PLANNING COMMISSION AGENDA

COUNCIL CHAMBERS MONDAY, MAY 16, 2022 6:00 PM

1. Call to Order
2. Approval of the Minutes
3. Public Hearings
   A. Resolution 2022-xxx Approve a Conditional Use Permit for Development in the Shoreland Protection District for a Building Addition at Taco John's at 1431 4th Street NW
   B. Ordinance 2022-xxx Amend Ordinances related to the City's Municipal Separate Storm Sewer System (MS4) Permit
4. Adjournment

Please contact the Departments of Community & Economic Development at 507-334-0100 if you need special accommodations to participate in this meeting.

PLANNING COMMISSION MEETING MINUTES

MONDAY, April 18, 2022 6:00 PM

1. **Call to Order/Approve Agenda**

Vice Chair Campbell called the meeting to order at 6:07 p.m.

Members present were Commissioner Jackson, Commissioner Temple, Commissioner White and Vice Chair Campbell.

Members Absent: Commissioner Albers and Chair Ackman

Commissioner Temple made a motion to approve the agenda, seconded by Commissioner Jackson. Motion carried unanimously.

2. Approve the April 18, 2022 Regular Meeting Minutes.

Vice Chair Campbell requested a motion to approve the meeting minutes of April 18, 2022 which was brought by Commissioner Temple and seconded by Commissioner Jackson. Motion passed unanimously.

3. Public Hearings

A. Approve Preliminary Plat and Final Plat of CANNON RIVER VIEW (continued from April 18, 2022)

Rice County, and Steven E. Patee and Mary Ann D. Patee, and Paul W. Friesen and Wanda K. Friesen (collectively, the "Applicant") have requested preliminary plat and final plat approvals of CANNON RIVER VIEW east of State Highway 3 and 30th Street NW. The proposed Rice County Public Safety Center is the impetus for the proposed plat. However, the proposed CANNON RIVER VIEW plat also includes industrial, residential, and open space parcels.

The proposed CANNON RIVER VIEW plat is consistent with the City's comprehensive plan and ordinances per Resolution 2022-086 and Ordinance 2022-9, respectively. The proposed plat is also consistent with the City's subdivision regulations. The public improvements associated with the proposed plat are outlined in an approved memorandum of understanding between Rice County and the City of Faribault.

After Wanberg's presentation, Vice Chair Campbell brought the matter up for

discussion. No one wanted to speak, Vice Chair Campbell opened the public hearing at 6:11 and no one came forward to speak, Vice Chair Campbell then closed the public hearing at 6:12 p.m. Vice Chair Campbell then asked for further discussion there was not and Commission White then made a motion seconded by Temple to recommend that the City Council approve Resolution 2022-xxx Approve Preliminary Plat and Final Plat of CANNON RIVER VIEW. Motion carried on a 4/0 vote.

B. Conditional Use Permit for a Jail associated with the Proposed Rice County Public Safety Center East of State Highway 3 and 30th Street NW, on Properties with Rice County PIDs 18.19.1.00.002, 18.19.1.25.001, and 18.19.1.50.001.

Rice County (the "Applicant" and the "Owner") requested a conditional use permit to develop a jail within the proposed Rice County Public Safety Center on property east of State Highway 3 and 30th Street NW (the "subject property"). The subject property is in the P/I, Public/Institutional district per City of Faribault Ordinance 2022-9. The jail portion of the proposed public safety center requires a conditional use permit.

The proposed jail is in an appropriate location with easy access to State Highway 3. It will be a secured facility with an appropriate landscaped buffer. The proposed jail will be in a quality institutional facility with materials and landscaping that will enhance the surrounding area. The facility will not impose hazards or safety concerns on neighboring properties.

Vice Chair Campbell then brought the matter back to the board for discussion. Commissioner Jackson referred to the 2040 plan he remembered that making our entrances for appealing and felt that having a jail there does not meet that plan. Wanberg then stated that the CUP is before them. Vice Chair Campbell opened the Public Hearing at 6:16 and no one came forward the meeting was closed at 6:17. Commissioner White then affirmed that the building is going to be secure, he made a motion and seconded by Commissioner Temple to recommend approval of the Applicant's Condition Use Permit as requested
.
Further discussion by Jackson make it a point that he felt there could be substantial flooding in that area and his thought was that it was not the best use for this land. Motion carried on a 3/1 vote with Commissioner Jackson voting nay.

C. Amend the Development Standards Outlined in Section 3 of Ordinance 2007-19 Rezoning of Real-Property to Create a Planned Unit Development Mixed - Use for Divine Mercy Catholic Church

Divine Mercy Catholic Church (the "Applicant") is the fee owner of land parcels south of Mercy Drive and east of CR 45/Albers Avenue in Faribault (the "subject property"). In 2007, the City Council approved Ordinance 2007-19, which created a planned unit development (PUD) for the existing and proposed development on the subject property. The PUD provisions allow the existing single-family residential use at 22685 Albers Avenue to remain with certain conditions. The Applicant is now proposing to convert

the single-family residence into a place of assembly for church-related events. The proposed change of use requires an amendment to the PUD.

The Applicant envisions that the proposed place of assembly will be an interim use that will be removed once the ballfields associated with the planned schools shown in the PUD Master Plan are constructed. However, the proposed place of assembly may remain for ten or more years. Given the envisioned temporary nature of the use, the Applicant would prefer that the City waive curbing requirements associated with the required paved parking area. However, the City has consistently required other redevelopment sites to bring nonconforming conditions closer to conformity. Consequently, Staff recommends flexibility to allow the proposed use (even though the use is not served by municipal sewer and water), but require the use to provide adequate parking on a hard surface with concrete curb. Staff also recommends limiting the number of people that can occupy the structure and related to site to 50 people.

In a related matter, someone from the public notified the City that the Applicant did not remove the existing private drive between the existing single-family residence and the existing church as required by the PUD. Consequently, the Applicant has agreed to rectify this issue immediately.

During Wanberg's presentation he outline the Conditions of Approval for the Conditional Use Permit which were 1. Occupy of the structure site cannot exceed 50 people; 2) Appliance must confirm septic system is compliant and sized for that occupancy; 3) Applicant must confirm that well is compliant and will be tested per regulations; and, the site must provide a minimum of 12 code compliant parking spaces. No parking shall be allowed on the lawn or County Highway. Other conditions of Approval are 1. Appliance must obtain all required permits from Rice County Highway Department; 2. The access must serve only the former residence and cannot be used for vehicular circulation serving the church or future school; 3. Applicant must remove the illegal drive or fully present its. It must be fully removed by October 31, 202; and finally, 4. Any change or intensification of use required a PUD amendment. Proposed parking may need to be revised.

This area is intended for a short-term use which could be another 20 years.

The matter came back to the board for discussion. Commissioner asked if a daycare could be there. Wanberg responded not without amending the PUD. It can only be used for a study use. Commissioner Jackson asked brought up the curbs to keep people off the grass. Wanberg spoked about the stormwater runoff and they've requested no curb and staff said you still need to meet our ordinance. Staff is in the position of following the ordinances. There are options that the Planning Commission can recommend be put in. Commissioner White agrees with staff to put the curb in. Given the history of violations and any other business we've worked with the past he would not vote for this without the curbing. Commissioner Temple asked why people cannot park on the grass. DuChene said that he wasn't too sure but that the curb does create a way to manage the stormwater. Commissioner White added that curbing

keeps the water out of the drainage. Vice Chair then spoke stating that his hope would be that the landscape plan, the driveway removal and the parking plan would clear this matter up. Wanberg wanted to make sure that it was made aware that the church maybe just didn't understand the previous PUD and there was an intent to violate. They are just trying to resolve the issue.

Vice Chair Campbell then opened the matter up for the public at 6:39 p.m. and Phillip Parrish came forward on behalf of Divine Mercy. He assured the board that they would like to continue to work with the city and appreciated Wanberg's sentiments. White asked about a barrier for the drive. Mr. Parrish would like to come up with a plan to eliminate the issue.

Steve Bauer, the resident across the street at 22708 Albers Avenue. He stated that the remedy would be to tear the building out. In 2009, it was brought to their attention about the two storage buildings and were told they would be taken down. The house had the janitor living there and are currently being used for storage. He was told that the house was not going too be there because it was to part of the big plan. The gravel was already delivered for this parking stalls. He said that if he were to build something is would be expected to have curbing and all the other requirement but its temporary. He asked that the road be tore out; it was not supposed to be there in the first place. It is violating the CUP. It's being used as overflow. With that being taken out these buildings should be taken out as well.

Vice Chair Campbell then closed the public hearing at 6:41. and bought it back to the board. Commissioner White asked about a short-term use. Wanberg stated that it could be an interim use but they are not advisable. Vice Chair Campbell reminded that the condition stated that the road would be removed by October 30, 2024 but anytime in between, there cannot be any connection. Wanberg stated that it would be best to get rid of the road when the construction takes place. There is a use for the property as a place of assembly.

Commissioner Temple felt that the capacity was at 50 and only 12 stalls. Wanberg stated the number of parking spaces the ordinance says for every 4 people you have to have at least 1 parking space. The church stated that the don't anticipate it going beyond 50 and if they went over 50 the building codes would have to change things. There is to be no parking in the grass either. Commissioner Temple then asked about the road and how do you restore it. Wanberg stated that the gravel would have to be taken out and dirt brought in and seeded at any time. Can be a recommendation from this group. Jackson asked why they could access on the highway. The highway is owned by the county and they would have to go the county for the ask. DuChene said that the county would not want to put another access in there with no proper turn lanes.

Commission White then brought a motion with the exception to add the barrier so that the road cannot be used; adding that we they would be required to put the curbing in. Wanberg wanted to clarify that his motion is based on the findings in the PUD ordinance as well as all the other conditions as a whole. Commissioner Jackson then

seconded the motion which would be to recommend that the City Council approve Ordinance n2022-x Amend the Development Standards Outlined in Section 3 of Ordinance 2007-19 Rezoning of Real Property to Create a Planned Unit Development Mixed-Use for Divine Mercy Catholic Church with the added conditions for approval. Commissioner Temple offered that that he has some hesitation but will support this. Vice Chair Campbell then asked for a vote which carried unanimously.

D. Final Plat approval of RSA Properties LLC Subdivision at 1919 2nd St NW, PID # 18.36.2.50.01

On February 22, 2022, the Faribault City Council approved Resolution 2022-045, which approved a preliminary plat for 1919 2nd Street NW. Rick Amundson (the "Applicant") on behalf of Sun Companies, LLC (the Owner of 1919 2nd Street NW - C&S Vending) has now requested final plat approval of RSA PROPERTIES LLC SUBDIVISION. The proposed final plat is consistent with the preliminary plat. City Staff recommends approval of the proposed plat. Presuming the City Council approves the final plat and related development agreement, the Applicant intends to submit an application later this year for a multi-family development on the proposed Lot 2, Block 1 of the plat. There are encroachments from the property next to the lot which would need to be addressed before they can issue any building permits.

Vice Chair Campbell brought the matter up for discussion. With none, Vice Chair Campbell opened the matter up for public hearing at 7:03 and no one came forward and closed the public hearing at 7:04. There was no further discussion so Commissioner Temple made a motion and it was seconded by Commissioner Jackson to recommend that the City Council approve Resolution 2022-xxx Approve Final Plat of RSA PROPERTIES LLC SUBDIVISION. Motion carried unanimously.

E. Conditional Use Permit for single-family residential use in the C-2, Highway Commercial District at 930 1st St. NE, PID # 18.32.2.75.006

Mr. Waldock handled this presentation regarding Richard and Angela Jeanes who are seeking a CUP for Single Family use in the C-2 Highway Commercial District at 930 1st St. NE. As part of the residential use they plan to operate a licensed home daycare at the site. They operate an in-home Daycare now and are seeking to convert the former shop area for daycare use. The site is currently zoned C-2 Highway Commercial District. The property has a single-family dwelling with the former repair shop in the lower level. The previous occupant had lived on premise and operated a business there as well, but a Conditional Use Permit (CUP) now required for residential uses in this district had not previously been issued by the City for this site. There are for non-standard conditions recommended by the DRC which were 1. Complete remodeling per codes; 2. Obtain permits prior too further construction; 3. CUP void if not completed within one year; and 4) to maintain property in good order. As well as the six standard conditions applicable.

Vice Chair Campbell brought the matter back for discussion. Jackson wanted to make

a comment that the Applicants have put a lot pride into this home. Public hearing opened up at 7:13. Applicant Angela Jeans came forward stating that it's been a roller coaster ride and wanted to ask that they pass this. Vice Chair then closed the public hearing at 7:14 p.m.

A motion was made by Commissioner White seconded by Commissioner Temple to recommend approval of the CUP as requested for Single Family use with an in-home daycare in the C-2 District, at 930 1st Street NE based on the findings and subject to the conditions of approval found in the draft resolution provided for this application. The motion passed unanimously.

Wanberg gave a short update on the upcoming meetings. Vice Chair Campbell wanted to give an EDA update but Commissioner White objected since it was not on the agenda and should be in the work session.

5. Adjournment

Vice Chair Campbell requested a motion to adjourn. Commissioner White made a motion to adjourn seconded by Commissioner Temple. Meeting was adjourned at 7:20p.m. Motion carried unanimously.

Dated May 2, 2022.

By_____
Kari Casper, Recording Secretary

Request for Planning Commission

TO:	Planning Commission
THROUGH:	Deanna Kuennen, Community & Economic Development Director
FROM:	Peter Waldock, AICP Planning Coordinator
MEETING DATE:	May 16, 2022
SUBJECT:	Application for a Conditional Use Permit for Development in the Shoreland Protection District for a Building Addition at Taco John's at 1431 4th Street NW

Background:

Matt Mrochinski, Project Coordinator for Excel Engineering, has submitted an application for a CUP for Shoreland Development and Site Plan approval for a 326 SF addition planned for the north end of the existing restaurant. The improvement will also reconfigure the interior layout for the kitchen and dining area.

The site is zoned C-2 Highway Commercial District and is within the Shoreland Overlay District for Crocker's Creek. The project will not include changes to the existing parking lot. Setbacks for the parking lot are non-conforming but are in place as originally approved by the City when the site was first built in 1980s. No new hard surface area is planned with this site improvement. Please see the attached staff report for application review details.

The public hearing notice for this application was published in the Faribault Daily News on May 5, 2022. As required by statutes, the notice of public hearing was mailed to all property owners within 350 feet of the subject site. The City has not received any comments or questions from the public on this matter.

The Planning Commission is asked to open a public hearing on this matter and receive the staff report and all public comments and approve the

appropriate findings and conditions of approval in accordance with the Unified Development Ordinance for this application.

Recommendation:

Approve the Draft Resolution with findings for approval of a Conditional Use Permit for development in the Shoreland Overlay District for an addition to Taco John's Restaurant at 1431 4th St. NW.

Attachments:

1. Draft Resolution re. CUP for Taco John's 1431 4th St NW
2. Staff Report Taco Johns CUP
3. Maps and Plans

State of Minnesota
County of Rice

CITY OF FARIBAULT

RESOLUTION #2022-__

APPROVE A CONDITIONAL USE PERMIT FOR DEVELOPMENT IN THE SHORELAND OVERLAY DISTRICT AT TACO JOHN'S 1431 4TH ST. NW

WHEREAS, Pentex Restaurant Group (the property owners and applicants), have requested a conditional use permit for development in the Shoreland Overlay District to allow a 326 square foot building addition on Taco John's Restaurant located at 1431 4th St. NW, legally described in Exhibit A of this resolution; and

WHEREAS, City Staff has completed a review of the application they have determined that the building addition meets ordinance requirements and will not increase impervious surface coverage in the Shoreland District and noted the restaurant is lawful non-conforming use; and

WHEREAS, City Staff made a report to the Planning Commission pertaining to said request, a copy of which has been presented to the City Council; and

WHEREAS, the Planning Commission, on May 16, 2022, following proper notice, held a public hearing regarding the Applicant's request; and

WHEREAS, following the public hearing, the Planning Commission recommended that the City Council approve the Applicant's conditional use permit request based on the following written findings:

1. **The conditional use will not be detrimental to or endanger the public health, safety, comfort, convenience, or general welfare.**

   Expanded Finding: The proposed building addition will not be detrimental to the public health, safety, and comfort of residents in the area.

2. **The conditional use will not be injurious to the use and enjoyment of other property in the vicinity and will not impede the normal and orderly development and improvement of surrounding property for uses permitted in the district.**

   Expanded Finding: The proposed use of the property specified in this application will not injure other property, nor will it impede orderly development in the area.

3. **The conditional use will be designed, constructed, operated, and maintained in a manner that is compatible in appearance with the existing or intended character of the surrounding area.**

   Expanded Finding: The uses proposed with this application will update the appearance and character of the existing building and will improve property.

4. **The conditional use will not impose hazards or disturbing influences on neighboring properties.**

   Expanded Finding: The proposed building addition will not change the use of the property and will not impose hazards or disturbing influences on neighboring properties.

5. **The conditional use will not substantially diminish the value of neighboring properties.**

   Expanded Finding: The proposed use will likely improve the value of the subject site and therefore will not diminish neighboring property values.

6. **The site is served adequately by essential public facilities and services, including utilities, access roads, drainage, police and fire protection, and schools or will be served adequately as a result of improvements proposed as part of the conditional use.**

   Expanded Finding: Public sewer, water, and all other applicable municipal services serve the subject property.

7. **Development and operation of the conditional use will not create excessive additional requirements at public cost for facilities and services and will not be detrimental to the economic welfare of the community.**

   Expanded Finding: The proposed use of the property will not create new demands for facilities and services at public cost.

8. **Adequate measures have been or will be taken to minimize traffic congestion in the public streets and to provide for adequate on-site circulation of traffic.**

   Expanded Finding: The proposed use will not affect traffic congestion in the public streets.

9. **The conditional use will not result in the destruction, loss, or damage of a natural, scenic, or historic feature of major importance to the community.**

   Expanded Finding: The proposed building addition will not result increase hard surface coverage at the site. The proposed use will not adversely affect any feature of importance to the community.

10. **The conditional use is consistent with the applicable policies and recommendations of the City's Land Use Plan or other adopted land use studies.**

    Expanded Finding: The City's Land Use Plan guides the subject property for mixed commercial and residential uses consistent with the application in this case. The application if approved will not adversely affect Faribault's natural resources.

11. **The conditional use, in all other respects, conforms to the applicable regulations of the district in which it is located.**

    Expanded Finding: The proposed conditional use permit does increase hard surface coverage at the site and meets all other City Code requirements for this district.

WHEREAS, the Planning Commission further found approval of the requested conditional use permit is appropriate with the following additional findings as required by Section 13-710 (E) (2) of the City's Unified Development Ordinance:

1. **A thorough evaluation of the water body and the topographic, vegetation and soils conditions on the site must be made to ensure the prevention of soil erosion or other possible pollution of public waters, both during and after construction.**

   Expanded Finding: Because the proposed addition will cover an existing impervious surface, the addition would not adversely affect the Crocker's Creek watershed.

2. **The visibility of structures and other facilities as viewed from public waters is limited.**

   Expanded Finding: The proposed addition is roughly 300 feet from Crocker's Creek. In addition, the creek is separated from the subject site by CSAH 48 a 6-lane divided highway along this location.

3. **The site is adequate for water supply and is served by municipal sewer services.**

   Expanded Finding: Municipal water and sewer services serve the subject property.

4. **The types, uses, and numbers of watercraft that the project will generate are compatible in relation to the suitability of public waters to safely accommodate these watercraft.**

Expanded Finding: The subject property and the proposed addition would not generate any watercraft use.

WHEREAS, the City Council held a public meeting on May 25, 2022, during which it considered the Applicant's conditional use permit request; and

WHEREAS, based on the City Staff report, the results of the public hearing, and the written findings of the Planning Commission, the City Council concurs with the written findings of the Planning Commission and makes the identical findings.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF FARIBAULT, MINNESOTA AS FOLLOWS:

Section 1: Approval of a Conditional Use Permit. The City Council hereby approves the Applicant's conditional use permit request for a building addition for the Taco John's Restaurant at 1431 4th Street NW.

Section 2: Conditions Attached to the Approval of the Conditional Use Permit. The conditional use permit is based on the site plan shown in Exhibit B and includes the following conditions:

1. Complete the proposed building addition according to Building Code Requirements for this site.
2. The owner must maintain the property in good condition including but the building and paved surfaces.

Section 3: Additional Conditions of Approval. This conditional use permit includes the following additional conditions:

1. Failure of the City to act on a violation of a condition, covenant, or term of this permit is not a waiver of such condition, covenant, or term, or any subsequent violation of the same or any other condition, covenant, or term.

2. The City may inspect the property at all reasonable times to ensure compliance with the conditions of this permit.

3. This permit is subject to the City's code requirements. The Owner must comply with all applicable federal, state, and local laws,

rules, and ordinances and obtain other permissions and permits as may be required.

4. The violation of any terms or conditions of this permit, including but not limited to any applicable federal, state, or local laws, rules, regulations, and ordinances, may result in revocation of the permit. The City must give the Owner written notice of any violation and reasonable time, as determined by the City, to cure the violation before the permit revocation.

5. This permit and its conditions are binding on the parties and their successors and assigns. This permit runs with the property and does not affect the subsequent sale, lease, or change from current ownership. The Owner's obligations under this permit shall also be the obligations of any subsequent owners or assigns of the property.

6. Use of the property as allowed by this permit signifies the agreement of the permit's terms and conditions without qualification, limitation, or reservation.

Section 4. Findings and Incorporation of Recitals and Exhibits. Where applicable, the recitals and exhibits incorporated in this resolution constitute the written findings of the City Council, all of which protect the public's health, safety, and welfare.

Section 5. Authorization to take Additional Steps. The City Council authorizes the Mayor, City Administrator, City Staff, and the City's Consultants to take any additional steps and actions necessary or convenient to accomplish the intent of this resolution.

Section 6. Effective Date. This resolution is effective immediately upon its passage and without publication.

Date Adopted: May 25, 2022

Faribault City Council

_____
Kevin F. Voracek, Mayor

ATTEST:

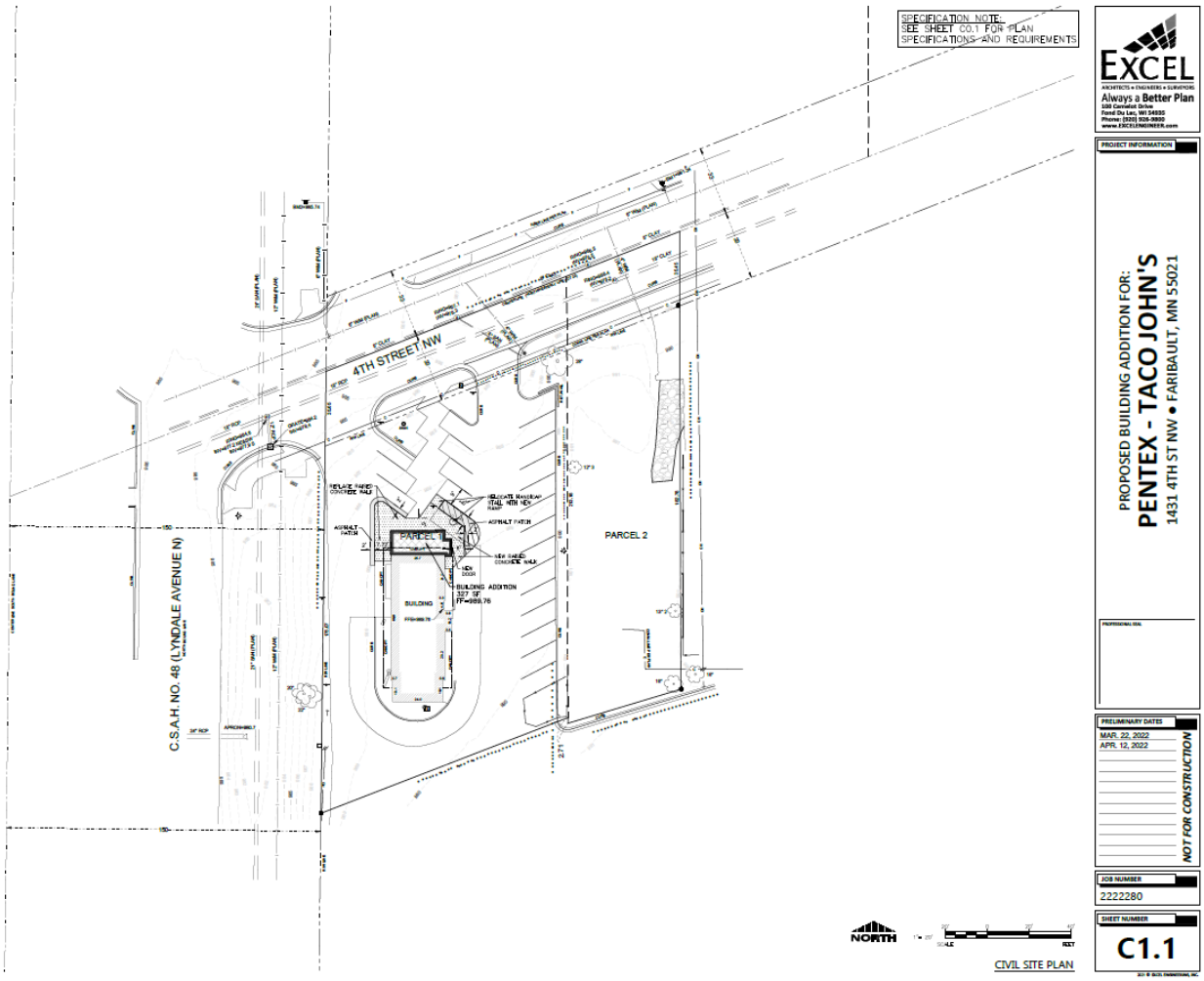
_____
Timothy C. Murray, City Administrator

Exhibit A
Legal Description

18.361.50.014

Part of Lot 22 in the State Subdivision of Section 36, Township 110 North, Range 21 West of the Fifth Principal Meridian in the City of Faribault, Rice County, Minnesota, described as follows: Beginning at a point in the northwesterly line of said Lot 22 a distance of 436.23 feet South 68 degrees 07 minutes 50 seconds West, assumed bearing from the Northeast corner of said Lot 22 (said Northwesterly line of Lot 22 being also the centerline of Fourth Street N.W.); thence continue South 68 degrees 07 minutes 50 seconds West along said northwesterly line of Lot 22, a distance of 123.48 feet to a point in the easterly right of way line of Minnesota Trunk Highway 65; thence South 0 degrees 22 minutes 30 seconds West along said highway right of way line, 210.72 feet; thence North 68 degrees 33 minutes 42 seconds East 126.43 feet; thence North 0 degrees 27 minutes 50 seconds West 210.51 feet to said place of beginning.

