblee Lane.	Creek biostabilization.	\$265,000	20	0.08
MS-2	4-7	Spoede View Court #10677	Creek erosion behind 10677 Spoede View Court.	Vegetated gabion walls.	\$214,000	10	0.05
DC-3	2-4	Villa Coublay Drive #60	Severe creek erosion in ravine behind backyard of 60 Villa Coublay Drive.	Vegetated gabion wall.	\$491,000	10	0.02
SC-1	13-9, 5, 6, 8	Chasselle Lane #1,3,5 and Chamblee Lane #9,13,15,25	Creek flooding and severe erosion - affecting seven homes along Chasselle and Chamblee Lane.	Construct a berm and place rip rap in areas affected by erosion.	N/A	N/A	N/A
EC-1	13-4, 1, 15	Fernridge Creek between Dartagnan Court and Bellerive Estates Drive	Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.	Construct vegetated gabions along the property banks affected by erosion. Construct an earth berm to mitigate flooding issues.	N/A	N/A	N/A

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Table 5-7

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit Points	Benefit Points/\$1000
FC-2	13-1	Beauvais Court #741, 749	Erosion and flooding in backyards of 741 and 749 Beauvais Court; flooding endangers home at 741 Beauvais Court.	Construct a berm and area inlet along with 200' of 12" RCP.	\$80,000	85	1.06
FC-1	13-4, 1, 15	Fernridge Creek between Dartagnan Court and Bellerive Estates Drive	Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.	Construct vegetated gabions along the property banks affected by erosion. Construct an earth berm to mitigate flooding issues.	N/A	N/A	N/A
SC-1	13-9, 5, 6, 8	Chasselle Lane #1,3,5 and Chamblee Lane #9,13,15,25	Creek flooding and severe erosion - affecting seven homes along Chasselle and Chamblee Lane.	Construct a berm and place rip rap in areas affected by erosion.	N/A	N/A	N/A
WC-1	7-1	Mosely Acres Drive #10, 11, 12	Overtopping of dam causing flooding of 10 Mosely Acres Drive; shore erosion along lake at 11 and 12 Mosely Acres Drive.	Clear spillway area of debris and vegetation to allow to function properly; rip rap areas of lake affected by shore erosion.	\$49,000	30	0.61
PC-1	5-4	Tealwood North #47	Erosion at culvert headwall and outlet.	Construct heavy reventment 20' upstream and downstream of culvert.	\$62,000	25	0.40
SC-2	5-7	Ladue Woods Drive #12229	Flooding and erosion in backyard of 12229 Ladue Woods Drive; driveway has been previously damaged from runoff.	Construct storm system consisting of 1 area inlet, 230' of 12" RCP and 135' of 15" RCP.	\$87,000	27	0.31
CC-1	5-8	Fernview Drive #1009	Erosion at discharge pipe that drains to creek.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$52,000	10	0.19
CC-2	5-8	Fernview Drive #1020, 1028	Yard erosion in backyard of 1020 and 1028 Fernview Drive.	Construct grass swale using turf reinforcement mat.	\$39,000	20	0.51
SC-3	4-4	Royal Manor Drive #12554	Creek erosion along side property of 12554 Royal Manor Drive.	Creek biostabilization.	\$43,000	10	0.23
SC-4	4-5	Booth Bay Lane #12318	Creek erosion in backyard of 12318 Booth Bay Lane.	Vegetated gabions.	\$104,000	10	0.10
SC-5	4-5	Booth Bay Lane #12310	Gully erosion in backyard of 12310 Booth Bay Lane.	Replace existing storm manhole with an area inlet.	\$68,000	12	0.18
MS-1	4-6, 28	Spoede Acres Street #2	Ponding and erosion in backyard of 2 Spoede Acres Street; moderate erosion on west side of property.	Reconstruct natural swale to convey overland flow to inlet; construct curb along Spoede Acres to contain street runoff.	\$67,000	20	0.30
MS-2	4-7	Spoede View Court #10677	Creek erosion behind 10677 Spoede View Court.	Vegetated gabion walls.	\$214,000	10	0.05
DC-1	4-8, 29	Tarrytown Drive #11732, 11700	Severe creek erosion behind backyard fence of 11732 Tarrytown Drive; creek flooding upstream and downstream of culvert at 11700 Tarrytown Drive.	Creek biostabilization at 11732 Tarrytown Drive; clear and regrade creek bottom at 11700 Tarrytown Drive.	\$56,000	40	0.71