Exhibit B
Site Plan



Staff Report

TO: Planning Commission

FROM: Peter Waldock, AICP Planning Coordinator

MEETING DATE: May 16, 2022

SUBJECT: Application for a Conditional Use Permit for Development in the Shoreland District at Taco John's 1431 4th St. NW

Background:

Matt Mrochinski, Project Coordinator for Excel Engineering, has submitted application for a CUP for Shoreland Development and Site Plan approval for a 326 SF addition planned for the north end of the existing restaurant. The improvement will also reconfigure the interior layout for the kitchen and dining area.

The site is zoned C-2 Highway Commercial District and is within the Shoreland Overlay District for Crocker's Creek. The project will not include changes to the existing parking lot. Setbacks for the parking lot are non-conforming but are in place as originally approved by the City when the site was first built in 1980's. No new hard surface area is planned with this site improvement.

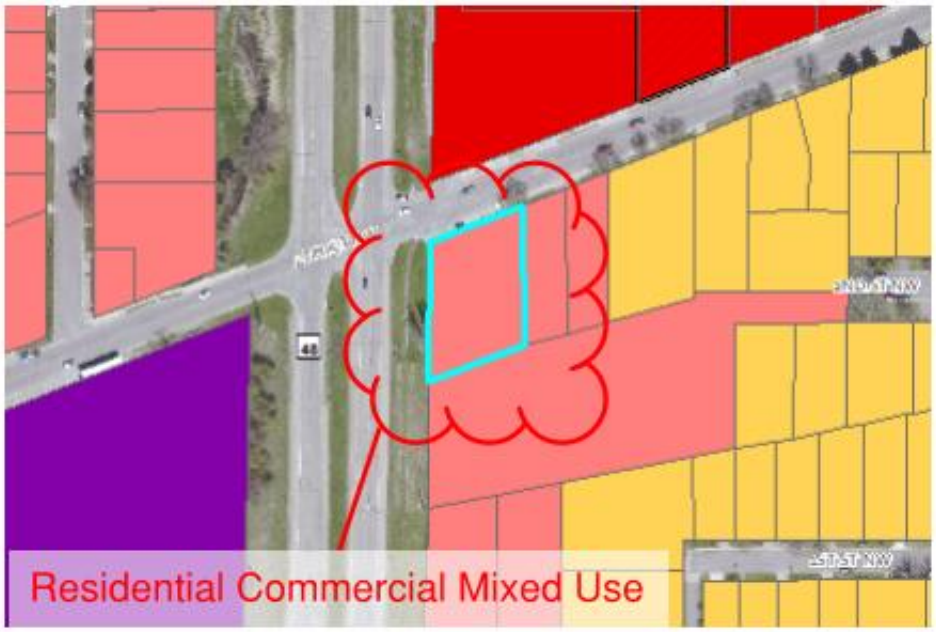
Surrounding uses include Commercial to the north and south, residential to the east and industrial to the west (across Lyndale Ave.). Crocker's Creek is west of this site, along the west side of Lyndale Ave. (CSAH 48).

Project Summary:

Zoning Districts. The property is zoned C-2 Highway Commercial District with Shoreland Overlay District.

A conditional use permit (CUP) was for development within the Shoreland Overlay District was not required in 1984 when the site was built.

Comprehensive Plan. The property is guided by the 2040 Comprehensive Plan Residential Commercial Mixed Uses. The application fits within the guided uses specified in the plan.



Conditional Use Permit. A Conditional Use Permit (CUP) is required for any development within the Shoreland Overlay District area. The proposed addition does not increase the impervious surface coverage on the site.

Development Plan. The proposed 326 SF building addition to north side of the building meets the requirements of the Unified Development Ordinance. No additional parking will be required by the proposal.

Impervious Surface Calculations. Approximately 92% of the total area is hard surface covered at this time. Shoreland Overlay District requirements allow up to 70% impervious surface coverage for the area within its boundaries. The site was developed prior to the establishment of the Shoreland District ordinance and there was no hard-surface limit at that time. The site is a lawful non-conformity.

Deadline for Action. The complete applications for the variance applications were received by the City on April 29, 2022. The deadline for action is June 29, 2022, unless extended by the City.

Development Review Comments:
The Development Review Committee (DRC) discussed the application in this at a meeting held May 3, 2022. The DRC did not identify any concerns or issues with this application. The DRC comments were as follows:

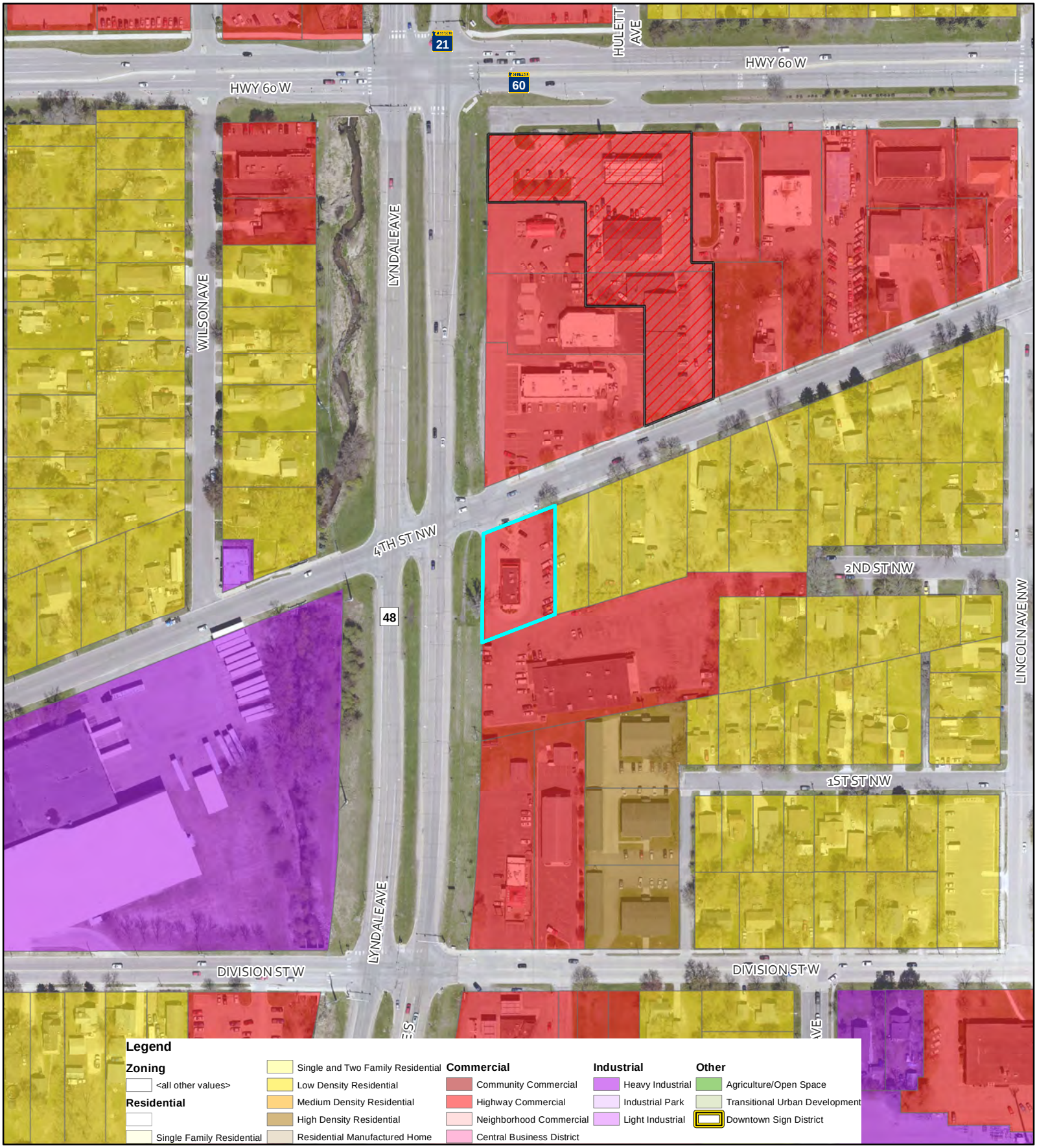
1. The site was built in the 1980's prior to shoreland district requirements.
2. The 326 SF building addition is small and will not increase hard surface coverage on site.
3. The plan meets UDO requirements for setback and parking.
4. The Application doesn't change onsite circulation.
5. The development plan is well done and will update the building appearance.
6. The shoreland boundary crosses over the existing building and the building addition will occur within the boundaries of the overlay district.
7. The owners also own the adjoining vacant residential lot. The parcels cannot be considered as one zoning lot because parcel 2 is zoned R-2 Low Density Residential District.
8. The City will be updating the Zoning Map to match the Comp Plan citywide. When that is done parcel once that is done, the owners could combine the two adjoining parcels if they wish.

Recommendation:
Staff recommends approval of the CUP as requested for Development in the Shoreland Overlay District at Taco John's 1431 4th St NW

Attachments:

- Draft Resolution in support of the requested variances.
- Application and As-built Plan
- Maps

1431 4th St NW - Taco John's



City Of Faribault
Community & Economic Development

May 13, 2022

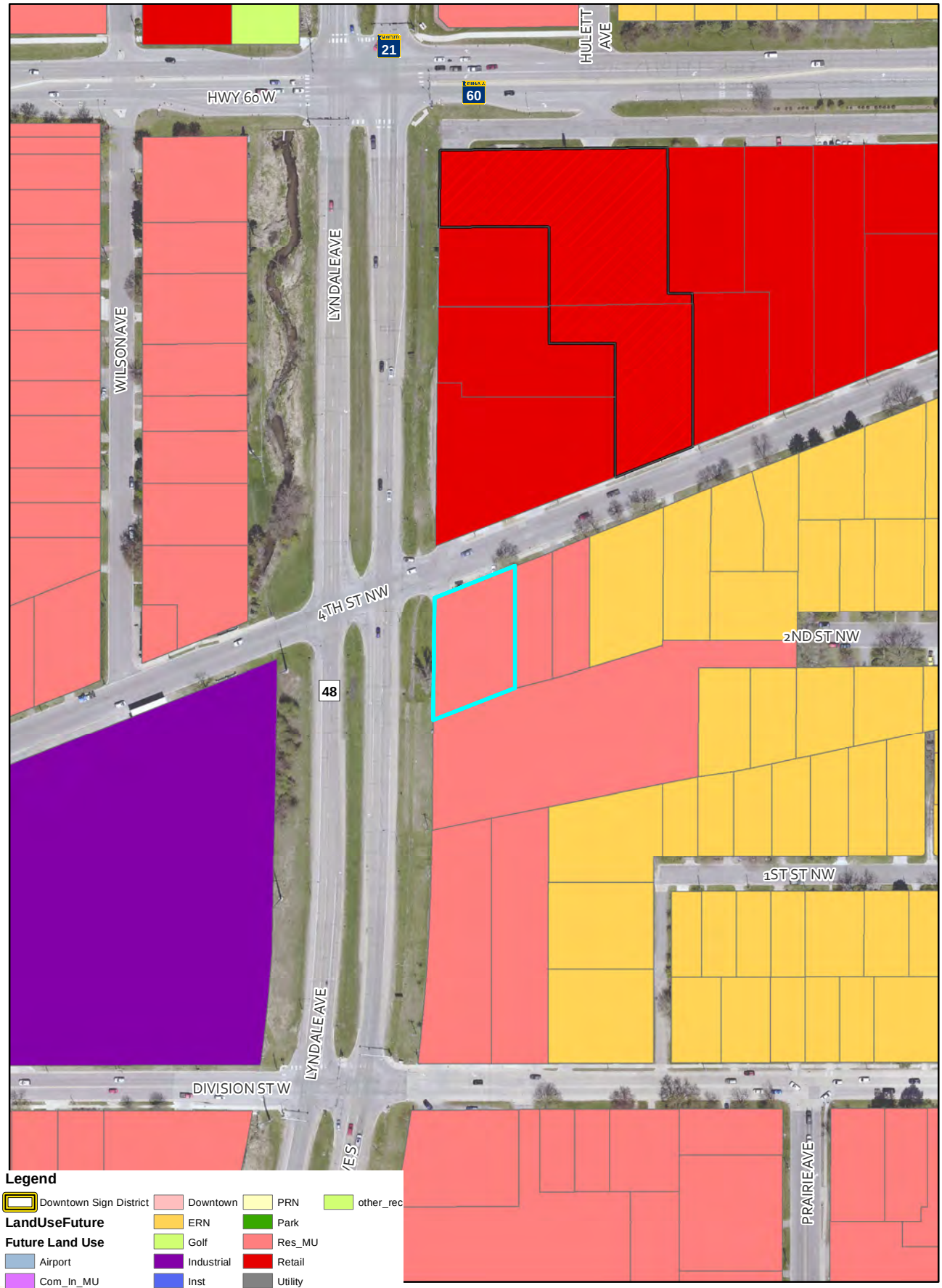
1 in = 200 ft

0 50 100 200 Feet

N W E S

This map is updated periodically to reflect amendments and should be used for general reference purposes. The map is current as of the date of the map. Specific inquiries should be directed to the Planning Division at (507) 334-0100

1431 4th St NW - Taco John's



Legend

Downtown Sign District	Downtown	PRN	other_rec
LandUseFuture	ERN	Park	
Future Land Use	Golf	Res_MU	
Airport	Industrial	Retail	
Com_In_MU	Inst	Utility	

City Of Faribault
Community & Economic Development

May 13, 2022

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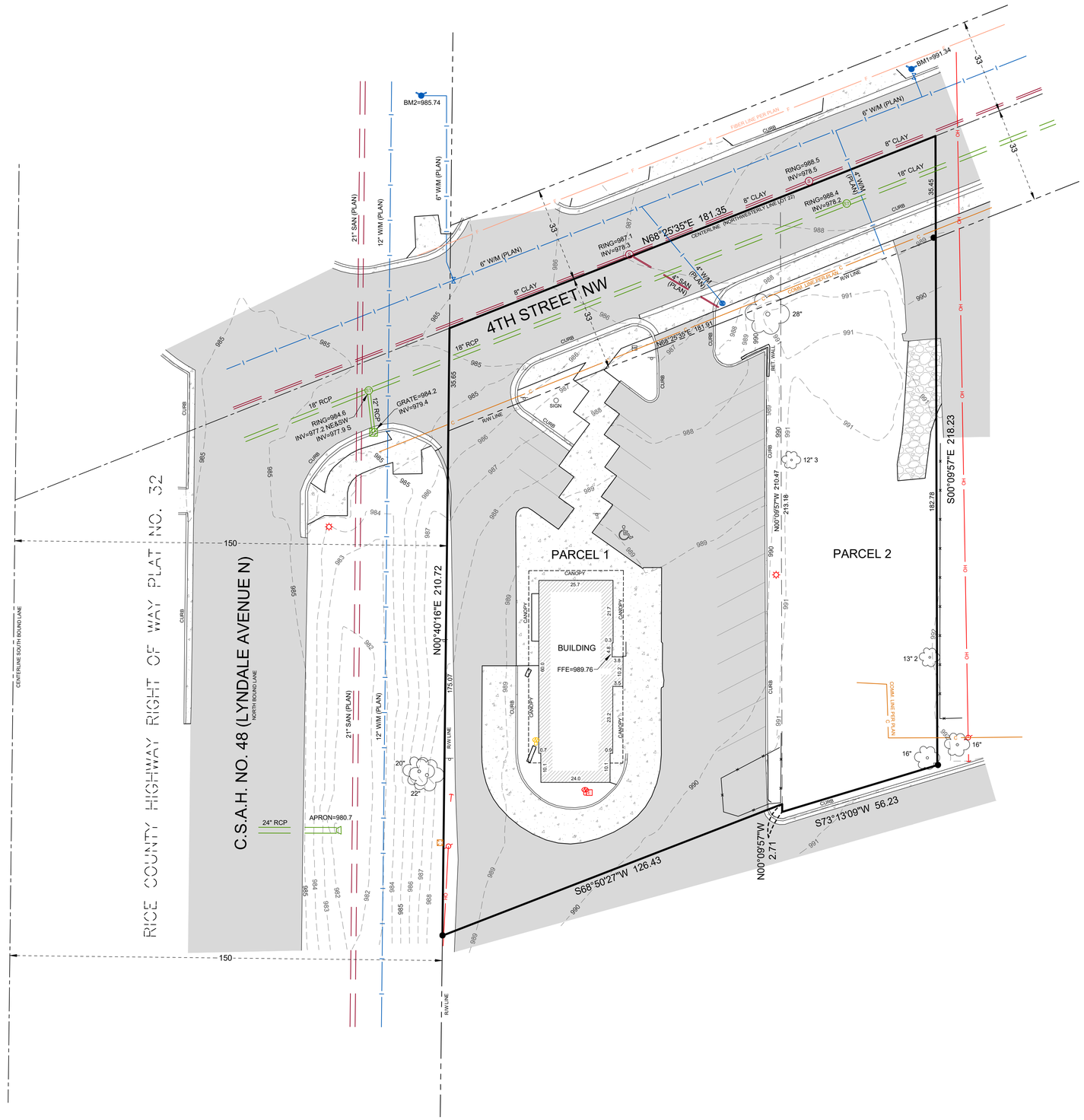
Taco Johns - 1431 4th St NW

n/a
3A-Commercial/Industrial/Public Utility
n/a

Owner AddressOLE REAL ESTATE HOLDINGS LLC
210 BROADWAY ST N STE 200
FARGO ND 58102



PROPERTY DESCRIPTION

(Per Knight Barry Title United LLC Commitment File No. 972207 with a commitment date of June 26, 2018.)

Parcel 1 -

Part of Lot 22 in the State Subdivision of Section 36, Township 110 North, Range 21 West of the Fifth Principal Meridian in the City of Faribault, Rice County, Minnesota, described as follows: Beginning at a point in the northwesterly line of said Lot 22 a distance of 436.23 feet South 68 degrees 07' 50" West, assumed bearing from the Northeast corner of said Lot 22 (said Northwesterly line of Lot 22 being also the centerline of Fourth Street N.W.); thence continue South 68 degrees 07' 50" West along said northwesterly line of Lot 22, a distance of 123.48 feet to a point in the easterly right of way line of Minnesota Trunk Highway 65; thence South 0 degrees 22' 30" West along said highway right of way line, 210.72 feet; thence North 68 degrees 33' 42" East 126.43 feet; thence North 0 degrees 27' 50" West 210.51 feet to said point of beginning.

Parcel 2 -

All that part of Lot 22, in the State Subdivision of Section 36, Township 110 North, Range 21 West of the Fifth Principal Meridian, in the City of Faribault, Rice County, Minnesota, described as follows to-wit: Beginning on the North line of said Lot 22, at a point 5 chains and 73 $\frac{1}{4}$ links from the northeast corner of said Lot; thence South parallel to the East line of said Lot 22, 3 chains and 31 links to an iron stake; thence southwesterly 83 $\frac{1}{4}$ links to an iron stake; thence North parallel to the East line of said Lot 22, 3 chains and 23 links to the North line of said Lot 22; thence Northeasterly along said North line of said Lot 22, 86 $\frac{1}{2}$ links to the place of beginning.

BENCH MARKS

BM1 ELEVATION = 991.34
TOP OF HYDRANT NUT NORTH SIDE
4TH STREET NW (SEE SURVEY)

BM2 ELEVATION = 985.74
TOP OF HYDRANT NUT NORTH SIDE
4TH STREET NW, EAST SIDE OF
LYNDALE AVENUE N (SEE SURVEY)

N

0 20 40
SCALE IN FEET

LEGEND

- SANITARY MANHOLE
- STORM MANHOLE
- CATCH BASIN
- HYDRANT
- GATE VALVE
- LIGHT POLE
- SIGN
- ELECTRIC PEDESTAL / TRANSFORMER
- COMMUNICATION PEDESTAL
- GAS METER
- UTILITY POLE
- SANITARY LINE
- STORM LINE
- WATERMAIN LINE
- UNDERGROUND COMMUNICATION
- UNDERGROUND FIBER OPTIC
- OVERHEAD POWER
- FENCE
- BITUMINOUS
- CONCRETE
- GRAVEL

ALL MONUMENTS SHOWN THUS: ●
ARE FOUND IRON MONUMENTS.

GENERAL NOTES

(GN1) Location, sizes and types of underground utilities shown are a combination of observed evidence and plan information, together with field markings by those utility locators that responded to Gopher State One Call Ticket No. 211474938 and 211474939. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. WSB & Associates makes no guarantee that the utilities shown comprise all of the utilities in the area. Where additional or more detailed information is required, the client is advised that excavation and/or a private utility locate request may be necessary.

(GN2) No easement documents were supplied by client and therefore none are shown. No other search of the public records for easements or encumbrances was made by the undersigned.

(GN3) The area of the property described above is 36,086 square feet (0.83 acres), as surveyed.

SURVEYOR'S CERTIFICATION

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Dated this _____ day of _____, 2021.

_____
Jeffrey J. Rolfson, PS, Minnesota License No. 49003

Client:
EXCEL ENGINEERING, INC.

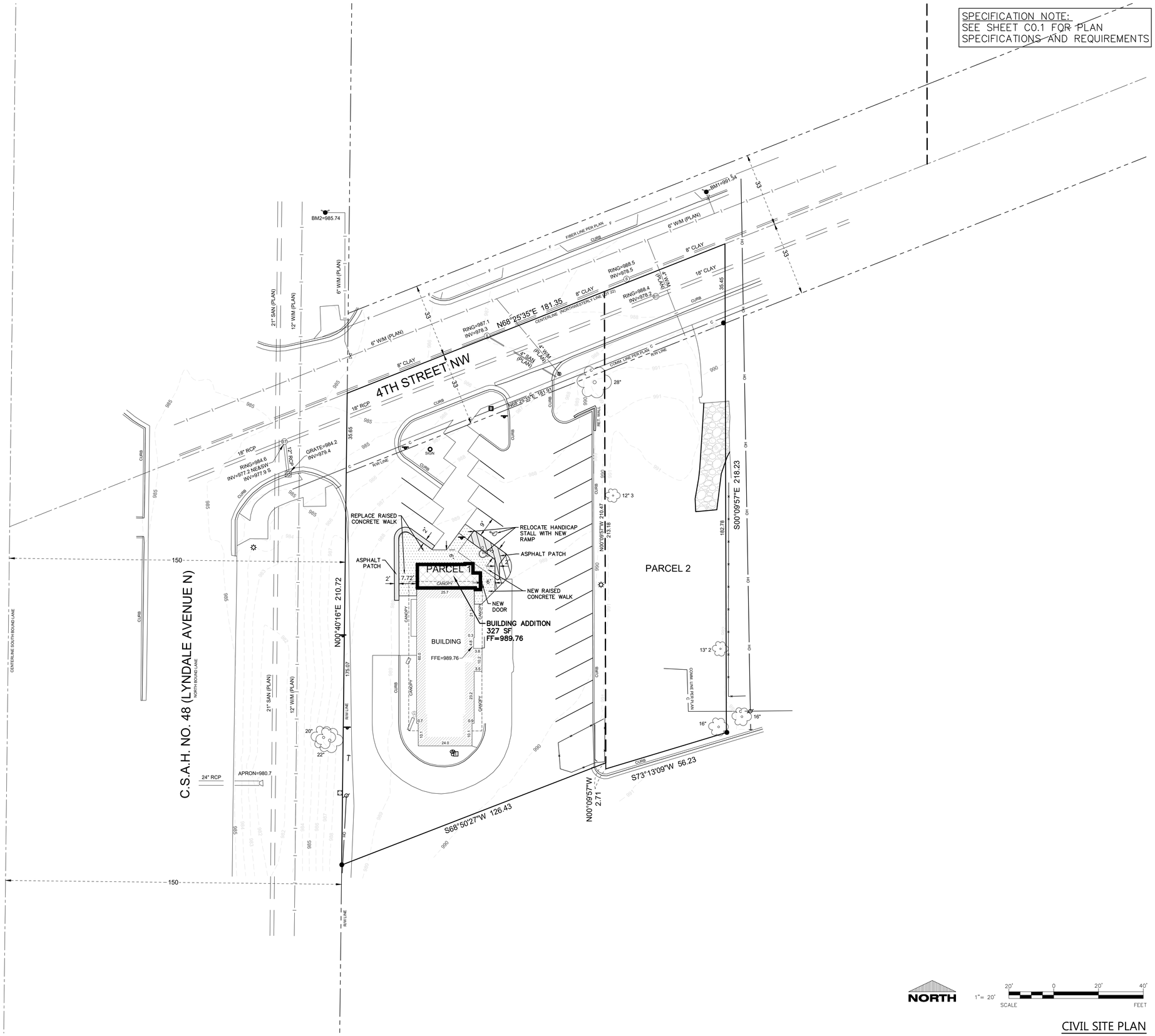
Job No. 018312

Surveyed By: MG	
Drawn By: JJR	
Checked By: JJR	
Scale: 1" = 20'	CAD No. 018312 V-BASE
Date: 10/012/2021	

wsb
3701 40th Avenue NW
Rochester, MN 55901
507-218-3745
www.wsbeng.com

BOUNDARY & TOPOGRAPHIC SURVEY
PART OF LOT 22
SEC. 36, T.110N, R.21W
CITY OF FARIBAULT
RICE COUNTY, MINNESOTA

SPECIFICATION NOTE:
SEE SHEET C0.1 FOR PLAN SPECIFICATIONS AND REQUIREMENTS



CIVIL SITE PLAN

EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
Always a **Better Plan**
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING ADDITION FOR:
PENTEX - TACO JOHN'S
1431 4TH ST NW • FARIBAULT, MN 55021

PROFESSIONAL SEAL

PRELIMINARY DATES
MAR. 22, 2022
APR. 12, 2022

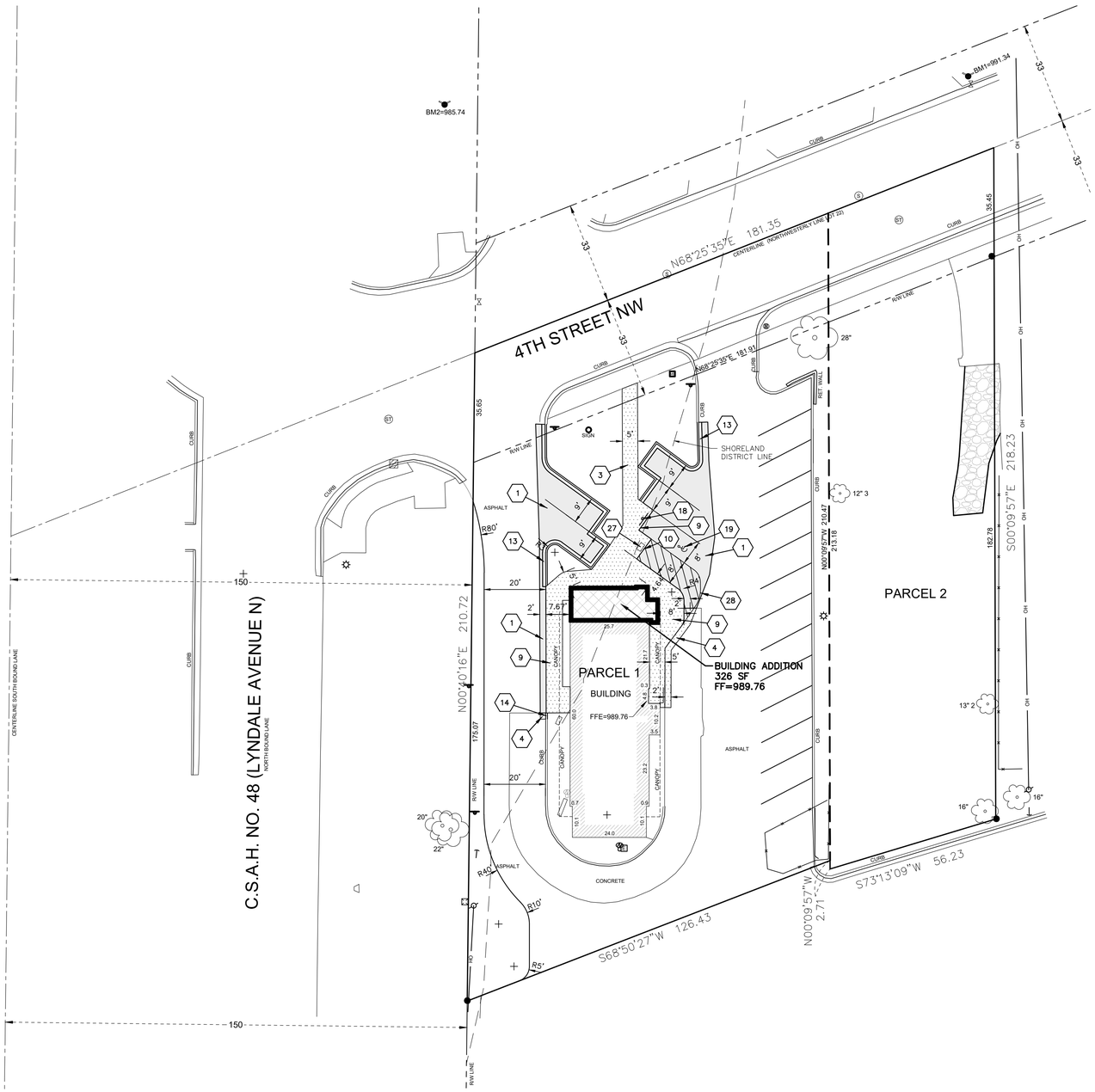
NOT FOR CONSTRUCTION

JOB NUMBER
2222280

SHEET NUMBER
C1.1

2021 © EXCEL ENGINEERING, INC.

SPECIFICATION NOTE:
SEE SHEET C0.1 FOR PLAN SPECIFICATIONS AND REQUIREMENTS



SITE INFORMATION:

LEGAL DESCRIPTION: Part of Lot 22 in the State Subdivision of Section 36, Township 110 North, Range 21 West of the Fifth Principal Meridian, City of Faribault, Rice County, Minnesota

PROPERTY AREA: PARCEL 1 AREA = 20,380 S.F. (0.47 ACRES)

EXISTING ZONING: C-2 HIGHWAY COMMERCIAL

PROPOSED ZONING: C-2 HIGHWAY COMMERCIAL

PROPOSED USE: QUICK-SERVE

AREA OF SITE DISTURBANCE: 4,710 S.F.

SETBACKS:
BUILDING: FRONT = 25', SIDE = 15', REAR = 10'
PAVEMENT: FRONT = 10', SIDE = 10', REAR = 5'

PARKING REQUIRED: 30% OF BLDG CAPACITY (15 SPACES REQ.)

PARKING PROVIDED: 19 SPACES (1 H.C. ACCESSIBLE)

HANDICAP STALLS REQUIRED: 1, HANDICAP STALLS PROVIDED: 1

LANDSCAPE REQUIREMENTS: MIN. LANDSCAPE SURFACE RATIO: 20%
MAXIMUM IMPERVIOUS SURFACE: 70% IN SHORELAND DISTRICT
MAXIMUM LOT COVERAGE – BUILDING ONLY: 50%

EXISTING SITE DATA (PARCEL 1 LOT)

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	0.47	20,380	
BUILDING FLOOR AREA	0.04	1,820	8.9%
PAVEMENT (ASP. & CONC.)	0.37	15,935	78.2%
TOTAL IMPERVIOUS	0.41	17,755	87.1%
LANDSCAPE/ OPEN SPACE	0.06	2,625	12.9%

PROPOSED SITE DATA (PARCEL 1 LOT)

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	0.47	20,380	
BUILDING FLOOR AREA	0.05	2,146	10.5%
PAVEMENT (ASP. & CONC.)	0.32	14,126	69.3%
TOTAL IMPERVIOUS	0.37	16,272	79.8%
LANDSCAPE/ OPEN SPACE	0.09	4,108	20.2%

EXISTING DATA (WITHIN SHORELAND DISTRICT)

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	0.14	5,970	
BUILDING FLOOR AREA	0.00	182	3.0%
PAVEMENT (ASP. & CONC.)	0.11	4,817	80.7%
TOTAL IMPERVIOUS	0.11	4,999	83.7%
LANDSCAPE/ OPEN SPACE	0.02	971	16.3%

PROPOSED DATA (WITHIN SHORELAND DISTRICT)

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	0.14	5,970	
BUILDING FLOOR AREA	0.01	350	5.9%
PAVEMENT (ASP. & CONC.)	0.08	3,690	61.8%
TOTAL IMPERVIOUS	0.09	4,040	67.7%
LANDSCAPE/ OPEN SPACE	0.04	1,930	32.3%

SITE PLAN KEYNOTES

1	ASPHALT SECTION (MATCH EXISTING)
3	CONCRETE SIDEWALK (TYP.)
4	CONCRETE SECTION (MATCH EXISTING)
9	RAISED WALK (TYP.)
10	FLUSH WALK
13	18" CURB & GUTTER
14	6" CURB HEAD MATCH EXISTING.
18	RELOCATED HANDICAP SIGN
19	HANDICAP STALL & STRIPING PER STATE CODES.
27	DETECTABLE WARNING PLATE
28	PAVEMENT STRIPING. COLOR TO MATCH EXISTING.

NORTH

1"= 20' SCALE — 20' 0 20' 40' FEET

CIVIL SITE PLAN

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PROFESSIONAL SEAL

PRELIMINARY DATES
MAR. 22, 2022
APR. 12, 2022
APR. 22, 2022

NOT FOR CONSTRUCTION

JOB NUMBER
2222280

SHEET NUMBER
C1.1

2021 © EXCEL ENGINEERING, INC.

City Of Faribault

APPLICATION FOR REQUESTED ACTION
Conditional Use Permit

Planning Case # _____
Filing Fee _____
Hearing Date _____

SITE ADDRESS 1431 4th Street NW

APPLICANT Pentex Restaurant Group E-MAIL bitterman@pentexrg.com

PHONE 701-235-2014 (H) _____ (W) _____ (FAX)

ADDRESS 210 Broadway N, Suite 200, Fargo ND 58107

DEVELOPER (if other than applicant) NA

PHONE _____ (H) _____ (W) _____ (FAX)

ADDRESS _____

LEGAL DESCRIPTION See attached

ACREAGE/SIZE OF PROPERTY 0.51 acres

CURRENT ZONING C-2

EXISTING USE OF PROPERTY Taco John's

PROPOSED USE OF PROPERTY Taco John's
(Including number of units per acre and types of uses if mixed use)

IDENTIFY ALL ADJACENT LAND USES Commercial / Vacant

SIGNATURE OF OWNER _____ **DATE** 4/20/22

SIGNATURE OF APPLICANT _____ **DATE** 4/20/22
(Must submit proof of property control)

PLEASE PROVIDE ALL INFORMATION REQUESTED ON THIS FORM AND THE ATTACHED CHECKLIST.

August 24, 2021

CONDITIONAL USE PERMIT
Required Submittals

- **Site plan**

  - ❑ Drawn to scale, with scale noted
  - ❑ Date and North arrow
  - ❑ Boundaries and dimensions shown graphically
  - ❑ Location of any streets, public trails, railroads, or waterways
  - ❑ Present and proposed topography of the site and adjacent areas within 50 feet by contour lines at an interval of not more than 5 feet, and by use of directional arrows, the proposed flow of storm water runoff from the site
  - ❑ Location of existing and proposed structures (height and gross floor area noted), with distance from property lines noted
  - ❑ Location and dimensions of existing and proposed off-street parking and loading spaces, curb cuts, aisles, and walkways, with distance from property lines noted
  - ❑ Location, height, and material for screening walls and fences
  - ❑ Type of surfacing and base course proposed for all parking area, loading areas, and walkways
  - ❑ Location of all existing and proposed water lines, hydrants, sanitary sewer lines and storm drainage systems
  - ❑ Existing and proposed public streets or rights-of-way, easements, or other reservations of land on the site
  - ❑ Location and method of screening of outdoor trash storage areas
  - ❑ Location and size of all proposed signage
  - ❑ Location and height of proposed lighting facilities
  - ❑ Elevation views of all proposed buildings or structures, with building materials and proposed colors noted
  - ❑ Indicate the ultimate development of the site and proposed development phases when a site is to be developed in stages
  - ❑ Landscaping plan

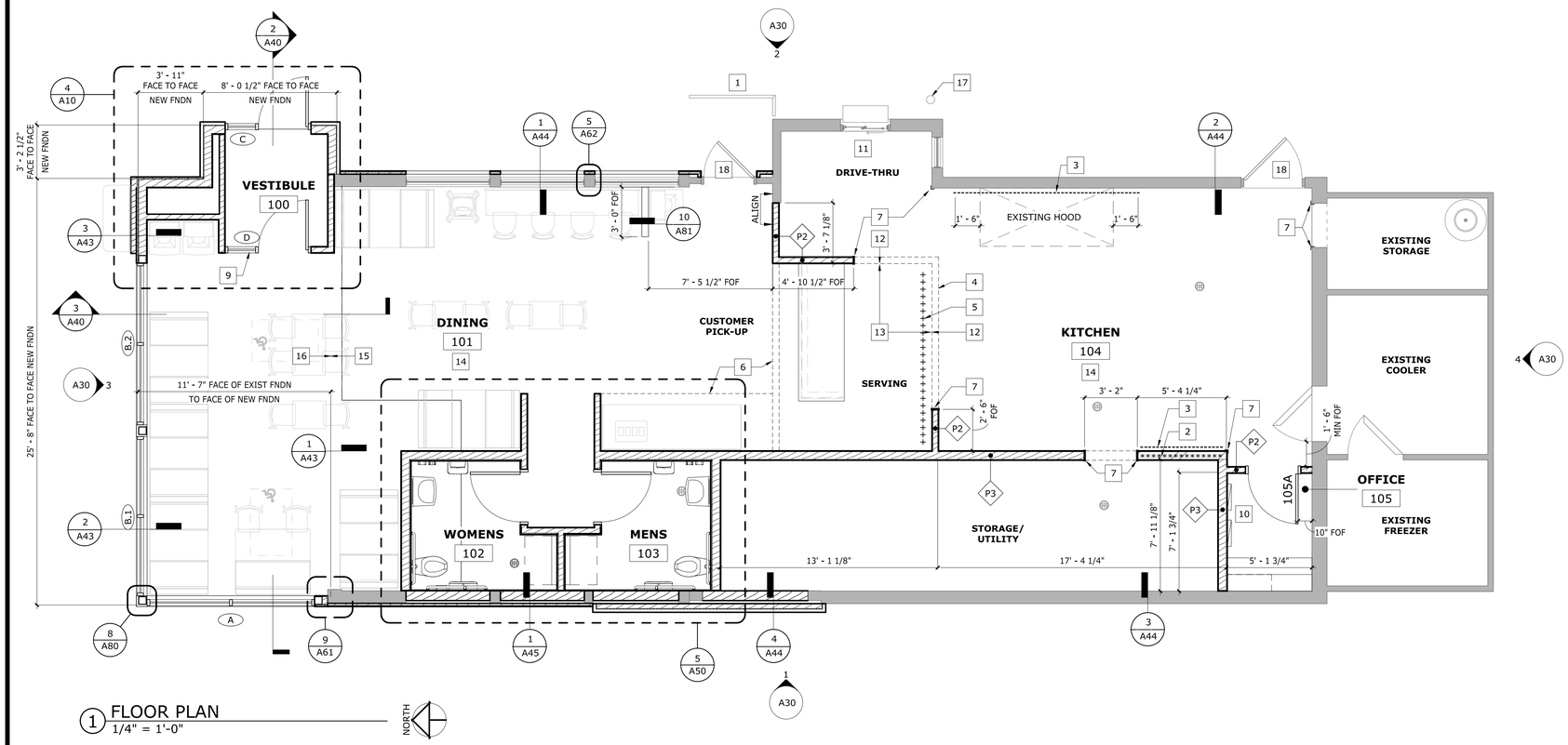
- **Required supplemental information**

  - ❑ Describe the project in detail (Include: Size of all structures existing and proposed and any modifications to existing, type of business and associated storage/display, type of clientele, hours of operation, number of employees, number of customer seats if food service related, handling of deliveries, unique site characteristics, proposed modifications to topography and/or drainage, development schedule, etc.)
  - ❑ Written summary explaining how the proposed use is compatible with the neighborhood
  - ❑ Written summary explaining if and how the proposed development will impact traffic
  - ❑ Written statement as to why you feel the conditional use permit should be approved
  - ❑ Other information as required

- **Filing fee: $300 for all uses (2021 fee schedule).**

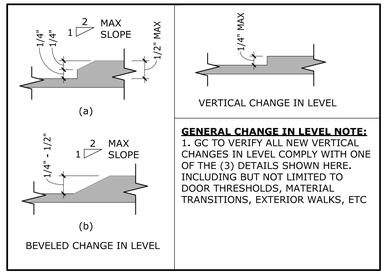
SIGNATURE OF APPLICANT_____**DATE** 4/20/22

Planning case # _____



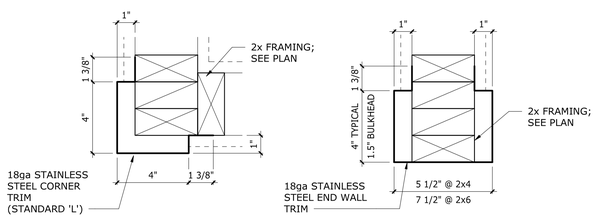
1 FLOOR PLAN
1/4" = 1'-0"

# KEYNOTES	
MARK	NOTE
1	EXISTING RAILING, PAINT P6
2	******* INDICATES USG 5/8" DUROCK (OR APPROVED EQUAL) AT FINISH FLOOR TO CEILING; 18ga CEE STUD FRAMING AT 16" OC BEHIND HOOD (IN LIEU OF WOOD STUD); EXTEND 18" MIN BEYOND EACH END OF HOOD
3	DASHED LINE INDICATES 18ga STAINLESS STEEL PANELS FROM TOP OF COVE BASE TO CEILING AND 18" MIN WIDE BEYOND EACH SIDE OF HOOD; GC TO PROVIDE STAINLESS ON REMAINDER OF WALL NOT SUPPLIED BY HOOD MANUFACTURER
4	DASHED LINE OF BULKHEAD ABOVE; REFER TO CEILING PLAN
5	+++++ INDICATES 5/8" PLYWOOD BACKING ON WALLS FOR EQUIPMENT AS INDICATED ON PLAN; BULKHEAD AT MENUBOARD WALL FROM 7'-0" AFF TO BOTTOM OF ROOF TRUSSES
6	DASHED LINE OF SOFFIT ABOVE; REFER TO CEILING PLAN
7	INSTALL STAINLESS STEEL CAP ON WALL END AND UNDERSIDE OF ALL BULKHEADS IN SERVICE AREA; REFER TO DETAIL 2/A10
9	EXIT SIGN LOCATION; REFER TO DETAIL 1/A50 & 2/A50
10	RECESSED ELECTRICAL PANEL LOCATION
11	EXISTING DRIVE-THRU WINDOW
12	EXTENTS FOR FLR1 (FLUID APPLIED FLOORING)
13	SEE DECOR PLANS FOR FLOOR FINISHES
14	5/8" GBD ON ALL EXTERIOR WALLS; SEE SUBSTRATE NOTE FOR OTHERWISE NOTED
15	EXISTING SLAB
16	NEW SLAB
17	EXISTING BOLLARD, PAINT SAFETY YELLOW
18	EXISTING DOOR, FRAME, AND HARDWARE



GENERAL CHANGE IN LEVEL NOTE:
1. GC TO VERIFY ALL NEW VERTICAL CHANGES IN LEVEL COMPLY WITH ONE OF THE (3) DETAILS SHOWN HERE. INCLUDING BUT NOT LIMITED TO DOOR THRESHOLDS, MATERIAL TRANSITIONS, EXTERIOR WALKS, ETC

3 ACCESSIBLE CHANGES IN LEVEL
6" = 1'-0"



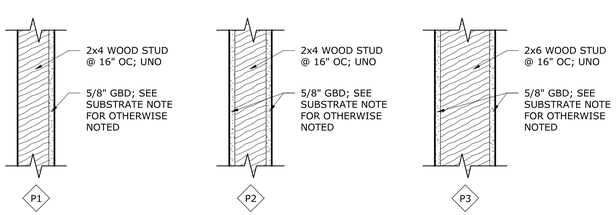
2 CORNER & END WALL TRIM
3" = 1'-0"

SUBSTRATE NOTE: (INSTALL IN LIEU OF TYPICAL 5/8" GBD)

BACK OF HOUSE (KITCHEN - STORAGE - UTILITY - OFFICE)
5/8" USG "DUROCK" (OR APPROVED EQUAL) AT FINISH FLOOR TO 24" AFF
5/8" CDX PLYWOOD FROM 24" AFF TO 6" ABOVE CEILING

RESTROOMS
5/8" USG "DUROCK" (OR APPROVED EQUAL) AT FINISH FLOOR TO 24" AFF
5/8" WATER RESISTANT GBD FROM 24" AFF TO 6" ABOVE CEILING

MOP SINK
5/8" USG "DUROCK" (OR APPROVED EQUAL) AT FINISH FLOOR TO CEILING; TYPICAL BOTH WALLS



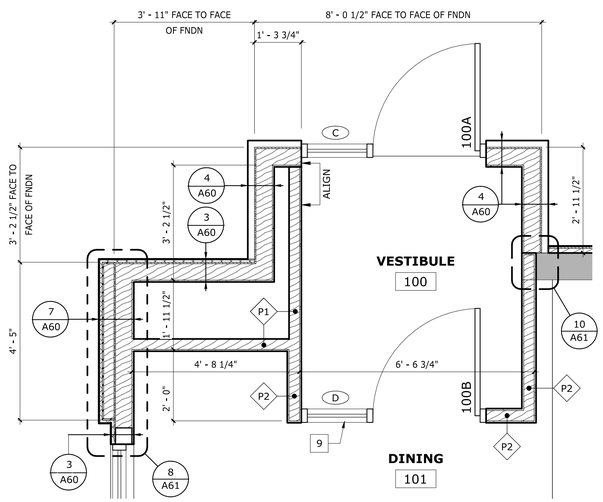
WALL TYPES
1 1/2" = 1'-0"

GENERAL NOTES - FINISH:

1. REFER TO DECOR PACKAGE FOR ALL INTERIOR FINISH INFORMATION
2. ALL BACK OF HOUSE AREAS TO HAVE FRP FINISH ON WALLS AND RESIN ON FLOORS WITH INTEGRAL COVE BASE, INCLUDING BUT NOT LIMITED TO, DRIVE-THRU, KITCHEN, OFFICE, STORAGE AND UTILITY; REFER TO A80 FOR RESIN AND FRP INFORMATION
3. PRIOR TO INSTALLATION OF ALL FLOOR TILE, GC TO TREAT EVERY CONCRETE CRACK AND CONTROL JOINTS WITH AN 18" WIDE STRIP (CENTERED ON JOINT) OF CRACK ISOLATION LIQUID MEMBRANE INSTALLED PER MANUFACTURERS RECOMENDATIONS; PRODUCT TO BE FROM REDGUARD OR GREEN SEEL OR APPROVED EQUAL

GENERAL NOTES - FLOOR PLAN:

1. GRID LINES ARE TO CENTERLINE OF EXISTING COLUMN OR DEMISING WALL
2. DIMENSIONS (UNLESS NOTED OTHERWISE) ARE TO:
   - FACE OF EXISTING (FOE)
   - FACE OF STUD (FOS)
   - CENTERLINE (CL) OF FIXTURES AND EQUIPMENT
3. GC TO INSTALL INTERIOR FINISHES THROUGHOUT; REFER TO DECOR DRAWINGS FOR SPECIFICATIONS AND VERIFY SELECTIONS WITH OWNER PRIOR TO ORDERING
4. PRELIMINARY FURNITURE LAYOUT SHOWN, REFER TO DECOR PACKAGE FOR FINAL FURNITURE LAYOUT AND INTERIOR FINISHES (TYP)
5. INSTALL NEW CONVENIENCE ELECTRICAL OUTLETS IN DINING ROOM FOR CUSTOMERS, GC TO COORDINATE WITH DECOR PACKAGE (SUGGESTED LOCATIONS ON DECOR DRAWINGS, SOME MAY REQUIRE CONDUIT CUT INTO SLAB OR DROPPED DOWN FROM CEILING THRU DECORATIVE SCREEN) AND OWNER FOR QUANTITY AND LOCATIONS; GC TO PROVIDE POWER AND CABLE TV/SAT CONNECTIONS FOR WALL MOUNTED TV (SEE DECOR PACKAGE FOR LOCATION) GC TO PROVIDE ELECTRICAL FOR WALL MOUNTED LIGHTS IF CALLED OUT BY DECOR PACKAGE (SEE DECOR INTERIOR ELEVATIONS/ PLANS)
6. GC TO VERIFY OPERATION OF ALL DOOR CLOSERS AND HARDWARE; CLOSERS TO PROVIDE A MAXIMUM 5lbs OPERATING FORCE AND A CLOSING SPEED OF 5 SECONDS MIN
7. FOR DOOR AND WINDOW TYPES, REFER TO SHEET A80
8. ALL OUTSIDE CORNERS IN THE BACK OF HOUSE AREAS ARE TO HAVE CORNER GUARDS; SEE DETAIL 2/A10
9. GC SHALL PROVIDE ALL CONCEALED WALL REINFORCEMENTS REQUIRED BY SUPPLIERS OF ALL PRODUCTS TO BE INSTALLED AND FOR SUPPORT OF WATER LINES



4 ENLARGED VESTIBULE
1/2" = 1'-0"

PROJECT DATA:

NOTE: THIS CODE ANALYSIS DOES NOT DELINEATE DETAILED REQUIREMENTS FOR THE MECHANICAL AND ELECTRICAL SYSTEMS.