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SC-6	4-10	Chamblee Lane #606, 622	Creek erosion behind homes on Chamblee Lane.	Creek biostabilization.	\$265,000	20	0.08
SC-7	4-10, 19	Clion Lane #212 and Ladue Lake Drive #225, 287	Gully erosion in backyards of 212 Clion Lane and 225, 287 Ladue Lake Drive; ponding in yard of 287 Ladue Lake Drive.	Improve existing swale using turf reinforcement mat; regrade and plant vegetation at ponding locations.	\$58,000	40	0.69
SC-8	4-11	Laduemont Drive #240	Creek erosion in backyard of 240 Laduemont Drive.	Place rip rap at end of discharge pipe.	\$40,000	20	0.50
CC-3	3-2	Fernway Lane #928	Ponding in backyard of 928 Fernway Lane at bottom of hillside.	Clear openings of area inlet and regrade backyard.	\$63,000	17	0.27
DC-2	3-7	Fairways Circle #631, 647	Erosion and flooding in backyards of 631 and 647 Fairways Circle.	Construct storm system consisting two area inlets, 250' of 12" RCP, and 130' of 15" RCP.	\$92,000	40	0.43
FC-3	3-10	Hibler Court #373	Erosion and flooding in backyard of 373 Hibler Court due to inadequate concrete flume.	Construct an area inlet and berm.	\$51,000	20	0.39
MS-3 94	3-20, 12	Country View Drive #10671	Original swale disturbed by subsequent development; ponding in backyard of 10671 Country View Drive.	Construct grass swale and regrade backyard.	\$47,000	10	0.21
SC-9	2-1	Hibler Oaks #219	Minor erosion in backyard of 219 Hibler Oaks.	Construct storm system consisting of 1 area inlet and 190' of 15" RCP.	\$58,000	10	0.17
DC-3	2-4	Villa Coublay Drive #60	Severe creek erosion in ravine behind backyard of 60 Villa Coublay Drive.	Vegetated gabion wall.	\$491,000	10	0.02
DC-4	2-5	Fairways Circle #527	Erosion at backyard hillside of 527 Fairways Circle.	Creek biostabilization.	\$32,000	10	0.31
DC-5	1-6	Ladue Estates Drive #5	Minor erosion in backyard of 5 Ladue Estates Drive.	Construct turf reinforcement mat.	\$28,000	10	0.36
MS-4	1-8	Oak Park Court #3	Street flooding. Non-standard grate inlet completely covered w/ debris and leaves.	Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12 inch RCP to convey runoff to creek.	\$47,000	10	0.21
SC-10	3, 4	Balcon Estates #24, 26	Severe Creek Erosion in yards of 24 and 26 Balcon Estates; flooding occurs in yard of 24 Balcon Estates; residential street flooding occurs.	Vegetated gabion walls.	\$123,000	40	0.33
MS-5	7	Chaminade Drive #13, 14	Creek erosion threatening pedestrian bridge; retaining wall upstream and downstream of bridge has collapsed.	Clear and demolish damaged retaining wall; install rip rap 50' upstream and downstream of bridge.	\$63,000	25	0.40