CODE CRITERIA

2020 MINNESOTA BUILDING CODE
2020 MINNESOTA ACCESSIBILITY CODE
2020 MINNESOTA ENERGY CODE

BUILDING

OCCUPANCY CLASSIFICATION (SECTION 302)
- GROUP A-2 - RESTAURANT

CONSTRUCTION TYPE
- V-B, NON-SPRINKLERED

BUILDING AREA = 2,004 SF

OCCUPANT LOAD (SECTION 1004)
DINING AREA: 43 OCC.
KITCHEN AREA: 7 OCC.
TOTAL NUMBER OF OCCUPANTS FOR THE BUILDING = **50 OCC.**

EXIT AND EXIT ACCESS (SECTIONS 1005, 1015, 1016, AND 1017)
- EXITS REQUIRED = 2 EXIT(S), 64" OF EXIT WIDTH
- EXITS PROVIDED = 3 EXIT(S), 102" OF EXIT WIDTH
- FIRE-RESISTANCE-RATED CORRIDORS ARE NOT REQUIRED

EXIT SIGNS (SECTION 1003.2.10)
- EXITS AND EXIT ACCESS DOORS SHALL BE MARKED BY AN APPROVED EXIT SIGN READILY VISIBLE FROM ANY DIRECTION OF EGRESS TRAVEL. ACCESS TO EXITS SHALL BE MARKED BY READILY VISIBLE EXIT SIGNS IN CASES WHERE THE EXIT OR THE PATH OF EGRESS TRAVEL IS NOT IMMEDIATELY VISIBLE TO THE OCCUPANTS. EXIT SIGN PLACEMENT SHALL BE SUCH THAT NO POINT IN AN EXIT ACCESS CORRIDOR IS MORE THAN 100 FEET FROM THE NEAREST VISIBLE EXIT SIGN, EXCEPT:
  - EXIT SIGNS ARE NOT REQUIRED IN ROOMS OR AREAS WHICH REQUIRE ONE EXIT OR EXIT ACCESS

FIRE SUPPRESSION SYSTEMS (SECTION 903)
- CONTRACTOR TO PROVIDE AND INSTALL PORTABLE FIRE EXTINGUISHERS AS REQUIRED BY THE LOCAL FIRE MARSHAL. CONTRACTOR TO VERIFY LOCATION AND TYPE WITH THE LOCAL FIRE MARSHAL

MINIMUM # OF REQUIRED PLUMBING FIXTURES (TABLE 2902.1; SECTION 2902)

USE GROUP	OCCUPANTS	MALE				FEMALE			DF	SS
		WC	UR	LAV	SHWR	WC	LAV	SHWR		
A-2	46	1	SUB UP TO .67 OF WC	1	0	1	1	0	1	1
TOTAL PROVIDED		1	1	1	0	2	1	0	1*	1

WC = WATER CLOSET LAV = LAVATORY UR = URINAL
DF = DRINKING FOUNTAIN SK = SERVICE SINK SHWR = SHOWER
*DRINKING FOUNTAIN PROVIDED BY SODA MACHINE DISPENSING WATER

taco john's SINCE 1969

KOMA ARCHITECTS | DESIGNERS | ENGINEERS
6115 CAHILL AVE, INVER GROVE HEIGHTS, MN 55076
P. 651.451.4605 KOMAINC.COM

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin D. Dummer
DATE: _____ REG. NO.: 52915

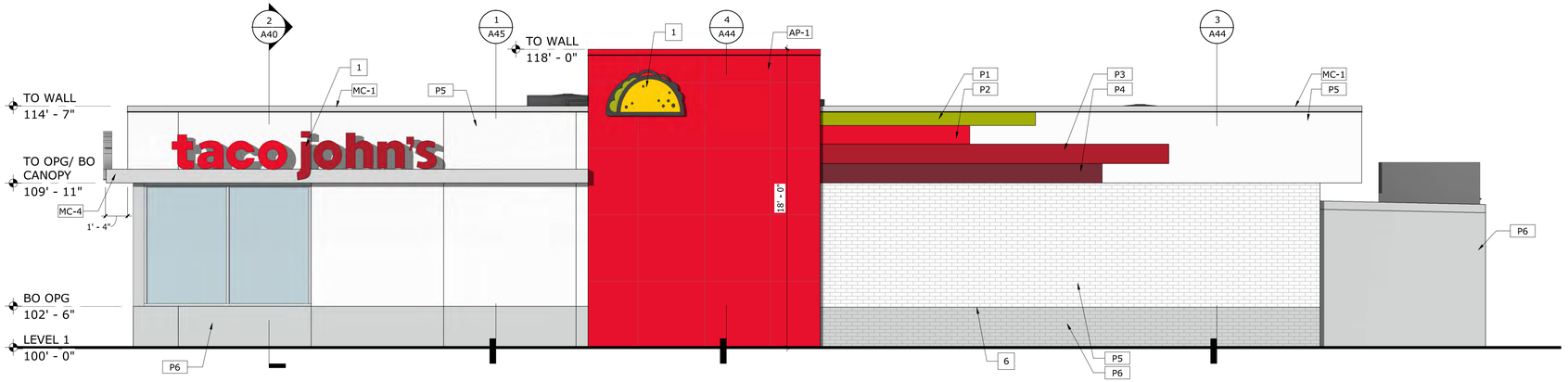
FLOOR PLAN

TACO JOHN'S - REMODEL
1431 4TH ST NW
FARIBAULT, MN 55201

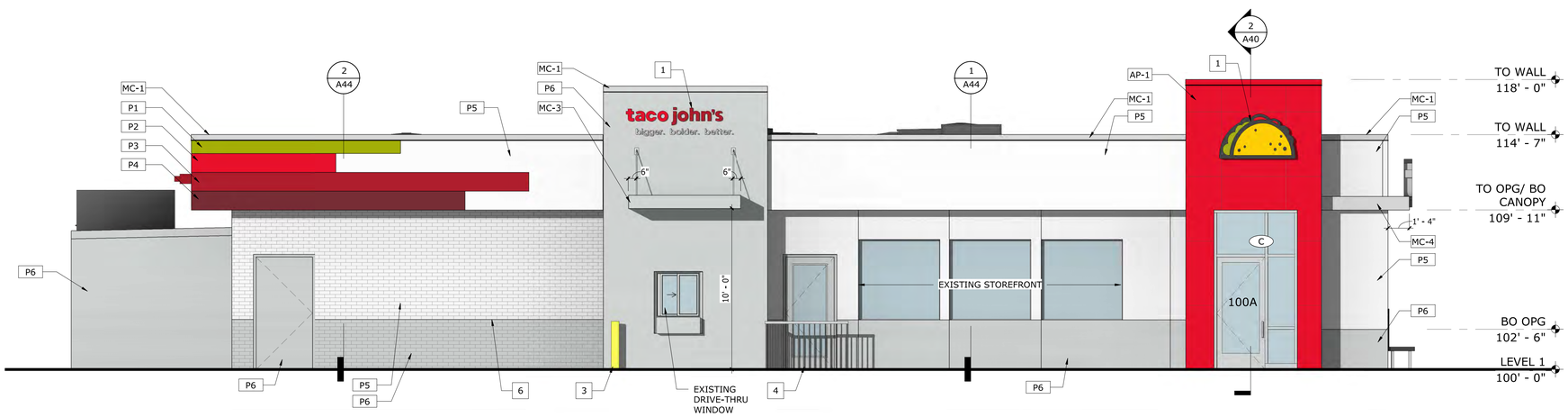
PROJECT:	21120
DRAWN BY:	KDD/LAS
CHECKED BY:	KDD
DATE:	04/09/2022
REVISIONS:	

PRELIMINARY: NOT FOR CONSTRUCTION

A10

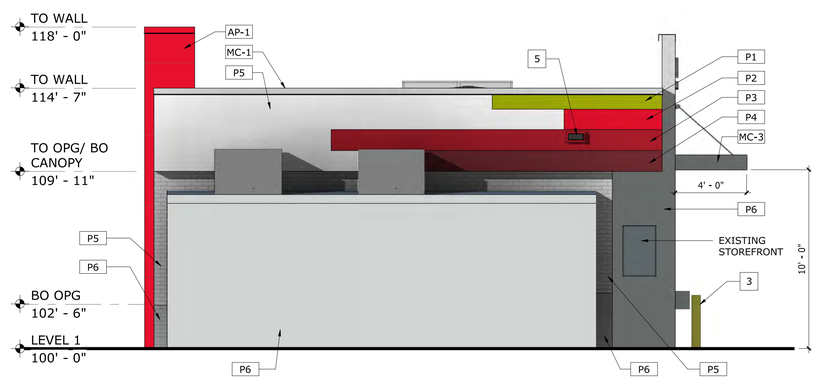


1 WEST ELEVATION
1/4" = 1'-0"



2 EAST ELEVATION
1/4" = 1'-0"

3 NORTH ELEVATION
1/4" = 1'-0"



4 SOUTH ELEVATION
1/4" = 1'-0"

GENERAL NOTES - ELEVATIONS:

1. REFER TO SHEET A80 FOR REFERENCED EXTERIOR FINISHES
2. CANOPY SUPPLIER TO VERIFY DIMENSIONS OF CANOPIES WITH FIELD CONDITIONS AND ENSURE SIZES FIT WITHIN THE PARAMETERS OF THE DESIGN INTENT SHOWN, SEE SHEET A60 FOR MORE INFORMATION
3. GC TO SUPPLY NEW ELECTRICAL FOR NEW UNDER-CANOPY LIGHTS PROVIDED BY CANOPY SUPPLIER
4. GC TO CONNECT NEW PARAPET LIGHT BAND ELECTRICAL TO EXISTING CIRCUITS
5. GC TO SUPPLY NEW POWER AT NEW SIGNAGE LOCATIONS; COORDINATE WITH SIGNAGE VENDOR
6. GC TO INSTALL ALL FIBER CEMENT PRODUCTS IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS INCLUDING BUT NOT LIMITED TO MOISTURE RESISTIVE BARRIER, FLASHING, ETC
7. SUPPORT ROD DESIGN STANDARD (UNO): THE CENTERLINE OF THE OUTSIDE SUPPORTS TO BE 6" FROM THE OUTSIDE EDGES, THEN EVENLY SPACED INTERMEDIATE SUPPORT RODS INSIDE IF NEEDED, TYPICAL ANGLE OF ALL SUPPORT RODS ARE 45° UNLESS NOTED OTHERWISE
8. TOUCH-UP PAINT, AS NEEDED, ALL EXISTING TO REMAIN STOREFONT

KEYNOTES

MARK	NOTE
1	SIGN; SUPPLIED AND INSTALLED BY SIGNAGE VENDOR
2	BRANDING BENCH; BY OWNER
3	EXISTING BOLLARD, PAINT SAFETY YELLOW
4	EXISTING RAILING, PAINT P6
5	EXISTING THRU-WALL SCUPPER, PAINT TO MATCH ADJACENT COLOR
6	COLOR TRANSITION AT GROUT LINE, ALIGN WITH BOTTOM OF WINDOW

taco john's SINCE 1969

KOMA ARCHITECTS | DESIGNERS | ENGINEERS
6115 CAHILL AVE, INVER GROVE HEIGHTS, MN 55076
P. 651.451.4605 KOMAINC.COM

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Kevin D. Dummer

DATE: _____ REG. NO.: 52915

EXTERIOR ELEVATIONS

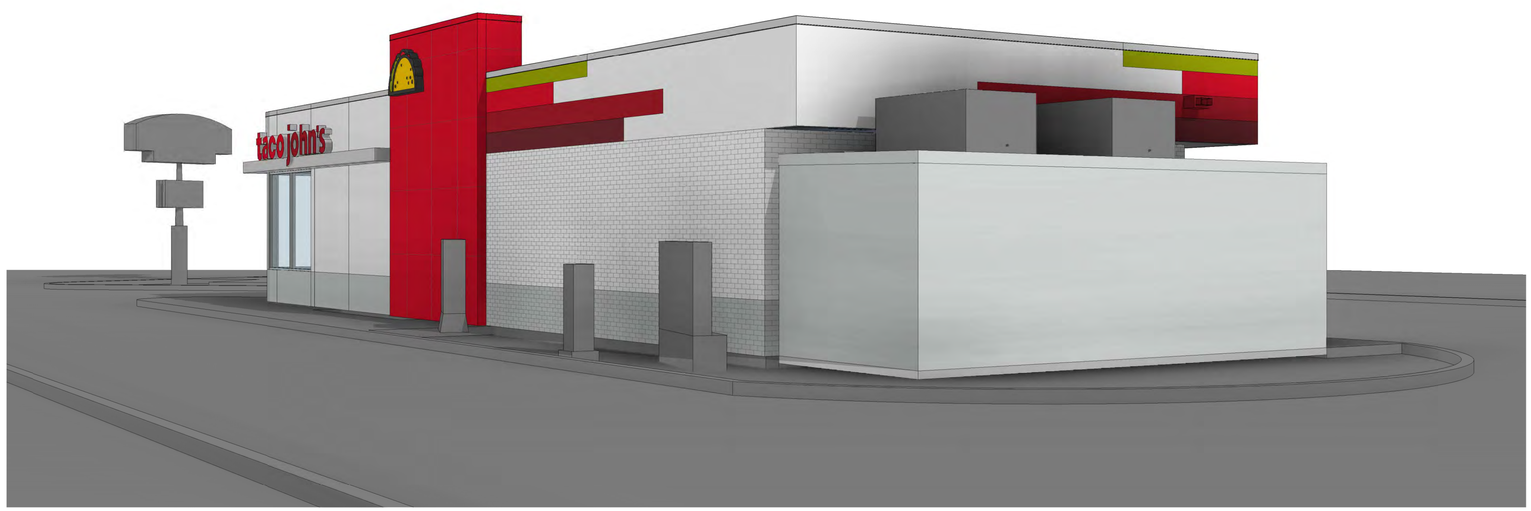
TACO JOHN'S - REMODEL
1431 4TH ST NW
FARIBAULT, MN 55201

PROJECT:	21120
DRAWN BY:	LAS
CHECKED BY:	KDD
DATE:	04/09/2022
REVISIONS:	

PRELIMINARY: NOT FOR CONSTRUCTION

A30

1 3D VIEW



2 3D VIEW

taco john's
SINCE 1969

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Kevin D. Dummer

DATE: _____ REG. NO.: 52915

REFERENCE 3D VIEWS

TACO JOHN'S - REMODEL
1431 4TH ST NW
FARIBAULT, MN 55201

PROJECT:	21120
DRAWN BY:	LAS
CHECKED BY:	KDD
DATE:	04/09/2022
REVISIONS:	

PRELIMINARY:
NOT FOR
CONSTRUCTION

A31

1 3D VIEW

2 3D VIEW

taco john's
SINCE 1968

KOMA
ARCHITECTS | DESIGNERS | ENGINEERS

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Kevin D. Dummer

DATE: _____ REG. NO.: 52915

REFERENCE 3D VIEWS

TACO JOHN'S - REMODEL
1431 4TH ST NW
FARIBAULT, MN 55201

PROJECT:	21120
DRAWN BY:	LAS
CHECKED BY:	KDD
DATE:	04/09/2022
REVISIONS:	

PRELIMINARY:
NOT FOR
CONSTRUCTION

A32

taco john's
SINCE 1969

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Kevin D. Dummer

DATE: _____ REG. NO.: 52915

EXISTING PHOTOS

TACO JOHN'S - REMODEL
1431 4TH ST NW
FARIBAULT, MN 55201

PROJECT:	21120
DRAWN BY:	LAS
CHECKED BY:	KDD
DATE:	04/09/2022
REVISIONS:	

PRELIMINARY:
NOT FOR
CONSTRUCTION

A90

Request for Planning Commission

TO:	Planning Commission
THROUGH:	
FROM:	Mark DuChene, City Engineer
MEETING DATE:	May 16, 2022
SUBJECT:	City of Faribault Application to Amend Ordinances related to the City's Municipal Separate Storm Sewer System (MS4) Permit

Background:

The City's Municipal Separate Storm Sewer System (MS4) permit, which is a required permit administered by the MN Pollution Control Agency (MPCA) and mandated by the Federal EPA, expired in 2018 and was reissued in 2020. The City received approval of the City's renewal application in October 2021 and has 12 months from that date to update City ordinances/policies/etc to be in permit compliance. Attached are the proposed ordinance changes required to be adopted by the City Council in order for the City to become MS4 permit compliant. As part of the proposed ordinance changes related to the City's MS4 permit, City staff is also recommending the Council adopt a Developers Guide for Stormwater Management guidebook which is referenced numerous times in the proposed ordinance changes. This guidebook is intended to be a one-stop shop for all things stormwater/surfacewater related for builders and developers and is intended to synthesize city codes and state/federal/local permit requirements into one place. This guidebook replaces many of the permit level details that are currently in city ordinances.

As part of the MS4 permit renewal, the City also hired a consultant to update the City's Surface Water Management Plan (SWMP). The previous SWMP was completed in 2004. The updated SWMP includes many changes from the 2004 plan including a City wide storm sewer model, updates to design standards and reflects the City's staged growth plan as adopted by the City's Journey to 2040 Comprehensive Plan.

The proposed ordinance changes and SWMP were discussed with the Environment Commission on April 25, 2022, and their comments have been incorporated into the updated draft documents attached. Final drafts of the ordinances and SWMP are scheduled to go to the City Council for adoption at their May 25th and June 14th regular council meetings for adoption.

Recommendation:

Recommend that the City Council approve Ordinance 2022-xxx Amend Ordinances related to the City's Municipal Separate Storm Sewer System (MS4) Permit

Attachments:

1. Ordinance 2022-x Amend the Faribault Code of Ordinances related to the City's Municipal Separate Storm Sewer System (MS4) Permit (002)
2. Developer's Guide_Faribault_Working DRAFT
3. Faribault SWMP_Draft
4. Faribault SWMP_Draft_Appendix

CITY OF FARIBAULT
ORDINANCE No. 2022-x

AMEND THE FARIBAULT CODE OF ORDINANCES RELATED TO THE CITY'S MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT

WHEREAS, Minnesota Administrative Rules, Chapter 7090 requires that the City of Faribault have a Municipal Separate Storm Sewer System (MS4) General Permit; and

WHEREAS, City staff worked with Minnesota Pollution Control Agency (MPCA) staff to ensure that the Faribault Code of Ordinances, as amended by this ordinance, is consistent with the current (2020) MS4 General Permit requirements; and

WHEREAS, the Planning Commission, on May 16, 2022, following proper notice, held a public hearing regarding the proposed ordinance amendments; and

WHEREAS, following the public hearing, the Planning Commission recommended that the City Council amend the Faribault Code of Ordinances related to the City's MS4 General Permit requirements based on the following written findings:

1. The amendments are consistent with the City's Journey to 2040 Comprehensive Plan policies, which acknowledge the importance of proper stormwater management.

2. The amendments are in the public interest and are not solely for the benefit of a single property owner. The proposed amendments will help control and manage stormwater throughout the city and help protect the public's health, safety, and welfare.

3. The amendments will help protect public and private property in the city from uncontrolled stormwater runoff.

4. The amendments will help ensure that stormwater runoff will not diminish the public's enjoyment and use of the city's natural resources.

WHEREAS, the City Council held a public meeting on _____, 2022, to consider approval of the first reading of Ordinance 2022-x; and

WHEREAS, the City Council also held a public meeting on _____, 2022, to consider approval of the second reading of Ordinance 2022-x; and

WHEREAS, based on the City Staff report, the results of the public hearing, and the written findings and recommendation of the Planning Commission, the Faribault City Council concurs with the written findings of the Planning Commission as stated in the above recitals and makes the identical findings.

NOW, THEREFORE, THE CITY OF FARIBAULT ORDAINS:

Section 1: Findings and Incorporation of Recitals. This ordinance incorporates the above-stated recitals and findings, which are the written findings of the Faribault City Council.

Section 2: Amendment to Chapter 28, Article VII, Stormwater Pollution and Prevention and Wetland Protection. The Faribault City Council hereby amends Chapter 28, Article VII, of the Faribault Code of Ordinances by the addition of the underlined language and removal of the ~~stricken~~ language as follows:

ARTICLE VII. STORMWATER POLLUTION PREVENTION AND WETLAND PROTECTION[1]

Sec. 28-220. Purpose of article.

The purpose of this article is to control or eliminate stormwater pollution along with soil erosion and sedimentation within the city through requirements and standards for conservation practices and planning activities. This article also regulates wetlands and the areas around wetlands. Wetlands maintain the water quality and are critical to stormwater management.

Sec. 28-221. – Incorporation by reference.

The following are incorporated into this chapter by reference:

(1) The National Pollutant Discharge Elimination System, MN R100001 (NPDES General Stormwater Permit for Construction Activity) issued by the Minnesota Pollution Control Agency, as amended.

(2) The City of Faribault's Municipal Separate Storm Sewer System (MS4) Permit issued by the Minnesota Pollution Control Agency, as amended.

(3) The City of Faribault's Developer's Guidelines for Stormwater Management.

(4) The City of Faribault's Surface Water Management Plan.

Sec. ~~28-221~~ 28-222. Definitions.

For purposes of this article, the following words, terms and phrases shall have the following meanings respectively ascribed to them in this section:

Applicant means any person, entity or group that applies to the city for a building permit, subdivision approval, or a grading permit. Applicant also means that person or entity's agents, employees, contractors, subcontractors and others acting under the person, entity or group's direction.

Best management practices or *BMPs* means erosion and sediment control and water quality management practices that are the most effective and practicable means of controlling, preventing, and minimizing the degradation of surface water, including construction phasing, minimizing the length of time soil areas are exposed, prohibition of practices, and other management

practices published by state or designated area-wide planning agencies.

Common plan of development or sale means a contiguous area where multiple separate and distinct land disturbance activities may be taking place at different times, or on different schedules, but under one proposed plan of development.

Developer's Guide means the standards adopted and amended from time to time by resolution of the Council which provide information and establish standards, specifications, and details for the construction of public and private improvements, as on file with the City Engineer.

Discharge means the release, conveyance, channeling, runoff, or drainage of stormwater including snow melt, from a construction site.

Energy dissipation means methods employed at pipe outlets to prevent erosion. Examples include, but are not limited to, aprons, riprap, splash pads and gabions that are designed to prevent erosion.

Erosion means any process that wears away the surface of the land by the action of water, wind, ice or gravity. Erosion can be accelerated by the activities of people or nature.

Erosion control means the methods employed to prevent erosion. Examples include soil stabilization practices, horizontal slope grading, temporary or permanent cover, and construction phasing.

FEMA means the Federal Emergency Management Agency.

Final stabilization means that all land disturbance activities on the site have been completed, and that a uniform (evenly distributed, without any large bare areas) perennial vegetative cover with a density of seventy-five (75) percent of the total of all unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures have been employed. The sowing of grass seed is not considered to be final stabilization. Where agricultural land is involved, final stabilization shall require that the site be returned to its preconstruction agricultural use.

Grading permit means a written warrant or license granted by the city to allow land disturbance activities.

Impaired water means all bodies of water that are listed on the Minnesota Pollution Control Agency's List of Impaired Waters.

Impervious surface means a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than existed prior to any development of the property. Examples include, but are not limited to, rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads.

Land disturbance activity/activities means any activity or activities on a site that may result in soil erosion from water or wind. It shall also mean any movement of sediments upon lands or into or upon waters within the city's jurisdiction, including construction, clearing and grubbing, grading, excavating, transporting and filling of land. Within the context of this article, land disturbance activities shall not include:

(1) Activities such as home gardens or residential landscaping, or other repairs or maintenance work that creates less than five thousand (5,000) square feet of exposed soil or impervious surface or removing 10 cubic yards or more of soil;

(2) Additions or modifications to an existing single family structure that results in creating less than five thousand (5,000) square feet of exposed soil or impervious surface or removing 10 cubic yards or more of soil;

(3) The construction, installation, and maintenance of fences, signs, posts, poles, and electric, telephone, cable television, utility lines or individual service connections to these utilities, which result in creating less than five thousand (5,000) square feet of exposed soil or impervious surface or removing 10 cubic yards or more of soil;

(4) The tilling, planting, or harvesting of agricultural, horticultural, or silvicultural crops; and

(5) Emergency work performed in order to protect life, limb, or property. If SWPPP would have been required for the emergency work pursuant to this article, then the disturbed land area shall be shaped and stabilized in accordance with the requirements set forth in this article as soon as possible after the emergency situation is under control.

MnDOT means the Minnesota Department of Transportation.

MPCA means the Minnesota Pollution Control Agency.

Native vegetation means plant species indigenous to or naturalized to Minnesota and classified as native to Minnesota by the Minnesota Department of Natural Resources.

New Development means any site with less than 15% of existing impervious prior to the commencement of construction activity.

NPDES General Stormwater Permit for Construction Activity means the National Pollutant Discharge Elimination System General Stormwater Permit for Construction Activity as required by the Minnesota Pollution Control Agency.

Ordinary high water level means the boundary of water basins, watercourses, public waters, and public waters wetlands, and:

(1) The ordinary high water level is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial;

(2) For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel; and

(3) For reservoirs and flowages, the ordinary high water level is the operating elevation of the normal summer pool.

Premises means any building, lot, parcel of land, or portion of land whether improved or unimproved, including adjacent sidewalks.

Redevelopment means any site with more than 15% of existing impervious surfaces prior to the commencement of construction activity.

Sediment means the product of an erosion process which consists of solid material that may be mineral or organic that is in suspension, is being transported, or has been moved by water, wind, or ice, and has come to rest on the earth's surface either above or below the water level.

Sedimentation means the process or action of depositing sediment.

Sediment control means the methods employed to prevent sediment from leaving the site. Examples of sediment control practices are silt fences, sediment traps, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, storm

drain inlet protection, and temporary or permanent sedimentation basins.

Soil means the unconsolidated mineral or organic material on the immediate surface of the earth. For the purposes of this article, temporary stockpiles of clean sand, gravel, aggregate, concrete or bituminous materials are not considered soil.

Stabilized or *stabilization* means the exposed ground surface, after it has been covered by sod, an erosion control blanket, riprap, pavement or other material that prevents erosion. Simply sowing grass seed is not considered stabilization.

Steep slope means any slope steeper than fifteen (15) percent of rise for every one hundred (100) feet of horizontal run.

Stormwater shall mean any precipitation runoff, stormwater runoff, snow melt off, and any other surface runoff and drainage.

Stormwater pollution prevention plan or *SWPPP* means a plan for stormwater drainage that includes erosion prevention measures and sediment controls that, when implemented, will minimize soil erosion on a site and minimize off-site non-point pollution to the maximum extent possible.

Structure means any improvement that is manufactured, constructed or erected which is normally attached to or positioned on a site, including, but not limited to, portable structures, earthen structures, roads, parking lots and paved storage areas.

Subdivision shall mean land that is divided for the purpose of sale, rent, or lease, including a planned unit development.

Very steep slope means any slope steeper than one foot of rise for each three (3) feet of horizontal run (a slope of thirty-three (33) percent).

Waters of the state shall mean all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

Wet detention facilities means permanent man-made structures that contain permanent pools of water that are used for the temporary storage of stormwater runoff.

Wetlands shall mean those areas that are inundated or saturated by surface water or groundwater at a frequency and duration

sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Constructed wetlands designed for wastewater treatment are not waters of the state. Wetlands must have the following attributes:

(1) A predominance of hydric soils;

(2) Inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition; and

(3) Under normal circumstances support a prevalence of such vegetation.

Wetland buffer strip means a protective vegetated zone located adjacent to a water of the state or a wetland, that is subject to direct or indirect human alteration. A wetland buffer strip is an integral part of protecting an aquatic ecosystem of a body of water by trapping sheet erosion, filtering pollutants, reducing channel erosion and providing adjacent habitat.

Sec. ~~28-222~~ 28-223. Scope of article.

Except in instances where a variance from this article is granted by the city, any applicant proposing a land disturbance activity within the city that is ~~one-half (½)acre~~ 5,000 square feet or greater or 10 cubic yards or greater shall apply to the city for a grading permit and shall submit a grading plan with the application. Except in instances where a variance from this article is granted by the city, any applicant proposing a land disturbance activity within the city that is one acre or greater, shall apply to the city for a grading permit and shall submit a grading plan and a SWPPP with the application. No land shall be disturbed until the grading plan and SWPPP, if required, is approved by the city engineer or his or her designee and the grading permit is issued.

Sec. ~~28-223~~ 28-224. Swppp and grading permit application submittal procedures.

Every applicant performing a land disturbance activity that requires a SWPPP must submit a SWPPP and grading plan along with a completed grading permit application to the city for review. The city shall not issue any grading permit, approve any land use application or issue any building permit until the grading permit application, including the

grading plan and SWPPP, if required or a variance from the requirements of this Code have been approved in strict conformance with this article and the City's Developer's Guidelines for Stormwater Management. All land use approvals and building permits for the site in question must not be issued until the applicant has received approval of its grading permit application, including the grading plan and SWPPP, if required by the city engineer or his or her designee.

Individual lots in a common plan of development or sale shall be subject to the requirements of this article and the NPDES General Stormwater Permit for Construction Activity, but shall not be required to obtain individual grading permits for each lot, so long as a grading permit has been issued for the entire common plan of development or sale.

Sec. ~~28-224~~ 28-225. Grading permit review and issuance.

The city engineer or his or her designee shall review the applicant's grading permit application, grading plan and SWPPP, if required. The grading permit shall be issued by the city engineer or his or her designee to the applicant upon approval of the application if all requirements of this article and the City's Developer's Guidelines for Stormwater Management are met.

Sec. ~~28-225~~ 28-226. Grading plan contents.

The grading plan, if required, must include all of the items that are specified in section ~~27-230~~ 28-231 and the City's Developer's Guidelines for Stormwater Management.

Sec. ~~28-226~~ 28-227. Swppp contents.

At a minimum, the applicant's SWPPP must include all items as required by the NPDES General Stormwater Permit for Construction Activity and the City's Developer's Guidelines for Stormwater Management. ~~and shall contain the following information:~~

~~(1) The name and address of the applicant;~~

~~(2) A legal description of the site;~~

~~(3) A map of all adjacent areas to the site that identifies all waters of the state, subdivisions, roads, utilities and other areas which might be affected by the land disturbance activity. If SWPPP involves directing some or the entire site's runoff to adjacent properties, the applicant shall obtain from adjacent property owners any necessary easements to permit the runoff to flow onto their properties;~~

~~(4) A map of the existing site conditions that includes the existing topography of the site, the location of any steep and very steep slopes, the location of existing drainage systems and patterns, the types of soils, the location of any waters of the state, the location of any vegetative cover, the location of any one hundred (100) year floodplain boundaries and the locations of any existing and proposed wetland buffer strips;~~

~~(5) A description of the project, including the nature and purpose of the land disturbance activity and a description of the grading work, utility work, and building construction involved;~~

~~(6) A schedule of the start and completion dates of each land disturbance activity on the site, including the estimated dates of installation of the required erosion prevention measures for each phase and the construction schedule;~~

~~(7) A site construction plan that includes the location of the proposed land disturbance activities and any stockpile locations;~~

~~(8) A designation of the site's areas that have the potential for serious erosion problems;~~

~~(9) A description of the proposed erosion and sediment control measures to be undertaken, including the methods that will be used to control erosion and sedimentation on the site, both during and after construction;~~

~~(10) A description of the proposed permanent stabilization measures to be taken, including stabilization specifications, time frames and schedules;~~

~~(11) The location of all existing and proposed permanent and temporary sedimentation basins;~~

~~(12) A description of the method to be used to dispose of temporary erosion and sediment control measures;~~

~~(13) A description of the method to be used to maintain the temporary and permanent erosion and sediment controls;~~

~~(14) A description of the method to be used to collect and dispose of sediment and floating debris; and~~

~~(15) A street sweeping schedule for the site.~~

Sec. 28-227. SWPPP performance standards.

At a minimum, stormwater pollution prevention practices set forth in the SWPPP and all work on the site must conform to the requirements as stated in the most current versions of the NPDES General Stormwater Permit for Construction Activity for erosion, sediment, and waste controls, the City's Developer's Guidelines for Stormwater Management, ~~the MPCA publication "Protecting Water Quality in Urban Areas"~~ and the MnDOT publication "Standard Specifications for Construction". ~~In addition, all SWPPPs shall meet all of the following requirements:~~

~~(1) All grading plans and building site surveys must be reviewed by the city engineer or his or her designee for the effectiveness of erosion control measures in the context of the site's topography and drainage;~~

~~(2) The site's activities shall be scheduled so that they lessen impacts on the creation of erosion and sedimentation creation, by minimizing the amount of exposed soil;~~

~~(3) All exposed soils and soil stockpiles must be stabilized at all times in accordance with the time frame or schedule that is specified in the SWPPP;~~

~~(4) The construction and stabilization of any steep or very steep slope must be designed by a licensed professional engineer;~~

~~(5) All permanent vegetation must be established in accordance with the time frame or schedule that is specified in the SWPPP;~~

~~(6) Sediment damage to adjacent properties, waters of the state, wetlands and unique vegetation (such as historical specimen trees or plant communities, plants on the limits of their natural range, and canopy trees or shrubs that protect rare or endangered plants growing under them) shall be prevented;~~

~~(7) Sufficient silt fences shall be installed to hold all sheet flow runoff generated at an individual site, until it can either infiltrate or seep through silt fence's pores;~~

~~(8) Precautions must be taken to contain sediment, when working in or crossing waters of the state or wetlands;~~

~~(9) All outlets to waters of the state or wetlands must be stabilized within the timeframes as specified in the NPDES General Stormwater Permit for Construction Activity;~~

~~(10) Accelerated channel erosion must not occur at any time;~~

~~(11) Stormwater runoff from the site shall be controlled as follows:~~

~~(a) Unless precluded by heavy snow cover, all exposed inactive disturbed soil areas shall be stabilized with sod or weed free anchored mulch according to timeframes as specified in the most current version of the NPDES General Stormwater Permit for Construction Activity.~~

~~(b) Temporary sedimentation basis are required for disturbed areas greater than ten (10) acres. Temporary sedimentation basins must meet the location and design requirements as set forth in the most current version of the NPDES General Stormwater Permit for Construction Activity. Impaired waters and special waters may have additional specific requirements regarding temporary sedimentation basins that must be followed.~~

~~(c) Temporary sedimentation basins are encouraged, but not required for disturbed areas less than ten (10) acres, unless otherwise required by the city engineer or his or her designee. However, the applicant shall still be responsible for installing erosion and sediment controls at locations specified in its SWPPP.~~

~~(12) Where a site's ultimate development replaces surface vegetation with one or more acres of impervious surface and all stormwater runoff has not been accounted for in the SWPPP, the stormwater runoff must be discharged to a wet sedimentation basin or by an other approved method prior to entering any waters of the state;~~

~~(13) At a minimum, stormwater wet detention facilities must conform to the most current technology as reflected in the MPCA's publications, "Protecting Water Quality in Urban Areas" and "The Minnesota Stormwater Manual" and the requirements found in the most current version of the NPDES General Stormwater Permit for Construction Activity.~~

~~(14) All storm drain inlets must be protected during construction on the site with either catch basin debris catchers or similar measures which allow for emergency overflow situations and they meet accepted design criteria, standards and~~

~~specifications set forth by the city and MnDOT's most current standard specifications for construction;~~

~~(15) All city storm sewers must be protected from sediment by utilizing inlet controls that are approved by the city engineer or his or her designee;~~

~~(16) Private and public utility construction areas must be restabilized as soon as possible;~~

~~(17) All paved roads must be protected from sediment and mud that is brought in from access routes. All construction entrances to the site shall contain temporary rock, stone pads, concrete or steel wash pads or equally effective means of preventing vehicles from tracking sediment from the site. All stabilized construction entrances shall be built to MnDOT and city specifications. This material shall be in place prior to the commencement of grading activities on the site;~~

~~(18) Streets must be cleaned and swept whenever tracking of sediments occurs and before site work is idle for a period of more than twenty-four (24) hours;~~

~~(19) All waste and unused materials (including, but not limited to, garbage, debris, cleaning wastes, wastewater, toxic materials or hazardous materials) shall be properly disposed of and not allowed to be carried off site by storms, wind, etc.;~~

~~(20) The applicant must properly install all erosion and sediment control BMP's before any construction activity begins. Such erosion and sediment control BMP's may be adjusted after installation during dry weather to accommodate short-term activities, such as those allowing the passage of very large vehicles. As soon as this activity is completed or before the next runoff event occurs, the erosion and sediment control BMP's must be returned to the configuration specified in SWPPP;~~

~~(21) Stormwater runoff around disturbed areas or channels must be protected; and~~

~~(22) Water removed from the site by pumping that is impacted by the construction activities must be treated by temporary sedimentation basins, silt sock, geotextile filters, grit chambers, sand filters, up-flow chambers, hydro-cyclones, swirl concentrators, vegetated swales or other appropriate controls. No water shall be discharged in a manner that causes erosion or flooding of the site, receiving channels,~~

~~adjacent property or a wetland using methods for energy dissipation.~~

Sec. ~~28-228~~ 28-229. Permanent structural best management practices.

(1) The applicant shall use permanent structural best management practices in order to achieve the applicable minimum control requirements for water quality ~~as specified by the most current version of the NPDES General Stormwater Permit for Construction Activity~~. The applicant shall provide justification for the best management practice(s) selected.

(2) The applicant shall install or construct all permanent stormwater management facilities in accordance with the City's Developer's Guidelines for Stormwater Management and Surface Water Management Plan ~~necessary to manage increased runoff so that the peak stormwater discharge rates from the stormwater treatment basins do not exceed the predevelopment twenty-four (24), two (2) year, ten (10) year and one hundred (100) year peak stormwater discharge rates. The predevelopment stormwater discharge rates shall be based on the use of the property during the past ten (10) years. All calculations and information used to determine the peak stormwater discharge rates shall be submitted by the applicant with the grading permit application. Accelerated channel erosion must not occur as a result of the proposed land disturbing or development activity~~. In lieu of installing all or a portion of the required permanent stormwater management facilities, an applicant may agree to make an in-kind or monetary contribution to the development and maintenance of a community stormwater management facility that is designed to serve multiple properties that shall be addressed as part of a development agreement.

~~(3) The following permanent stormwater management practices must be investigated in developing the stormwater management portion of the SWPPP:~~

~~(a) Protect and preserve as much natural or vegetated area on the site as possible;~~

~~(b) Minimize impervious surfaces;~~

~~(c) Direct runoff to vegetated areas rather than to adjoining streets, storm sewers and ditches;~~

~~(d) Flow attenuation of treated stormwater by the use of open vegetated swales and natural depressions;~~

~~(e) Utilize stormwater wet detention facilities (including percolation facilities); and~~

~~(f) Reduce the need for permanent stormwater management facilities by incorporating the use of natural topography and land cover such as natural swales and depressions as they existed prior to the land disturbance activities to the degree that they can accommodate the additional flow of treated water without compromising the integrity or quality of the body of water.~~

Sec. ~~28-229~~ 28-230. Minimum design standards for permanent stormwater facilities.

(1) Permanent stormwater facilities must incorporate the most current technology as reflected in the current version of the ~~MPCA publications "Protecting Water Quality in Urban Areas" and the~~ "Minnesota Stormwater Manual" and the current design requirements set forth in the NPDES General Stormwater Permit for Construction Activity, and the City's Developer's Guidelines for Stormwater Management and Surface Water Management Plan.

(2) A permanent stormwater facility's design shall take into account seasonal changes that may affect system function, such as infiltration capabilities during frozen winter months and must be designed so that proper treatment can still be achieved during these times.

(3) Long-term inspection and maintenance plans for privately-owned permanent stormwater management facilities are required and must be in conformance with the City's Developer Guidelines for Stormwater Management and Surface Water Management Plan. ~~They must be submitted with the grading permit application to the city for review and approval.~~

Sec. ~~28-230~~ 28-231. Grading performance standards.

(1) At a minimum, grading practices must conform to the grading performance standards as stated in the most current City's Developer's Guidelines for Stormwater Management.

(2) Upon completion of project grading, areas to be dedicated to the city for park purposes shall be left in an acceptable condition. The parks and recreation director or his or her designee shall inspect the area(s) before final acceptance by the city. Grading requirements for the park area are as follows:

(a) The park must be graded to a condition in order to permit mowing that is of a grade that is not rough or uneven. All clods of soil, rocks, sticks and brush must be removed;

(b) There must be at least six (6) inches of topsoil over the entire area;

(c) Drainage must be provided from the area; and

(d) If the park abuts a street, a four (4) foot perimeter must be sodded. The remaining disturbed park area must be stabilized with disc-anchored mulch and seeded with MnDOT seek mix 260 or its equivalent.

~~(2)~~(3) The city shall perform a grading inspection before preparation of any required as-built plan. The city shall issue a punch list to the applicant of any items requiring corrective action, if necessary. Punch list items shall be completed by the applicant and approved by the city prior to submitting any required as-built plan.

~~(3)~~(4) Upon completion of project grading of one acre or greater, the applicant shall submit to the city electronic files of the as-built drawing of the project in AutoCAD drawing (.dwg) and text file (.txt) format for its review and approval. The as-built drawings and digital files shall meet the requirements of the City's Developer's Guidelines for Stormwater Management or as required by the City Engineer. ~~The text file shall including a northing, easting, description and elevation for each point. The drawing shall be based on the current Rice County coordinate system and be 1"=50' scale or larger. No building permits will be issued until the as-built drawing has been approved by the city. Information on the as-built drawing must include the following information:~~

~~(a) Contact information for the engineering firm, developer, owner and contractor;~~

~~(b) A north arrow;~~

~~(c) A location map indicating the vicinity of the site;~~

~~(d) Two (2) foot contour information that includes contour labeling and extends a minimum of two hundred (200) feet beyond the property boundary that shows features such as buildings, structures, walls, trees, fences, etc., and any hydrologic features such as wetlands, ponds, lakes and streams that are wholly or partially encompassed by the project perimeter;~~

~~(e) Directional arrows to indicate the site and lot drainage directions;~~

~~(f) Detailed information on stormwater ponds, wetlands, lakes and streams which must include the following:~~

~~i. The normal water elevation and one hundred (100) year design storm high water level;~~

~~ii. The ordinary high water level for all wetlands on the site, if available;~~

~~iii. Whether the streams on the site are protected by the Department of Natural Resources;~~

~~iv. Wetland delineations for any wetlands on the site along with the location of any required wetland buffer monument;~~

~~v. Constructed stormwater pond cross sections showing the depth in feet; and~~

~~vi. The location of any FEMA floodplain or floodway as shown on the most current FEMA Flood Insurance Rate Maps that is located on the site.~~

~~(g) If the property involves more than one lot, information on the individual lots, which must include the following:~~

~~i. The type of structure;~~

~~ii. The lowest ground elevation adjacent to the building;~~

~~iii. Lot corner spot elevations;~~

~~iv. Mid-point side lot spot elevations;~~

~~v. Spot elevations at any high points or drainage breaks;~~

~~vi. Spot elevations where drainage swales intersect lot lines; and~~

~~vii. Spot elevations where drainage and utility easements intersect with lot lines;~~

~~(h) All existing and proposed easements and outlots;~~

~~(i) All adjacent plats, parcels, property lines, section lines, streets and underground utilities (both public and private); and~~

~~(j) Other items as required by the city.~~

~~(4)~~(5) Failure by the applicant to complete and submit the required as-built drawing shall result in the city completing the as-built drawing and deducting the costs of preparing the drawing from the applicant's financial security.

Sec. ~~28-231~~ 28-232. Wetlands and wetland buffer strips.

In order to protect all wetlands, this article incorporates by reference the Minnesota Wetland Conservation Act of 1991, M.S. §§ 103G.222—103G.2373 (hereinafter referred to as the "WCA") and any future amendments to the WCA adopted by the legislature. The City's standards for wetlands and wetland buffer strips must meet the minimum conditions included in the City's Developer's Guidelines for Stormwater Management. Any activities with respect to wetlands that are exempted from the provisions of the WCA may in some instances not be exempted from the requirements of this article or the City's Developer's Guidelines for Stormwater Management. The provisions of this article and the City's Developer's Guidelines for Stormwater Management pertain to all wetlands within the city, including any that are regulated by other entities.

(1) *Minimum protections for wetlands during construction on the site:*

(a) Any runoff from the site must not be discharged directly into any wetland without appropriate quality and quantity stormwater runoff control, depending on the individual wetland's sensitivity classification as determined by the board of soil and water resources.

(b) All work by the applicant in and around wetlands must be conducted using the following standards: avoid activities that may directly or indirectly destroy or diminish the wetland; limit the degree or magnitude of the wetland-related activity; repair, rehabilitate, or restore the affected wetland environment with one wetland of at least equal value; perform preservation and maintenance operations on the wetland throughout any activity on the site.

(c) The Minnesota Pollution Control Agency's Stormwater Best Management Practices shall be adhered to at all

times during the construction process in order to avoid any erosion and sedimentation to the wetland.

(2) *Assessment of wetlands and wetland buffer strips:*

(a) It is the responsibility of the applicant to determine whether a wetland exists on a site or a structure setback from a wetland on an adjacent property is required. The applicant must delineate and document the boundaries of any wetlands on the site in a report in accordance with the WCA requirements. For applications involving property containing a wetland submitted after the date this article is effective and unless otherwise exempted, a permanent wetland buffer strip must be maintained around each wetland located on or adjacent to the site along with structure setbacks required by this article.

(b) The type of wetland buffer strip that is required shall be determined by the functional value of the wetland through the results of a Minnesota Routine Assessment Method ("MNRAM") assessment that shall be conducted by the applicant. Wetlands are classified as high, medium, or low quality based on the MNRAM assessment.