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New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit Points	Benefit Points/\$1000
MS-6	9	Colonial Hills Drive #77	Gully erosion in front yard of 77 Colonial Hills Drive.	Construct storm system in place of existing swale.	\$169,000	20	0.12
FC-4	11	Country Manor Lane #12295	Significant erosion at end of discharge pipe behind 12295 Country Manor Lane.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$49,000	10	0.20
CC-4	13	Ferntop Lane #12970	Creek flooding and erosion behind backyard of 12970 Ferntop Lane.	Place rip rap along channel and build up creek banks.	\$71,000	20	0.28
CC-5	14	Fernway Lane #12921	Ponding in backyard of 12921 Fernway Lane; runoff is rotting wood retaining wall.	Reconstruct swale to existing conditions; regrade yard and remove retaining wall.	\$45,000	10	0.22
WC-2	16	Graeser Lane #11076	Flooding in front yard of 11076 Graeser Lane; resident reported water entering foundation in years past, however no flooding has occurred since installation of French drain.	New curb along street at 11076 Graeser Lane.	\$61,000	10	0.16
FC-5	17	Halsgame Lane #12318	Minimal erosion along backyard fence line of 12318 Halsgame Lane.	Reconstruct grass swale with turf reinforcement mat.	\$42,000	10	0.24
WC-8 LO 51	18	Ladue Estates Drive #71, 73	Ponding water in backyards of 71 and 73 Ladue Estates Drive.	Regrade backyards to provide adequate slope for drainage.	\$52,000	20	0.38
DC-6	20	Ladue Meadows Lane #104	Rill erosion at side property of 104 Ladue Meadows Lane.	Construct area inlet and 150' of 12" RCP.	\$48,000	20	0.42
MS-7	21	Larkin Avenue #859	Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.	Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.	\$43,000	20	0.47
MS-8	22	Middlebrook Lane #3-6	Street runoff eroding area around culvert; culvert crosses under Middlebrook Lane.	Improve upstream and downstream approach by placing rip rap; place rip rap along street surface as well.	\$53,000	25	0.47
WC-3	23	Mosley Acres #16	Insufficient curb and gutter causing minor yard erosion on Mosley Acres.	Remove and replace approximately 400' of curb and gutter.	\$53,000	30	0.57
WC-4	24	Mystic Meadows Lane #121	Erosion at south and north property line of 121 Mystic Meadows Lane.	Construct storm system consisting of two area inlets and 500' of 15" RCP.	\$136,000	35	0.26
MS-9	25	Rondelay Drive #10835	Channel erosion in backyard of 10835 Rondelay Drive upstream of MSD inlet; home owner has experienced flooding in years past.	Improve existing swale with turf reinforcement mat.	\$34,000	20	0.59
FC-6	26	Royal Valley Drive #12121, 12135	Erosion in backyard of 12121 and 12135 Royal Valley Drive.	Reconstruct grass swale with turf reinforcement mat.	\$47,000	20	0.43

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New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit Points	Benefit Points/\$1000
DC-7	27	Runnymede Drive #434	Ponding water in backyard of 434 Runnymede Drive.	Construct storm system consisting two area inlets and 300' of 12" RCP.	\$74,000	20	0.27
WC-5	30	Tureen Drive #11205	Erosion in backyard of 11205.	Reconstruct natural swale with turf reinforcement mat.	\$45,000	10	0.22
WC-6	31, 32	Wedgewood Lane #6, 7	Flooding in backyard of 6 and 7 Wedgewood Lane; minor erosion on hillside of 6 Wedgewood Lane.	Construct storm system consisting of two area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.	\$96,000	30	0.31
WC-7	33	Windrush Creek East #6	Severe channel erosion in front yard of 6 Windrush Creek East.	Improve existing swale by increasing width and installing turf reinforcement mat; remove existing culverts and replace with one box culvert.	\$114,000	10	0.09
MS-10	extra #1	Chilton Lane #12-13	Erosion at culvert is threatening roadway; pipe outlet damaged.	Replace existing culvert with a new 3' x 3' box culvert.	\$69,000	25	0.36
SC-11	extra #2	Dartagnan Court #13200	Erosion at end of discharge pipe which is located on hillside of 13200 Dartagnan Court.	Place rip rap at end of discharge pipe.	\$42,000	10	0.24

6.0 Geographic Information System (GIS)

This section discusses the use of a web-based GIS that was created to input field observations.

6.1 Description and Capabilities

A comprehensive database of property parcel, aerial imagery, and field observation data was developed for the use of the City of Creve Coeur utilizing ESRI ArcGIS software. Initial background data for the GIS utilized Aerial and property data obtained from the St. Louis County GIS services. Creeks and watershed boundaries were obtained from the Missouri Spatial Data Information Service.

Current problem areas within the City of Creve Coeur were entered into the GIS. Attributes such as property address, previous source ID, current project ID, problem description, recommended solution and cost estimate are included for each area.

A web-based read-only version of the GIS was created to provide the City easily accessible data from any computer with an Internet connection. The site can be accessed through the following address: <http://maps.hornershifrin.com/CreveCoeurStormwater/>. The web-based system provides all data attributes from each problem as well as field observations and photos. The system displays a color-coded visualization of each stormwater problem according to watershed location. Future problem areas can be easily added in the GIS by a consultant GIS Analyst to provide an up-to-date map of stormwater concerns. All GIS data attributes within the system are secure since the system only allows read-only and print capability via the Internet.