(3) *Required submittals.* When a wetland buffer strip is required by this article, the following must be delivered to the city before the city will issue any building permits for the site:

(a) Reports of the applicant's MNRAM assessment and wetland delineation for the site;

(b) An executed conservation easement in favor of the city for protection of the wetlands and wetland buffer strips on the site. The easement must legally and geographically describe the boundaries of the wetlands and wetland buffer strips, wetland buffer strip markers and their locations and prohibit any structures, paving, mowing, introduction of non-native vegetation, cutting, filling, dumping, yard waste disposal, fertilizer application or removal of the wetland buffer strip markers within the wetland buffer strip or the wetland;

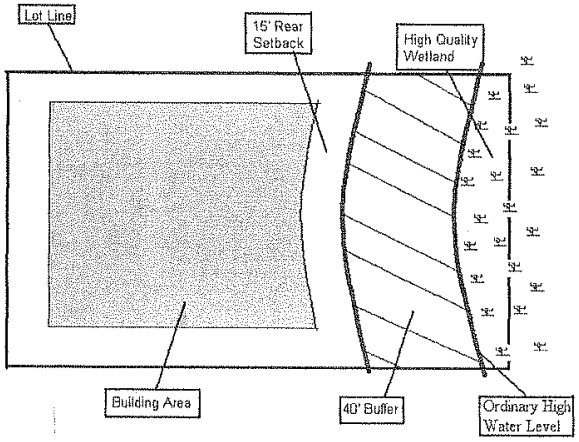
(c) Evidence that the easement document was recorded in the Rice County recorder's office along with a duplicate original of the easement document; and

(d) Proof that the wetland buffer strip markers have been installed.

(4) *Determination of required wetland buffer strips and structure setbacks.* The wetland buffer strips required for each wetland shall be measured from the ordinary high water level in cases involving wetlands and the top of the bank of the channel in cases involving rivers and streams. The structure setbacks shall be measured from the outer edge of the wetland buffer strip to the structure. The required dimensions for all wetland buffer strips and structure setbacks are listed below. The wetland buffer strip's width may be adjusted along the wetland's boundaries so long as the width does not fall below the minimum width required by this article. Publicly owned trails for educational and recreational purposes may be included as part of the wetland buffer strip's width calculations.

MNRAM Wetland Classification	High Quality	Medium Quality	Low Quality
Wetland buffer strip minimum width:	40 feet	25 feet	15 feet
Minimum structure setback: (from the outer edge of the wetland buffer strip)	15 feet	15 feet	15 feet

Example of wetland buffer strip and minimum structure setback requirements as applied to a high quality wetland:



(5) *Property exempt from wetland buffer strip and setback requirements.* Wetland buffer strips and setbacks are not required for wetlands on or adjacent to sites where the WCA would exempt the draining or filling of the wetland from the replacement plan requirements. Wetland buffer strips and setbacks shall also not be required for roadways that must be aligned either adjacent to or

across a wetland and are subject to WCA replacement requirements where additional wetland filling would be required to create a wetland buffer strip. Public trails shall also be exempted from the wetland buffer strip and setback requirements. The required wetland buffer strip structure setback for all other roadways, private trails, parking lots and related retaining walls and fences shall be five (5) feet from the wetland buffer strip.

(6) *Septic and soil absorption system setback requirements.* All septic and soil absorption systems on the site must be set back a minimum of fifty (50) feet from any boundary of the wetland. For purposes of determining this setback, the boundary of the wetland shall be determined by the MNRAM assessment.

(7) *Wetland buffer strip markers.* All wetland buffer strips shall be equipped with permanent markers in order to identify the boundary of the wetland buffer strip on each lot. One marker shall be placed per lot at the upslope edge of the required wetland buffer strip and placed every two hundred (200) feet and on all common lot lines. The marker may be purchased from the city at cost and must be installed before building permits are issued.

(8) *Wetland buffer strip vegetation requirements.* Where acceptable predevelopment natural vegetation exists in a wetland buffer strip, the retention of that vegetation in an undisturbed state shall be required. A wetland buffer strip has acceptable natural vegetation if it has a continuous, dense layer of perennial grasses, trees, and/or shrubs that have been uncultivated or unbroken for at least ten (10) consecutive years.

(9) *Encroachment into wetland buffer strips and wetlands.* All wetland buffer strips and wetlands must be kept free of all structures, including, but not limited to, fences and play equipment and shall stay in an undisturbed state. Patios and decks may encroach up to a maximum of six (6) feet into wetland buffer strip setback areas. Porches shall not encroach into wetland buffer strip setback areas. All structures on a site that are intended to provide access across a wetland (such as boardwalks) are prohibited on a wetland buffer strip or wetland unless a wetland permit is obtained from the Rice County Soil and Water Conservation District. Wet detention facilities may encroach into wetland buffer strips, provided that the amount of the wetland buffer strip encroached upon does not exceed fifty (50) percent of the total area required for such ponding, and provided that the amount of wetland buffer strip encroached upon does not exceed fifty (50) percent of the

total area required for the wetland buffer strip with the exception of instances where two (2) cell water quality ponding that is approved by the city is utilized.

Sec. ~~28-232~~ 28-233. Maintenance requirements.

The applicant shall be responsible at all times for the maintenance and proper operation of all erosion prevention, ~~and~~ sediment, and waste control measures. The applicant shall also inspect, maintain and repair all disturbed surfaces, erosion prevention measures, sediment and waste control measures and soil stabilization measures on the site at least once every seven (7) days and within twenty-four (24) hours after every storm or snow melt large enough to result in runoff from the site (approximately one-half (½) inch or more in a twenty-four (24) hour period) until the land disturbance activity has ceased. Inspections need to only occur once per month during winter months during conditions when the ground is frozen, provided that any snow melt inspections are still completed. Thereafter, the applicant shall continue to perform these responsibilities at least once every seven (7) days until final stabilization. The applicant shall maintain a record of all of its activities required by this article for inspection by the city upon request. All inspections and maintenance shall conform to the requirements as outlined in the NPDES General Stormwater Permit for Construction Activity.

Sec. ~~28-233~~ 28-234. Inspection.

The applicant shall allow the city engineer or his or her designee access to the site at all times for the purposes of inspection in order to ensure compliance with the SWPPP, the NPDES General Stormwater Permit for Construction Activity and requirements of this article. The city's inspections shall include reviewing the location, maintenance and effectiveness of any best management practices and reviewing the applicant's weekly inspection records. If, upon inspection of the site, the city finds that any private stormwater management facilities or erosion prevention and sediment control measures require maintenance, repair or replacement, but such deficiencies do not create a critical or imminent threat to adjacent properties, the environment, or other stormwater facilities, the applicant shall be sent a written notice that includes the city's findings, what actions are required to correct the situation and date or dates by which such actions must be completed. If the applicant does not complete the necessary activities stipulated by the city in the notice by the date(s) set forth in the notice, the city council, after notice and a public hearing, may order that such activities be completed by the city or its designated contractor and that all costs associated with such activities be charged to the applicant and may be drawn from the

financial security. If the financial security is insufficient, the amount incurred by the city that is outstanding may be assessed by the city council by levying the amount upon the properties benefiting from and utilizing the stormwater facilities that were maintained, repaired or replaced by the city. This amount may be certified by the city to the county auditor of Rice County, Minnesota, and shall be collected in the same manner as the collection of real estate taxes.

Sec. ~~28-234~~ 28-235. Financial security.

The city may require that the applicant post a financial security in the form of a surety bond in a form approved by the city attorney or his or her designee, when in the judgment of the city engineer or his or her designee that there is potential for environmental damage from the land disturbance activities. The applicant may file a cash bond or instrument of credit instead of a surety bond so long as it has been approved by the city attorney or his or her designee and is for an amount equal to that which would have been required for the surety bond. The amount of the bond shall be for an amount that will assure that the work can be completed by the city if it is not completed by the applicant in accordance with the approved plans and specifications and the SWPPP.

If the applicant simultaneously exposes more soil to erosion than originally stated in the SWPPP, the city may increase the amount of the financial security required.

If at any time during the course of the work, the financial security amount falls below fifty (50) percent of the required amount, the applicant shall post an additional financial security in the amount necessary to restore the financial security to the required amount within fourteen (14) days. If the applicant fails to post an additional financial security, the city may take any of the following actions:

(1) Withhold the scheduling of inspections and/or the issuance of a certificate of occupancy; or

(2) Revoke any permit issued by the city to the applicant for the site.

After completion of the work, the city shall be authorized to retain any unused amount of the financial security for a period of one year of the completion date of the work in order to ensure that the final stabilization measures are established.

Sec. ~~28-235~~ 28-236. Enforcement of article.

In the event that the applicant's work on the site does not conform to the approved SWPPP or the most current version of the NPDES General Stormwater Permit for Construction Activity, the SWPPP is not being

implemented or the applicant is in violation of any of the requirements of this article, the city engineer or his or her designee shall issue a written notice of noncompliance to the applicant detailing the corrective actions necessary for compliance. The applicant shall conduct the corrective actions within the time period determined by the city and stated in the notice. If an imminent hazard exists, the city may require that corrective work begin immediately.

(1) *Stop work order.* If corrective actions identified in the notice of noncompliance are not completed by the time period set forth by the city in the notice, the city engineer or his or her designee may issue an order to the applicant to stop all work on the site immediately until an erosion and sedimentation control inspection is performed on the site by the city engineer, public works director, or their designee and it is determined that the applicant may continue with the work. The applicant shall be responsible for scheduling the inspection.

(2) *Action against the financial securities.* If the corrective actions identified in the notice of noncompliance are not completed within the time specified in the notice, the city may also act against the financial security if any of the conditions listed below exist. The city shall use funds from this security to finance any corrective or remedial work undertaken by the city or a contractor under contract to the city and to reimburse the city for all direct cost incurred in the process of remedial work including, but not limited to, staff time and reasonable attorneys' fees.

(a) The applicant ceases land disturbance activities and abandons the work site prior to completion of the SWPPP;

(b) The applicant fails to conform to the SWPPP or to supplementary instructions issued by the city;

(c) The techniques utilized by the applicant pursuant to the SWPPP fail within one year of installation; or

(d) Emergency action is required pursuant to subsection (6).

(3) *Remedial action.* If corrective actions identified in the notice of noncompliance are not competed by the time period set forth by the city in the notice, the city shall also be entitled to take such remedial action as the director of public works or city engineer deems necessary to ensure compliance. In the event that the city takes remedial action, the applicant shall be responsible for all direct costs incurred by the city in the process of remedial work,

including, but not limited to, staff time and attorneys' fees. In the event that the applicant does not reimburse the city for these expenses, they may be specially assessed against the property by the city and collected with the property taxes.

(4) *Permit suspension and revocation.* If the corrective actions identified in the notice of noncompliance are not completed within the time specified in the notice, the city may suspend or revoke the applicant's grading permit.

(5) *Misdemeanor.* Any person convicted of violating this Code shall be guilty of a misdemeanor and shall be subject to a fine or imprisonment as specified by state statute. Such penalty may be imposed in addition to an action against the financial securities, issuance of stop work order, taking of remedial action, or suspension or revocation of the grading permit.

(6) *Emergency action.* If circumstances exist such that noncompliance with this article poses an immediate danger to the public health, safety and welfare, as determined by the city engineer or the director of public works, the city may take emergency preventative action. Prior to taking emergency preventative action, the city shall attempt every reasonable measure possible to contact and direct the applicant to take the necessary action.

Sec. ~~28-236~~ 28-237. Right of entry and inspection.

The applicant shall promptly allow the city and its authorized representatives, upon presentation of credentials to enter upon the site for the purposes of:

(1) Obtaining information, examination of records, conducting investigations, inspections or surveys related to the SWPPP;

(2) Bringing such equipment upon the site as is necessary to conduct such surveys and investigations;

(3) Examining and copying any books, papers, records, or memoranda pertaining to activities or records required to be kept under the terms and conditions of the grading permit;

(4) Inspecting the stormwater pollution control measures; and

(5) Sampling and monitoring any items or activities pertaining to stormwater pollution control measures.

Any temporary or permanent obstruction to the safe and easy access by the city for the above purposes shall be promptly removed by the applicant upon the city's request. The cost of providing access to the site by the city shall be the responsibility of the applicant.

Section 3: Amendment to Chapter 28, Article VII, Stormwater Pollution and Prevention and Wetland Protection. The Faribault City Council hereby amends Chapter 28, Article VII, of the Faribault Code of Ordinances by the addition of the underlined language and removal of the ~~stricken~~ language as follows:

ARTICLE VIII. ILLICIT DISCHARGE AND ILLICIT CONNECTIONS TO THE STORM DRAIN SYSTEM

Sec. 28-237. Purpose.

The purpose of this article is to provide for the health, safety, and general welfare of the citizens of the city through the regulation of non-stormwater discharges to the storm drain system to the maximum extent practicable as required by federal and state law. This article establishes methods for controlling the introduction of pollutants into the storm drain system in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this article are:

(1) To regulate the contribution of pollutants to the storm drain system by stormwater discharges by any user;

(2) To prohibit illicit connections and discharges to the storm drain system; and

(3) To establish legal authority to carry out all inspection, surveillance, monitoring, and enforcement procedures necessary to ensure compliance with this article.

Sec. 28-238. Definitions.

For the purposes of this article, the following words, terms and phrases shall have the following meanings respectively ascribed to them in this section:

Best management practices or *BMPs* means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating

procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Construction activity means an activity subject to the NPDES General Stormwater Permit for Construction Activity. This includes construction projects resulting in land disturbance of one acre or more. Such activities include, but are not limited to, clearing and grubbing, grading, excavating, and demolition.

Hazardous material means any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal discharge means any direct or indirect non-stormwater discharge to the storm drain system, except as exempted in this article.

Illicit connection means either:

(1) Any drain or conveyance, whether on the surface or subsurface that allows an illegal discharge to enter the storm drain system including, but not limited to, any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by the city; or

(2) Any drain or conveyance connected from a commercial or industrial land use to the storm drain system that has not been documented in plans, maps, or equivalent records and approved by the city.

Industrial activity means an activity subject to NPDES General Stormwater Permit for Industrial Activity as defined in Title 40 of the Code of Federal Regulations, Section 122.26 (b)(14).

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit means a permit issued by the Minnesota Pollution Control Agency that authorizes the discharge of pollutants to waters of the state, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-stormwater discharge means any discharge to the storm drain system that is not composed entirely of stormwater.

Person means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

Pollutant means any substance that, when discharged, has the potential to or does interfere with state-designated water uses; obstructs or causes damage to waters of the state; changes water color, odor, or usability as a drinking water source through causes not attributable to natural stream processes affecting surface water or subsurface processes affecting groundwater; adds an unnatural surface film to the water; adversely changes other chemical, biological, thermal, or physical conditions in any surface water or stream channel; degrades the quality of groundwater; or harms human life, aquatic life, terrestrial plant or wildlife. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; nonhazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coli form and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and any other noxious or offensive matter.

Premises means any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm drain system means publicly-owned facilities by which stormwater is collected or conveyed, including, but not limited to, any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Stormwater means any surface flow, runoff, and drainage consisting entirely of water from any from of natural precipitation, and resulting from such precipitation.

Wastewater means any water or other liquid, other than uncontaminated stormwater, discharged from a premises.

Waters of the state means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or

artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof or as otherwise defined by M.S. § 115.01, subdivision 22.

Sec. 28-239. Applicability.

This article shall apply to all water entering the storm drain system generated on any developed or undeveloped lands unless explicitly exempted by the city. The city shall administer, implement, and enforce the provisions of this article.

Sec. 28-240. Compatibility with other regulations.

This article is not intended to modify or repeal any other ordinance, rule, regulation, or other provision of law. The requirements of this article are in addition to the requirements of any other ordinance, rule, regulation, or other provision of law, and where any provision of this article imposes restrictions different from those imposed by any other ordinance, rule, regulation, or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control.

Sec. 28-241. Discharge prohibitions.

(a) No person shall throw, drain, or otherwise discharge, cause, or allow anyone under his or her control to throw, drain or otherwise discharge any illegal discharge to enter the storm drain system or any surface water unless such discharge:

(1) Is one of the following exempt discharges: water line flushing, landscape irrigation, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, foundation drain tile, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, flows from riparian habitats and wetlands or dechlorinated swimming pool discharges;

(2) Discharges or flow from firefighting activities and other discharges authorized by the city as being necessary to protect public health and safety;

(3) Discharges associated with dye testing; however this activity requires a verbal notification to the public works department prior to the time of the test;

(4) Any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order

issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

(b) No person shall throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, left, or maintained, in or upon any public or private property, driveway, parking area, street, alley, sidewalk, component of the storm drain system, or water of the state, any refuse, rubbish, garbage, litter, or other discarded or abandoned objects, articles, and accumulations, so that the same may cause or contribute to pollution. Waste deposited in streets in proper receptacles for the purposes of collection are exempted from this prohibition.

Sec. 28-242. Illicit connection prohibition.

(a) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

(b) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(c) A person is also considered to be in violation of this article if he or she connects a line conveying sewage to the storm drain system or allows such a connection to continue. This type of connection must be terminated by an approved method or redirected, as necessary, to an approved onsite wastewater management system or the sanitary sewer system upon approval by the city.

(d) If a drain or conveyance on a property has not been documented in any plans or maps or equivalent documentation filed with the city, which may be connected to the storm drain system, the city may require the owner or occupant of the property to locate the drain or conveyance to make certain that it is not an illicit connection to the storm drain system. The city shall provide the owner or occupant with a written notice requiring that the locating be completed within a reasonable time period. The owner or occupant shall perform the locating and shall provide the city with

documentation that the drain or conveyance is not an illicit connection.

Sec. 28-243. Watercourse protection.

Every person owning or occupying premises through which a watercourse passes, shall keep and maintain that part of the watercourse within the premises free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or occupant shall maintain existing privately-owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

Sec. 28-244. Industrial or construction activity discharges.

Any person performing any construction or industrial activity subject to an NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the public works department prior to the allowing of discharge to the storm drain system.

Sec. 28-245. Salt storage at commercial, industrial, and institutional facilities.

(a) Indoor operations for the storage of deicing materials must be provided whenever possible in order to prevent such material from being affected by rain, snow, or melt water.

(b) All salt, sand, and other deicing materials stored outdoors must be covered at all times. When not using a permanent roof, a waterproof impermeable, flexible cover must be placed over all storage piles. The cover must prevent runoff and leachate from being generated by the outdoor storage piles. The cover must be secured to prevent removal by wind or other storm events. Piles must be formed in a conical shape and covered as necessary to prevent leaching.

(c) *Facility Siting.*

(1) The facility must be in close proximity to the area in which the deicing materials are to be used, if practical.

(2) Each facility must be located outside of floodplains and 100 feet from lakes, rivers, streams, ditches, storm drains,

manholes, catch basins, wetlands, and any other areas likely to absorb runoff. A facility must not be located in close proximity to surface water features, water supplies, wells or drywells.

(3) A facility must be located on impermeable surfaces.

(4) The property's slope must be away from the facility's salt, deicer, and sand storage area.

(5) Salt vulnerable natural areas should be avoided as storage facilities to the extent possible. Where they cannot be avoided, specific measures should be instituted to protect vulnerable areas. Salt vulnerable areas include, but are not limited to:

i. Areas with salt sensitive vegetation
ii. Areas serving as a source of drinking water (surface water and groundwater)
iii. Areas with bodies of water with low dilution, low volume, or salt sensitive species
iv. Areas associated with groundwater recharge zones or shallow water table, with medium to high permeable soils.

(d) *Snow Piles.* Snow piles must be located downslope from salt and deicer storage areas to prevent the snow melt from flowing through storage areas and carrying material to the nearest drainage system or waterway.

(e) *Deicer Truck Wash Water*. Deicer and salt-containing truck wash water must be captured, treated, and recycled for use as salt-brine in pre-wetting and anti-icing activities.

(f) *Transfer of materials.* Practices must be implemented in order to reduce exposure (e.g., sweeping, diversions, and/or containment) when transferring salt or other deicing material.

Sec. ~~28-245~~ 28-246. Inspection and right of entry.

(a) *Access.* The public works director or his or her designee shall be permitted to enter and inspect premises subject to regulation under this article as often as may be necessary to determine compliance with this article. The discharger shall allow the public works director or his or her designee ready access to all parts of

the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater and the performance of any additional duties as defined by state and federal law. Any temporary or permanent obstruction to safe and easy access to the area to be inspected or sampled shall be promptly removed by the discharger at the request of the public work director or his or her designee and shall not be replaced.

(b) *Inspection alternatives.* If the discharger does not wish to allow the public works director or his or her designee to enter the premises to conduct the required activity, he or she may retain a private inspector to conduct the activity. The private inspector must have credentials that are acceptable to the public works director or his or her designee. The private inspector must provide the public works director or his or her designee with all relevant samples, test results, reports or any other information requested by him or her.

(c) *Installation of monitoring equipment and other devices.* The public works director or his or designee may require the discharger to install monitoring equipment or other such devices as are necessary in his or her opinion to conduct monitoring or sampling of the premises' stormwater discharge. The monitoring equipment must be maintained by the discharger in a safe and proper operating condition at all times. All devices used to measure stormwater flow and quality must be calibrated in order to ensure their accuracy.

(d) *Administrative search warrant.* If the public works director or his or her designee has been refused access to any part of the premises from which stormwater is being discharged, and he or she is able to demonstrate probable cause to believe there may be a violation of this article, or that there is a need to inspect, test, examine or sample as part of a routine program designed to verify compliance with this section or any order issued hereunder, or to protect the overall public health, safety and welfare, then the city may seek issuance of an administrative search warrant from any court of competent jurisdiction.

Sec. ~~28-246~~ 28-247. Requirement to prevent, control and reduce stormwater pollutants by the use of best management practices.

Best management practices are required for any activity, operation, or facility which may cause or contribute to pollution or contamination of stormwater, the storm drain system, or waters of the state. The owner

or operator of such activity, operation, or facility shall provide, at his or her own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the storm drain system or waters of the state through the use of structural and non-structural BMPs. The owner or operator of a premises that may be the source of an illegal discharge may be required by the city to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the storm drain system. These BMPs shall be part of the Stormwater Pollution Prevention Plan (SWPPP) if necessary for compliance with requirements of an NPDES permit. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section.

Sec. ~~28-247~~ 28-248. Notification of spills.

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into stormwater, the storm drain system, or waters of the state, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials, said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the city within twenty-four (24) hours of the discharge. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its reoccurrence. Such records must be retained for at least five (5) years past the end of the NPDES industrial permit cycle. Failure to provide notification of a release as provided in this section is a violation of this article.

Sec. ~~28-248~~ 28-249. Enforcement.

(a) *Notice of violation.* Whenever the city finds that a person has violated a prohibition or failed to meet a requirement of this article, the city may order compliance by sending written notice of the violation to the responsible person. Such notice must include the following information:

(1) The name and address of the alleged violator;

(2) The address when available or a description of the building, structure or land upon which the violation is occurring, or has occurred;

(3) A statement specifying the nature of the violation;

(4) A description of the remedial measures necessary to restore compliance with this article and a time schedule for the completion of such remedial action; and

(5) A statement of the actions that will be taken by the city if there is no compliance with the order.

(b) *Remedial measures.* The city may order that any of the following remedial measures be taken:

(1) The performance of monitoring, analysis, and reporting;

(2) The elimination of illicit connections or illegal discharges;

(3) That violating discharges, practices, or operations must cease and desist;

(4) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected premises;

(5) The implementation of source control or treatment BMPs; and

(6) Suspension of storm drain access. Any person discharging to the storm drain system in violation of this article may have his or her premises' storm drain system access terminated by the city if such termination will abate or reduce the illegal discharge. No person shall reinstate storm drain access to premises terminated pursuant to this article without the prior approval of the city.

(c) *Emergency cease and desist orders.* When the city finds that any person has violated, or continues to violate, any provision of this article, or any order issued hereunder, or that the person's past violation is likely to reoccur, and that the violation has caused or has contributed to an actual or threatened discharge to the storm drain system or waters of the state which reasonably appears to present an imminent or substantial endangerment to the public health, safety or welfare or to the environment, the city may issue

an emergency cease and desist order in lieu of a notice of violation to the violator directing him or her to:

(1) Immediately comply and stop or eliminate the endangering discharge;

(2) Take such appropriate preventive action as may be needed to properly address a continuing or threatened violation, including, but not limited to, immediately halting operations or terminating the discharge; and

(3) Immediately comply with all requirements of this article and other applicable laws and regulations.

In the event of a person's failure to immediately comply with the emergency cease and desist order, the city may take such steps as deemed necessary to prevent or minimize harm to the storm drain system or waters of the state, or endangerment to persons or to the environment, including immediately terminating the facility's water supply, sewer connection, or other municipal utility services. The city may allow the person to recommence the discharge activities when he or she has demonstrated to the satisfaction of the city that the period of endangerment has passed, unless further termination proceedings are initiated against the person under this article. A person that is found by the city to be responsible, in whole or in part, for any discharge presenting imminent endangerment shall submit a detailed written statement, describing the causes of the harmful discharge and the measures taken to prevent any future occurrence to the Minnesota Pollution Control Agency within thirty (30) days of receipt of the emergency cease and desist order. Issuance of an emergency cease and desist order shall not be a bar against, or a prerequisite for, the city taking any other action against the violator.

(d) *Appeal.* The offending party may appeal the city's order to the city council. An appeal must be brought in writing no later than ten (10) days from the date of the notice.

(e) *Abatement.* If abatement of a violation or restoration of affected premises is required, the order must set forth a deadline within which such remediation or restoration must be completed. Said notice must further advise that, should the offending party fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof may be charged to the violator.

(f) *Payment.* In the event that abatement or restoration work is performed by the city, the city may charge the offending party for its costs and expenses associated with the work. If the bill received for abatement or restoration is not paid within thirty (30) days, the city may draw the amount of the bill from any financial guarantees that the city may be holding or may certify the amount to the county for collection with the property taxes.

(g) *Public nuisance.* In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this article is a threat to public health, safety and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense or a civil action to abate, enjoin or otherwise compel the cessation of such nuisance may be taken.

(h) *Penalty.* Any person who violates any provision of this article shall be guilty of a misdemeanor and shall be subject to a maximum fine or maximum period of imprisonment or both, as specified by M.S. § 609.03. Each additional day that the premises remains in violation of this article shall constitute a separate violation of this article and may be prosecuted accordingly. Nothing contained herein shall prevent the city from taking such other lawful action as is necessary to prevent or remedy any violation of this article, including, but not limited to, seeking a civil injunction or a restraining order.

Sec. ~~28-249~~ 28-250. Reserved.

Section 4: Amendment to Appendix B, Chapter 6, Article 3, Sec. 6-160, Protection of Natural Features. The Faribault City Council hereby amends Appendix B, Chapter 6, Article 3, Sec. 6-160 of the Faribault Code of Ordinances by the addition of the underlined language and removal of the ~~stricken~~ language as follows:

Sec. 6-160. Protection of natural features.

(A) *In general.* All developments shall be located so as to preserve the natural features of the site, to avoid areas of environmental sensitivity, to minimize the creation of impervious surface area, and to minimize negative impacts on the alteration of the natural environment. The following areas shall be preserved as undeveloped open space, to the extent consistent with the reasonable utilization of land, and in accordance with applicable federal, state, or local regulations:

The following areas shall be preserved as undeveloped open space, to the extent consistent with the reasonable utilization of land, and in accordance with applicable federal, state, or local regulations:

(1) Shorelands. Lands within the Shoreland Management District shall be governed by the regulations specified in Chapter 13, Overlay and Special Districts.

(2) Wetlands. No development, grading or filling, alteration of the natural character of the land, or construction of buildings or structures shall occur within any vegetated wetland, except in compliance with the Minnesota Wetland Conservation Act and by the regulations specified in Chapter 28, Section 28-232, Wetlands and Wetland Buffer Strips ~~of 1991~~.

~~(a) Buffer strips shall be required adjacent to all wetlands and shall be measured from the ordinary high water level of the wetland.~~

~~(b) Buffer strip dimensions and setbacks:~~

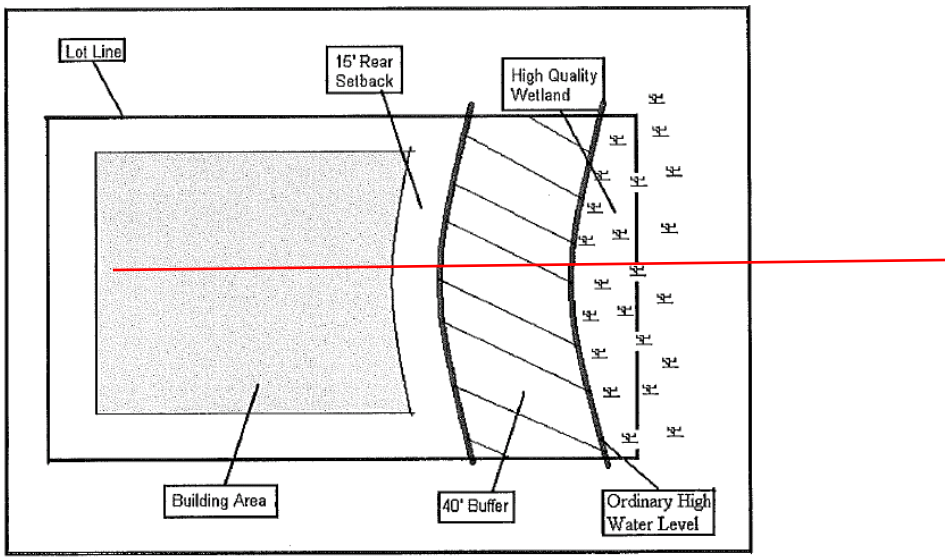
~~i. Structure setbacks shall be measured from the outer edge of the wetland buffer strip to the structure.~~

~~ii. The required dimensions for all wetland buffer strips and structure setbacks shall be as follows:~~

~~Table 6-1. Wetland Buffers and Setbacks~~

~~MNRAM Wetland Classification~~	~~High Quality~~	~~Medium Quality~~	~~Low Quality~~
~~Buffer strip width~~	~~40'~~	~~25'~~	~~15'~~
~~Structure setback from outer edge of wetland buffer~~	~~15'~~	~~15'~~	~~15'~~

Figure 6-1. Buffer strip and structure setback- High quality wetland



~~(c) All provisions of Chapter 28, Article VII, shall apply to any work, construction, development or maintenance in proximity to a wetland.~~

(3) Vegetated areas. Significant trees or plant communities, including remnant stands of native trees or prairie grasses, trees or plant communities that are rare to the area or of particular landscape significance.

(4) Steep slope areas. Development on slopes of fifteen (15) percent or greater shall be prohibited. Where no practicable alternatives exist, development on steep slope areas shall be subject to the following conditions:

(a) The foundation and underlying material of any structure shall be adequate for the slope condition and soil type.

(b) The proposed development will not result in soil erosion, flooding, severe scarring, reduced water quality, inadequate drainage control, or other problems.

(c) The proposed development will preserve significant natural features by minimizing disturbance to existing topographical forms.

(d) The city may require that a property be rezoned and developed as a planned unit development to utilize flexible

development standards to preserve steep slopes.

(e) The proposed development shall comply with all provisions of Chapter 28, Article VII related to stormwater pollution.

(5) Habitats of threatened or endangered wildlife as identified on federal or state lists, including the federal Endangered Species Act and the Minnesota County Biological Survey.

(B) *Mitigation.* Where preservation is not consistent with the reasonable utilization of land, the city may require mitigation through replacement of the resource or similar resource on the site, restoration of former natural amenities to the site, or other reasonable measures to protect or enhance the natural features of the land.

Section 5: Amendment to Appendix B, Chapter 13, Article 5, Sec. 13-560, Special District Lot Dimension and Building Block Regulations. The Faribault City Council hereby amends Appendix B, Chapter 13, Article 5, Sec. 13-560 of the Faribault Code of Ordinances by the addition of the underlined language and removal of the ~~stricken~~ language as follows:

Sec. 13-560. Lot dimension and building bulk regulations.

Lot area and setback requirements for the special districts shall be as specified in Table 13-3. Wetland buffer and buffer setback requirements shall be as specified and by the regulations specified in Chapter 28, Section 28-232, Wetlands and Wetland Buffer Strips ~~in Chapter 6 of this Ordinance~~ [Appendix].

Table 13-3. Lot dimension and setback requirements, special districts.

	O District	TUD District
Minimum lot area	1 acre	1 acre
Minimum lot width	200 feet	100 feet
Minimum lot depth	200 feet	100 feet
Building setback requirements		
Front	50 feet	50 feet
Side	25 feet	25 feet
Rear	25 feet	25 feet

Section 6: Amendment to Appendix B, Chapter 13, Article 6, Shoreland Management District. The Faribault City Council hereby amends Appendix B, Chapter 13, Article 6 of the Faribault Code of Ordinances by the addition of the underlined language and removal of the ~~stricken~~ language as follows:

ARTICLE 6. SHORELAND MANAGEMENT DISTRICT

Sec. 13-610. Statutory authorization, findings of fact and statement of purpose.

(A) *Statutory Authorization.* This Shoreland ordinance is adopted pursuant to the authorization and policies contained in Minnesota Statutes, Chapter 103F, Minnesota Rules 6120, and the planning and zoning enabling legislation in Minnesota Statutes, Chapter 462.

(B) *Findings of Fact.* The uncontrolled use of Shorelands of the City of Faribault, Minnesota, affects the public health, safety and general welfare and contributes to the pollution of public waters. Therefore, it is in the best interests of the public to provide for the wise subdivision, use and development of Shorelands of public waters to thus preserve and enhance the quality of surface waters, conserve the environmental values of Shorelands, and provide for the wise use of waters and related land resources.

(C) *Statement of Purpose.* The Legislature of Minnesota has delegated responsibility to local governments of the state to regulate the subdivision, use and development of the Shorelands of public waters and thus preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of Shorelands, and provide for the wise use of waters and related land resources. This responsibility is hereby recognized by the City of Faribault.

Sec. 13-620. General provisions.

(A) *Lands to which these regulations apply.* The provisions of this ordinance shall apply to the Shorelands of the public water bodies as classified in Section 13-640 of this ordinance, and as shown on the Shoreland management Overlay District Map, adopted herein by reference. Pursuant to Minnesota Rules, Part 6120, no lake, pond or flowage less than ten (10) acres in size in municipalities need be regulated in a local government's Shoreland regulations. A body of water created by a private user where there was no

previous Shoreland may, at the discretion of the governing body, be exempt from this ordinance.

(B) *Compliance.* The use of any Shoreland of public waters; the size and shape of lots; the use, size, type and location of structures on lots; the installation and maintenance of water supply and waste treatment systems, the grading and filling of any Shoreland area; the cutting of Shoreland vegetation; and the subdivision of land shall be in full compliance with the terms of this ordinance and other applicable regulations.

(C) *Enforcement.* The City Planner is responsible for the administration and enforcement of this ordinance. Any violation of the provisions of this ordinance or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variances or conditional uses) shall constitute a misdemeanor and shall be punishable as defined by Chapter 2 of this ordinance. Violations of this ordinance can occur regardless of whether or not a permit is required for a regulated activity pursuant to Section 13-630 of this Chapter.

(D) *Interpretation.* In their interpretation and application, the provisions of this ordinance shall be held to be minimum requirements and shall be liberally construed in favor of the governing body and shall not be deemed a limitation or repeal of any other powers granted by State Statutes.

(E) *Abrogation and greater restrictions.* It is not intended by this ordinance to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance imposes greater restrictions, the provisions of this ordinance shall prevail. All other ordinances inconsistent with this ordinance are hereby repealed to the extent of the inconsistency only.

(F) *Severability.* If any section, clause, provision or portion of this ordinance is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this ordinance shall not be affected thereby.

Sec. 13-630. Administration.

(A) *City Planner.* The City Planner is designated by the City Council to enforce this ordinance. If he/she finds a violation of the provisions of this ordinance, he/she shall notify the person responsible for such violation, indicating the nature of the violation, and ordering the action necessary to correct it.

(B) *Permits required.* A permit is required for the construction of buildings or building additions (including such related activities as construction of decks and signs), the installation and/or alteration of sewage treatment systems.

(1) Application shall be made to the City Planner on forms furnished by him/her and shall include the following where applicable: plans drawn to scale, showing the nature, location, dimensions, and elevations of the lot; existing or proposed structures, fill, or storage of materials; and the location of the foregoing in relation to the stream channel, ordinary high water line and bluff line, if present.

(2) A permit authorizing an addition to an existing structure shall stipulate that an identified nonconforming sewage treatment system, as defined in this ordinance, shall be reconstructed or replaced in accordance with the provisions of this ordinance.

(C) *County, State and Federal permits.* Prior to granting a permit or processing an application for a Conditional Use Permit or Variance, the City Planner or designated official shall require proof that the applicant has applied for all necessary County, State and Federal Permits.

(D) *Variances.*

(1) Variances may only be granted in accordance with Minnesota Statutes, Chapter 462, as applicable. No variance may be granted that would allow any use that is prohibited in the zoning district in which the subject property is located. Conditions may be imposed in the granting of a variance to ensure compliance and to protect adjacent properties and the public interest. Variances shall be reviewed based on the provisions of Chapter 2, Article 9 of this ordinance.

(2) The City Council shall hear and decide requests for variances in accordance with the provisions of Chapter 2, Article 9 of this ordinance. When a variance is approved after the Department of Natural Resources has formally recommended denial in the hearing record, the notification of the approved variance required in Section 13-360(E)(1) below shall also include the board of adjustment's summary of the public record/testimony and the findings of facts and

conclusions which supported the issuance of the variance.

(3) For existing developments, the application for variance must clearly demonstrate whether a conforming sewage treatment system is present for the intended use of the property. The variance, if issued, must require a nonconforming sewage treatment system to bring it into compliance.

(E) *Notifications to the Department of Natural Resources.*

(1) Copies of all notices of any public hearings to consider variances, amendments, conditional uses, or Planned Unit Developments, under local Shoreland management controls must be sent to the Commissioner, or the Commissioner's designated representative and postmarked at least ten (10) days before the hearings. Notices of hearings to consider proposed subdivisions/plats must include copies of the subdivision/plat.

(2) A copy of approved amendments, subdivisions/plats, Planned Unit Developments, and final decisions granting variances or conditional uses under local Shoreland management controls must be sent to the Commissioner or the Commissioner's designated representative and postmarked within ten (10) days of final action.

Sec. 13-640. Shoreland classification.

(A) *Shoreland Classification System.* The public waters of the City of Faribault have been classified below consistent with the criteria found in Minnesota Regulations, Part 120.3300, and the Protected Waters Inventory Map for Rice County, Minnesota. All protected watercourses in the City shown on the Protected Waters Inventory Map for Rice County, a copy of which is hereby adopted by reference, not given a classification shall be considered "Tributary." The Shoreland areas for the lakes, rivers and streams shall be shown on the Official Zoning Map.

Protected Waters Classification	Protected Waters ID Number	Legal Description *From/To*
Natural Environment Lakes		

Unnamed Lake	66-19	S23, 26 T110-R21
General Development Lakes		
Wells Lake	66-10	S36 T110-R21 to City Boundary
Faribault Lake (Mill Pond)	66-7	S25, T110-R21 - S30, T110-R20
Wild and Scenic River		
Cannon River		S19, T110-R20 to City Boundary
Agricultural River		
*Straight River		City Boundary to S30, T110-R20
Urban River		
Cannon River		S36, T110-R21 to S19, T110-R20
Tributary River		
Crocker's Creek		City Boundary to S25, T110-R21
Falls Creek		S33, T110-R20
Unnamed Creek to CR		S26, T110-R21

*Within the Faribault Existing Development District, the Urban River standards used for the Cannon River for setbacks, lot sizes, and related land use and zoning standards shall apply to the Straight River.

Sec. 13-650. Land use.

(A) *Consistency with other Chapters.* The intent of this overlay district is to guide the development of public waters Shoreland, thus preserving the quality of surface waters, preserving natural resources and providing for the wise utilization of water and related land resources in the City. The regulations in this overlay district are intended to manage areas suitable for development of various types as allowed in the underlying zoning district. It is the intent of this overlay district to be used in conjunction with the adopted land use regulations and requirements of the City's Unified Development Ordinance. The permitted and conditional uses in the Shoreland management overlay district shall be as identified in the Zoning Ordinance and reflected on the Zoning Map.

(B) *Inconsistent zoning districts.* When existing zoning districts are inconsistent with the criteria specified above, these inconsistent zoning district designations may continue until revisions are proposed to change either the land use district designation within an existing zoning district boundary shown on the Official Zoning Map, or to modify the boundary of an existing zoning district shown on the Official Zoning Map.

(C) *Interpretation.* When an interpretation question arises about whether a specific land use fits within a given "use" category, the interpretation shall be made by the Planning Commission. When a question arises as to whether a zoning district's boundaries are properly delineated on the Official Zoning Map, this decision shall be made by the Planning Commission.

(D) *Proposed revisions.* When a revision is proposed to an inconsistent zoning district provision by an individual party or landowner, this individual party or landowner will only be responsible to provide the supporting and/or substantiating information for the specific parcel in question. The City Council will direct the City Planner to provide such additional information for this waterbody as is necessary to satisfy the requirements above. The City Council must make a detailed finding of fact and conclusion when taking final action that this revision, and the upgrading of any inconsistent zoning district designations on said waterbody, are consistent with the enumerated criteria and use provisions of this ordinance.

Sec. 13-660. Zoning, water supply and sanitary system standards.

(A) *Lot Area and Width Standards.* The minimum lot area (in square feet) and width standards (in feet) for sewered single, duplex, and townhome residential lots created after the date of enactment of this ordinance are the following:

(1) *Sewered Natural Environment Lakes*

	Riparian Lots		Non-riparian Lots	
	Area	Width	Area	Width
Single-family detached	40,000	125	20,000	125
Duplex/Twin	70,000	225	35,000	220

Triplex/3-unit attached	100,000	325	52,000	315
Quad/4-unit attached	130,000	425	65,000	410

(2) *Sewered General Development Lakes*

	Riparian Lots		Non-riparian Lots	
	Area	Width	Area	Width
Single-family detached	15,000	75	10,000	75
Duplex/Twin	26,000	135	17,500	135
Triplex/3-unit attached	38,000	195	25,000	190
Quad/4-unit attached	49,000	255	32,500	245

(3) *River/stream lot width standards.* There is no minimum lot size requirement for rivers and streams, except as required in the underlying zoning district. The minimum lot width standards for residential developments are:

	Agricultural	Urban/Tributary Stream	
		No Sewer	Sewer
Single-family detached	150	100	75
Duplex/Twin	225	150	115
Triplex/3-unit detached	300	200	150
Quad/4-unit attached	375	250	90

(B) *Special Provisions.*

(1) Single-family attached (triplex, quad or townhome units). For each unit over two (2) units (duplex), add the lot area and width to the total development area

within the Shoreland zone. The area and width may be added to individual lots or to the lot area owned in common by the development, so that the total area of the development and total width are equal to the areas prescribed on the table.

(2) Residential subdivisions with dwelling unit densities exceeding those in the tables above can only be allowed if designed and approved as planned unit developments. Only land above the ordinary high water level of public waters can be used to meet lot area standards, and lot width standards must be met at both the ordinary high water level and at the building line. The sewer lot area dimensions in Section 13-660(A) above can only be used if publicly owned sewer system service is available to the property.

(3) Subdivisions of duplexes and attached single-family units of four (4) units or less on Natural Environment Lakes must also meet the following standards:

(a) Each building must be set back at least two hundred (200) feet from the ordinary high water level.

(b) Watercraft docking facilities for each lot must be centralized in one (1) location and serve all dwelling units in the building; and

(c) No more than twenty-five (25) percent of a lake's shoreline can be in duplex and single-family attached developments.

(4) Attached single-family and multifamily dwellings with five (5) or more units shall only be allowed as part of a Planned Unit Development.

(C) *Lots with controlled access to public waters.* Lots intended as controlled access to public waters or as recreation areas for use by owners of non-riparian lots within subdivisions are permissible and must meet or exceed the following standards:

(1) They must meet the width and size requirements for residential lots, and be suitable for the intended uses of controlled access lots.

(2) If docking, mooring or over-water storage of more than six (6) watercraft is to be allowed at a controlled

access lot, then the width of the lot (keeping the same lot depth) must be increased by the percent of the requirements for riparian residential lots for each watercraft beyond six (6), consistent with the following table:

Ratio of lake size to Shore length (acres/mile)	Required increase in frontage (percent)
Less than 100	25
100-200	20
201-300	15
301-400	10
Greater than 400	5

(3) They must be jointly owned by all purchasers of lots in the subdivision or by all purchasers of non-riparian lots in the subdivision who are provided riparian access rights on the access lot.

(4) Covenants or other equally effective legal instruments must be developed that specify which lot owners have authority to use the access lot and what activities are allowed. The activities may include watercraft launching, loading, storage, beaching, mooring, or docking. They must also include other outdoor recreational activities that do not significantly conflict with general public use of the public water or the enjoyment of normal property rights by adjacent property owners. Examples of the conflict activities that are not significant include swimming, sunbathing, or picnicking. The covenants must limit the total number of vehicles allowed to be continuously moored, docked, or stored over water, and must require centralization of all common facilities and activities in the most suitable locations on the lot to minimize topographic and vegetation alterations. They must also require all parking areas, storage buildings, and other facilities to be screened by vegetation or topography as much as practical from view from the public water, assuming summer, leaf-on conditions.

(D) *Placement, design and height of structures.* When more than one (1) setback applies to a site, structures and facilities must be

located to meet all setbacks. Where structures exist on the adjoining lots on both sides of a proposed building site, structure setbacks may be altered without a variance to conform to the adjoining setbacks from the ordinary high water level, provided the proposed building site is not located in a shore impact zone or in a bluff impact zone. Structure setbacks* (in feet) from the Ordinary High Water Level are as follows:

Waters Classification	Sewered (Structure Setback)	Unsewered (Structure Setback)	On-Site Sewage Treatment System Setback
Natural Environment Lakes	150	150	150
General Development Lake	50	75	50
Ag, Urban, Trib. River/Stream	50	100	75

* One (1) water-oriented accessory structure designed in accordance with Section (F) of this ordinance [section] may be set back a minimum distance of ten (10) feet from the ordinary high water level.

(E) *Bluff setback.*

(1) Structures must be set back thirty (30) feet from the top of the bluff, regardless of the classification of the water body.

(2) Bluff impact zones. Structures and accessory facilities, except stairways and landings, must not be placed within bluff impact zones.

(F) *Floodplain design criteria for structures.* Structures must be placed in accordance with floodplain regulations applicable to the site as required in Chapter 13, Article 2 of the Faribault Unified Development Ordinance. Chapter 13, Article 2, Section 13-100, states that the regulatory flood protection elevation shall be an elevation no lower than one (1) foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the floodplain that result from the designation of a floodway. Where these controls do not exist, the elevation to which the lowest floor, including basement, is placed or flood-proofed must be determined as follows:

(1) For lakes, by placing the lowest floor at a level at least three (3) feet above the highest known water level, or three (3) feet above the ordinary high water level, whichever is higher;

(2) For rivers and streams, by placing the lowest floor at least three (3) feet above the flood of record, if data are available. If data are not available, by placing the lowest floor at least three (3) feet above the ordinary high water level, or by conducting a technical evaluation to determine effects of proposed construction upon flood stages and flood flows and to establish a flood protection elevation. Under all three (3) approaches, technical evaluations must be done by a qualified engineer or hydrologist consistent with Minnesota Rules 6120 governing management of floodplain areas. If more than one (1) approach is used, the highest flood protection elevation determined must be used for placing structures and other facilities; and

(3) Water-oriented accessory structures may have the lowest floor placed lower than the elevation determined in this item if the structure is constructed of flood-resistant materials to the elevation, electrical and mechanical equipment is placed above the elevation and, if long duration flooding is anticipated, the structure is built to withstand ice action and wind-driven waves and debris.

(G) *Water-oriented accessory structures.* Each lot may have one (1) water-oriented accessory structure not meeting the normal structure setback requirements of this ordinance if this water-oriented accessory structure complies with the following provisions:

(1) The structure or facility must not exceed ten (10) feet in height, exclusive of safety rails, and cannot occupy an area greater than two hundred fifty (250) square feet. Detached decks must not exceed eight (8) feet above grade at any point.

(2) The setback of the structure or facility from the ordinary high water level must be at least ten (10) feet.

(3) The structure or facility must be treated to reduce visibility as viewed from public waters and adjacent Shorelands by vegetation, topography, increased setbacks, or color, assuming summer, leaf-on conditions.

(4) The structure or facility must not be designed or used for human habitation and must not contain water supply or sewage treatment facilities.

(5) As an alternative for general development and recreational development waterbodies, water-oriented accessory structures used solely for watercraft storage and including storage of related boating and water-oriented sporting equipment, may occupy an area up to four hundred (400) square feet provided the maximum width of the structure is twenty (20) feet as measured parallel to the configuration of the shoreline.

(H) *Stairways, lifts, and landings.* Stairways and lifts are the preferred alternative to major topographic alterations for achieving access up and down bluffs and steep slopes to shore areas. Stairways and lifts must meet the following design requirements:

(1) Stairways and lifts must not exceed four (4) feet in width on residential lots. Wider stairways may be used for commercial properties, public open space-recreational properties, and planned unit developments.

(2) Landings for stairways and lifts on residential lots must not exceed thirty-two (32) square feet in aggregate area for each stairway. One (1) landing is allowed per twelve (12) vertical feet. Landings larger than thirty-two (32) square feet may be used for commercial properties, public open space-recreational properties, and planned unit developments.

(a) Canopies or roofs are not allowed on stairways, lifts, or landings.

(b) Stairways, lifts, and landings may be either constructed above the ground on posts or pilings, or placed into the ground, provided they are designed and built in a manner that ensures control of soil erosion.

(c) Stairways, lifts, and landings must be located in the most visually inconspicuous portions of lots, as viewed from the surface of the public water assuming summer, leaf-on conditions, whenever practical.

(d) Facilities such as ramps, lifts, or mobility paths for physically handicapped persons are also allowed for achieving access to shore areas, provided that the dimensional and performance standards of subitems (1) to (5) of Subsection (G) above are complied with in addition to the requirements of Minnesota Regulations, Chapter 1340.

(I) *Significant historic sites.* No structure may be placed on a significant historic site in a manner that affects the values of the site unless adequate information about the site has been removed and documented in a public repository.

(J) *Steep slopes.* The City Planner/City Engineer/Building Official must evaluate possible soil erosion impacts and development visibility from public waters before issuing a permit for site grading, construction of roads, driveways, structures, or other improvements on steep slopes. When determined necessary, conditions must be attached to issued permits to prevent erosion and to preserve existing vegetation screening of structures, vehicles, and other facilities as viewed from the surface of public waters, assuming summer, leaf-on vegetation.

(K) *Height of structures.* Residential uses shall not exceed twenty-five (25) feet in height, except uses in a third or greater tier of a planned united development may be allowed to exceed thirty-five (35) feet in height, provided it can be demonstrated that any such proposed structure will not negatively impact views from the water body, and provided all other provisions for planned unit developments are met.

Sec. 13-670. Shoreland and vegetation alterations.

Alterations of vegetation and topography will be regulated to prevent erosion into public waters, fix nutrients, preserve Shoreland aesthetics, preserve historic values, prevent bank slumping, and protect fish and wildlife habitat.

(A) *Exemptions.* Vegetation alteration necessary for the construction of structures and sewage treatment systems, agricultural uses, and the construction of roads and parking areas regulated by Section 13-690 of this ordinance are exempt from the vegetation alteration standards that follow.

(B) *Alteration standards.* Removal or alteration of vegetation, except for agricultural and forest management uses as regulated in Subsections 13-610(B) and (C), is allowed subject to the following standards:

(1) Intensive vegetation clearing within the shore and bluff impact zones and on steep slopes is prohibited.

(2) Intensive vegetation clearing for forestland conversion to another use outside of these areas is allowable as a conditional use if an erosion control and sedimentation plan is developed and approved by the City.

(C) In shore and bluff impact zones and on steep slopes, limited clearing of trees and shrubs and cutting, pruning, and trimming of trees is allowed if approved by City staff to provide a view to the water from the principal dwelling site and to accommodate the placement of stairways and landings, picnic areas, access paths, beach and watercraft access areas, and permitted water-oriented accessory structures or facilities, provided that:

(1) The screening of structures, vehicles, or other facilities as viewed from the water, assuming summer, leaf-on conditions, is not substantially reduced.

(2) Along streams, existing shading of water surfaces is preserved; and

(3) The above provisions are not applicable to the removal of trees, limbs, or branches that are dead, diseased, or pose safety hazards.

(4) Vegetation to be removed, including limbs to be pruned, must be marked for inspection and approval by the City, or a vegetation management plan provided and approved by the City before clearing or pruning begins.

Sec. 13-680. Topographic alterations, grading and filling.

(A) *Permits.* Grading and filling and excavations necessary for the construction of structures, sewage treatment systems, and

driveways under validly issued construction permits for these facilities do not require the issuance of a separate grading and filling permit. Grading, filling, and excavation must follow the guidelines included in the City's Developer's Guidelines for Stormwater Management and the City's Surface Water Management Plan and the steep slope and erosion control sections of this ordinance. The grading and filling standards in this Section must be incorporated into the issuance of permits for construction of structures, sewage treatment systems, and driveways. Public roads and parking areas are regulated by Section 13-690 of this ordinance.

(B) *Standards.* A grading and filling permit will be required for the movement of more than ten (10) cubic yards of material on steep slopes or within shore and bluff impact zones. A grading and filling permit will be required for the movement of more than fifty (50) cubic yards of material in a Shoreland area that is outside of steep slope and Shoreland and bluff impact zones.

(C) The following considerations and conditions must be adhered to during the issuance of construction permits, grading and filling permits, conditional use permits, variances and subdivision approvals:

(1) Grading or filling in any Type 2, 3, 4, 5, 6, 7, or 8 wetland is subject to the regulations of the Minnesota Wetland Conservation Act, reviews or approvals by other local, state or federal agencies such as Rice County, the Minnesota Department of Natural Resources, and/or the United States Army Corps of Engineers.

(2) The proposed work should be evaluated for its effect on the following functional values of the wetland:

(a) Sediments and pollutant trapping and retention;

(b) Storage of surface runoff to prevent or reduce flood damage;

(c) Fish and wildlife habitat;

(d) Recreational use;

(e) Shoreline or bank stabilization; or

(f) Noteworthiness, including special qualities such as historic significance and critical habitat.

(3) Alterations must be designed and conducted in a manner that ensures only the smallest amount of bare ground is exposed for the shortest time possible.

(4) Mulches or similar materials must be used, where necessary, for temporary bare soil coverage, and a permanent vegetation cover must be established as soon as possible and approved by staff.

(5) Methods to minimize soil erosion and to trap sediments before they reach any surface water feature must be used.

(6) Altered areas must be stabilized to acceptable erosion control standards consistent with the Minnesota Pollution Control Agency's Best Management Practices.

(7) Fill or excavated material must not be placed in a manner that creates an unstable slope.

(8) Plans to place fill or excavated material on steep slopes must be reviewed by the City Engineer for continued slope stability and must not create finished slopes of fifteen (15) percent or greater.

(9) Fill or excavated material must not be placed in bluff impact zones.

(10) Any alterations below the ordinary high water level of public waters must first be authorized by the Commissioner of Natural Resources under Minnesota Statutes, section 103G.245.

(11) Alterations of topography must only be allowed if they are accessory to permitted or conditional uses and do not adversely affect adjacent or nearby properties.

(12) Placement of natural rock riprap, including associated grading of the shoreline and placement of a filter blanket, is permitted if the finished slope does not exceed three (3) feet horizontal to one (1) foot vertical, the landward extent of the riprap is within ten (10) feet of the ordinary high water level, and the height of the riprap above the ordinary high water level does not exceed three (3) feet.

(13) Excavations where the intended purpose is connection to a public water, such as boat slips, canals, lagoons, and harbors, must be controlled by local Shoreland

controls. Permission for excavations may be given only after the commissioner has approved the proposed connection to public waters.

Sec. 13-690. Placement and design of roads, driveways and parking areas.

Public and private roads and parking areas must be designed to take advantage of natural vegetation and topography to achieve maximum screening from view from public waters. Documentation must be provided that all roads and parking areas are designed and constructed to minimize and control erosion to public waters consistent with the Minnesota Pollution Control Agency's Best Management Practices and the following:

(A) Roads, driveways, and parking areas must meet structure setbacks and must not be placed within shore and bluff impact zones, when other reasonable and feasible placement alternatives exist. If no alternatives exist, they may be placed within these areas, and must be designed to minimize adverse impacts.

(B) Public and private watercraft access ramps, approach roads, and access-related parking areas may be placed within the shore impact zones provided the vegetative screening and erosion control conditions of this subpart are met. For private roads and facilities, the grading and filling provisions of this ordinance must be met.

Sec. 13-700. Stormwater management.

(A) *Design and Construction Standards.* Site design and stormwater management standards shall conform to policies of the City's Developer's Guidelines for Stormwater Management and Surface Water Management Plan, and the following:

(1) When possible, existing natural drainageways, wetland, and vegetated soil surfaces must be used to convey, store, filter, and retain stormwater runoff before discharge to public waters.

(2) Where appropriate and feasible, strategies such as infiltration or filtration of stormwater will be considered to manage the quality and quantity of stormwater.

(3) Development must be planned and conducted in a manner that will minimize the extent of disturbed areas, runoff, velocities, erosion potential, and reduce

the delay runoff volumes. Disturbed areas must be stabilized and protected as soon as possible and facilities or methods used to retain sediment on the site.

(4) When development density, topographic features, and soil and vegetation conditions are not sufficient to adequately handle stormwater runoff using natural features and vegetation, various types of constructed facilities, such as diversion, settling basins, skimming devices, dikes, waterways, and ponds may be used. Preference must be given to designs using surface drainage, vegetation, and infiltration rather than buried pipes and man-made materials and facilities.

(5) Impervious surface coverage of lots must not exceed twenty-five (25) percent of the lot area. This requirement applies only to the portion of the lot within the Shoreland District, and this requirement does not apply to the developed portion of properties within the boundaries of the Existing Development District as defined on the official Shoreland Overlay Map. Development within the Existing Development District shall incorporate reasonable methods to decrease sediment and pollutants in runoff from impervious surfaces as required in the City's Developer's Guidelines for Stormwater Management and Surface Water Management Plan.

(6) Where appropriate and where structures and practices for the mitigation of stormwater impacts on receiving waters are employed in compliance with the City's Surface Water Management Plan, or as approved by the City Engineer, impervious surface coverage shall be allowed to exceed twenty-five (25) percent to a maximum of seventy (70) percent per lot within all commercial and industrial zoning districts located in tributary stream, agricultural river, urban river and general development lake Shoreland zoning classifications, provided the following criteria are met:

(a) Site design includes features that infiltrate twenty-five (25) percent of the runoff volume produced from the two-year, 24-hour design storm (approximately .5 to .75 watershed inches of infiltration,

depending on land use, impervious cover, and soil types). Infiltration is only required in areas with at least three (3) feet of separation between the bottom of the infiltration features and the level of ground water. Pretreatment of runoff to remove sediment prior to entering infiltration features is required.

(b) Water quality treatment(s) meet the standards of the MPCA Construction General Permit for Sensitive Receiving Waters;

(c) Site design includes stormwater management that meets these performance standards: 24-hour extended detention of the one-year, 24-hour design storm; ten-year design storm peak discharge control or a combination of ten- and 25-year design storm peak discharge control; and 100-year design storm peak discharge control to meet pre-development levels;

(d) Site design shall minimize tree removal, ground cover change, loss of natural vegetation and grade change as much as possible, and shall affirmatively provide for the relocation or replanting of as many trees as possible, which are proposed to be removed, based on an approved vegetative management plan.

(e) The provisions of Subsection 13-710(4) of this Chapter shall be satisfied.

(f) Properties zoned commercial or industrial after the effective date of this ordinance shall not qualify for the provisions of this section except by amendment of the code to specifically apply to the property.

(7) When constructed facilities are used for stormwater management, documentation must be provided by a qualified individual that they are designed and installed consistent with the City's Developer's

Guidelines for Stormwater Management, Surface Water Management Plan, ~~National Urban Runoff (NURP) Standards,~~ and the Minnesota Pollution Control Agency's Best Management Practices.

(8) New constructed stormwater outfalls to public waters must provide for filtering or settling of suspended solids and skimming of surface debris before discharge.

Sec. 13-710. Special provisions for commercial, industrial, public/semipublic, agricultural, and forestry uses.

(A) Surface water-oriented commercial uses and industrial, public, or semipublic uses with similar needs to have access to and use of public waters may be located on parcels or lots with frontage on public waters. Those uses with water-oriented needs must meet the following standards:

(1) In addition to meeting impervious coverage limits, setbacks, and other zoning standards in this ordinance, the uses must be designed to incorporate topographic and vegetative screening of parking areas and structures.

(2) Uses that require short-term watercraft mooring for patrons must centralize these facilities and design them to avoid obstructions of navigation and to be the minimum size necessary to meet the need.

(3) Uses that depend on patrons arriving by watercraft may use signs and lighting to convey needed information to the public, subject to the following general standards:

(a) Advertising signs or supporting facilities for signs may be placed in or upon public waters. Signs conveying information or safety messages may be placed in or on public waters by a public authority.

(b) Signs may be placed, when necessary, within the shore impact zone if they are designed and sized to be the minimum necessary to convey needed information and meet the requirements of City ordinances. They must only convey the location and name of the establishment

and the general types of goods or services available. The signs must not contain other detailed information such as product brands and prices, must not be located higher than ten (10) feet above the ground, and must not exceed thirty-two (32) square feet in size. If illuminated by artificial lights, the lights must be shielded or directed to prevent illumination out across public waters.

(c) Other outside lighting may be located within the shore impact zone or over public waters if it is used primarily to illuminate potential safety hazards and is shielded or otherwise directed to prevent direct illumination out across public waters. This does not preclude use of navigational lights.

(4) Uses without water-oriented needs must be located on lots or parcels without public waters frontage, or, if located on lots or parcels with public waters frontage, must meet the following standards:

(a) Be set back double the normal ordinary high water level setback;

(b) Be substantially screened from view from the water by vegetation or topography assuming summer, leaf-on conditions, based on an approved vegetative management plan; and

(c) The Shoreland impact zone shall be doubled.

(B) *Agricultural Uses.* General cultivation farming, grazing, nurseries, horticulture, truck farming, sod farming, and wild crop harvesting are permitted uses if steep slopes and shore and bluff impact zones are maintained in permanent vegetation or operated under an approved conservation plan (Resource Management Systems) consistent with the field office technical guides of the local soil and water conservation districts or the United States Natural Resource Conservation Service, as provided by a qualified individual or agency. The shore impact zone for parcels with permitted

agricultural land uses is equal to a line parallel to and fifty (50) feet from the ordinary high water level.

(C) *Forest Management Standards.* The harvesting of timber and associated reforestation must be conducted consistent with the provisions of the Minnesota Nonpoint Source Pollution Assessment-Forestry and the provisions of Water Quality in Forest Management "Best Management Practices in Minnesota."

(D) *Extractive Use Standards.* An extractive use site development and restoration plan must be developed, approved, and followed over the course of operation of the site. The plan must address dust, noise, and possible pollutant discharge, hours and duration of operation, and anticipated vegetation and topographic alterations. It must also identify actions to be taken during operation to mitigate adverse environmental impacts, particularly erosion, and must clearly explain how the site will be rehabilitated after extractive activities end. Processing machinery must be located consistent with setback standards for structures from ordinary high water levels of public waters and from bluffs.

(E) *Conditional Uses.*

(1) Conditional uses allowable within Shoreland areas shall be subject to the review and approval procedures, and criteria and conditions for review of conditional uses established in Chapter 2 of this ordinance and Subsection 13-630(E) of this Chapter.

(2) The following additional evaluation criteria and conditions apply within Shoreland areas:

(a) A thorough evaluation of the water body and the topographic, vegetation and soils conditions on the site must be made to ensure the prevention of soil erosion or other possible pollution of public waters, both during and after construction.

(b) The visibility of structures and other facilities as viewed from public waters is limited.

(c) The site is adequate for water supply and is served by municipal sewer services.

(d) The types, uses, and numbers of watercraft that the project will generate are compatible in relation to the suitability

of public waters to safely accommodate these watercraft.

(F) *Conditions attached to conditional use permits.* The City Council, upon consideration of the criteria listed above and the purposes of this ordinance, shall attach such conditions to the issuance of the conditional use permits as it deems necessary to fulfill the purposes of this ordinance. Such conditions may include, but are not limited to, the following:

(1) Increased setbacks from the ordinary high water level;

(2) Limitations on the natural vegetation to be removed or the requirement that additional vegetation be planted; and

(3) Special provisions for the location, design, and use of structures, on-site sewage treatment systems, watercraft launching and docking areas, and vehicle parking areas.

Sec. 13-720. Water supply and sewage treatment.

(A) *Water Supply.* Any public or private supply of water for domestic purposes must meet or exceed standards for water quality of the Minnesota Department of Health and the Minnesota Pollution Control Agency.

(B) *Nonconforming Sewage Treatment System.* A permit or variance authorizing any improvement on, or new use of, a property in the Shoreland district requires reconstruction of any existing nonconforming sewage system on the property.

Sec. 13-730. Nonconformities.

(A) *Existing Nonconformities.*

(1) All legally established nonconformities as of the date of this ordinance may continue, but they will be managed according to applicable state statutes and other regulations of this community for the subjects of alterations and additions, repairs after damage, discontinuance of use and intensification of use.

(2) Lots of record in the office of the county recorder on the date of enactment of local Shoreland controls that do not meet the requirements of this ordinance may be allowed as building sites without variance from lot size requirements provided the use is permitted in the

zoning district, the lot has been in separate ownership from abutting lands at all times since it became substandard, was created compliant with official controls in effect at the time, and sewage treatment and setback requirements of this ordinance are met.

(B) *Variance from Setback Requirements.* A variance from setback requirements must be obtained before any building permit is issued for a lot.

(C) *Contiguous lots.* If, in a group of two (2) or more contiguous lots under the same ownership, any individual lot does not meet the requirements of this ordinance, the lot must not be considered as a separate parcel of land for the purposes of sale or development. The lot must be combined with one (1) or more contiguous lots so they equal one (1) or more parcels of land, each meeting the requirements of this ordinance as much as possible.

(D) *Additions or expansions.*

(1) Additions or expansions to the outside dimensions of an existing nonconforming structure must meet the setback, height and other requirements of Chapter 3 of this ordinance. Any deviation from these requirements must be authorized by a variance.

(2) Deck additions may be allowed without a variance to a structure not meeting the required setback from the ordinary high water level if all of the following criteria and standards are met:

(a) The structure existed on the date the structure setbacks were established.

(b) A thorough evaluation of the property and structure reveals no reasonable location for a deck meeting or exceeding the existing ordinary high water level setback of the structure.

(c) The deck encroachment toward the ordinary high water level does not exceed fifteen (15) percent of the existing setback of the structure from the ordinary high water level or does not encroach closer than thirty (30) feet, whichever is more restrictive.

(d) The deck is constructed primarily of wood, and is not roofed or screened.

(3) Nonconforming sewage treatment systems:

(a) A sewage treatment system not meeting the requirements of this ordinance must be upgraded, at a minimum, at any time a permit or variance of any type is required for any improvement on, or use of, the property. For the purposes of this provision, a sewage treatment system shall not be considered nonconforming if the only deficiency is the sewage treatment system's improper setback from the ordinary high water level.

(b) The City Council has by formal resolution notified the Commissioner of its program to identify nonconforming sewage treatment systems. The City will require upgrading or replacement of any nonconforming system identified by this program within a reasonable period of time which will not exceed two (2) years. Sewage systems installed according to all applicable local Shoreland management standards adopted under Minnesota Statutes, section 103 [sic], in effect at the time of installation may be considered as conforming unless they are determined to be failing, except that systems using cesspools, leaching pits, seepage pits, or other deep disposal methods, or systems with less soil treatment area separation above groundwater than required by the Minnesota Pollution Control Agency's Chapter 7080 for design of on-site sewage treatment systems, shall be considered nonconforming.

Sec. 13-740. Planned unit developments (PUDS).

(A) *PUDs Density Evaluation.* The regulations in this overlay district are intended to manage Shoreland areas suitable for development as Planned Unit Developments as allowed in the underlying Zoning District. It is the intent of this overlay district to be used in

conjunction with the adopted land use regulations and requirements of the City's Unified Development Ordinance. The allowable uses and standards for Planned Unit Developments in the Shoreland management overlay district shall be consistent with those identified in the Unified Development Ordinance, Chapter 14, and reflected on the Zoning Map, with the exceptions in Shoreland areas as identified in the following sections. The Shorelands of all classified water bodies shall be made up of density tiers, which shall vary in width depending on each classification. Within each tier the density allowed may be increased based on the specific standards applicable to the water body's classification, and provided the provisions of this section can be met:

(1) General Development Lakes (each tier is two hundred (200) feet):

(a) Within the first tier (two hundred (200) feet from the OHWL), minimum lot size shall be fifteen thousand (15,000) square feet.

(2) Natural Environment Lakes (each tier is three hundred twenty (320) feet)

(a) Within the first tier (three hundred twenty (320) feet from the OHWL), minimum lot size shall be forty thousand (40,000) square feet.

(3) The suitable area within each tier is next calculated by excluding from the tier area all wetlands, bluffs, or land below the ordinary high water level of public waters. This suitable area and the proposed project are then subjected to the planned unit development density evaluation steps to arrive at an allowable number of dwelling units or sites.

(4) The suitable area within each tier is divided by the single residential lot size standard for lakes or, for rivers, the single residential lot width standard times the tier depth, unless the local unit of government has specified an alternative minimum lot size for rivers which shall then be used to yield a base density of dwelling units or sites for each tier. Proposed locations and numbers of dwelling units or sites for the residential planned unit developments are then

compared with the tier, density, and suitability analyses herein.

(5) Increases to the dwelling unit or dwelling site base densities previously determined are allowable if the dimensional standards are met or exceeded and the design criteria are satisfied. The allowable density increases below will only be allowed if structure setbacks from the ordinary high water level are increased to at least fifty (50) percent greater than the minimum setback, or the impact on the waterbody is reduced an equivalent amount through vegetative management, topography, or additional means acceptable to the local unit of government and the setback is at least twenty-five (25) percent greater than the minimum setback.

(6) Allowable Dwelling Unit or Dwelling Site Density Increases for Residential Planned Unit Developments are as follows:

Density Evaluation Tiers	Maximum density increase within each tier (percent)
First	50
Second	100
Third	200
Fourth	200
Fifth	200

(B) *Development organization and functioning.* Unless an equally effective alternative community framework is established, when applicable, all residential planned unit developments must use an owners association with the following features:

(1) Membership must be mandatory for each dwelling unit or site purchaser and any successive purchasers;

(2) Each member must pay a pro rata share of the association's expenses, and unpaid assessments can become liens on units or sites;

(3) Assessments must be adjustable to accommodate changing conditions; and

(4) The association must be responsible for insurance, taxes, and maintenance of all commonly owned property and facilities.

(C) *Erosion Control and Stormwater Management.* Erosion control and stormwater management plans shall be prepared for all planned Shoreland developments, and shall be consistent with the City's Surface Water Management Plan and ordinances, and the following:

(1) Stormwater facilities must be designed, and the construction managed, to minimize the likelihood of serious erosion occurring either during or after construction. This must be accomplished by limiting the amount and length of time of bare ground exposure. Temporary ground covers, sediment entrapment facilities, vegetated buffer strips, or other appropriate techniques must be used to minimize erosion impacts on surface erosion control plans approved by a soil and water conservation district may be required if project size and site physical characteristics warrant; and

(2) Be designed and constructed to effectively manage reasonably expected quantities and qualities of stormwater runoff. Impervious surface coverage within any tier must not exceed twenty-five (25) percent of the tier area.

(D) *Centralization and design of facilities.* Centralization and design of facilities and structures shall be done according to the following standards:

(1) Planned unit developments must be connected to publicly-owned water supply and sewer systems.

(2) Dwelling units or sites shall be clustered into groups and located on suitable areas of the development. They shall be designed and located to meet or exceed the dimensional standards for the relevant Shoreland classification, including setbacks from the ordinary high water level, elevation above surface water features, and maximum height.

(3) Structures, parking areas, and other facilities shall be treated to reduce visibility as viewed from the public waters and adjacent Shorelands by vegetation, topography, increased setbacks, color, or other

means acceptable to the local unit of government, assuming summer, leaf-on conditions. Vegetative and topographic features shall be preserved, if existing, or may be required to be provided.

(4) Accessory structures and facilities shall meet the required principal structure setback and must be centralized.

(5) Water-oriented accessory structures and facilities may be allowed if they meet or exceed design standards contained in this ordinance centralized.

(E) *Evaluation of Factors.* The following factors are carefully evaluated to ensure that the increased density of development is consistent with the resource limitations of the public water:

(1) Suitability of the site for the proposed use;

(2) Physical and aesthetic impact of increased density;

(3) Level of current development;

(4) Amount of ownership of undeveloped Shoreland;

(5) Levels and types of water surface use and public access;

(6) Possible effects on overall public use.

(F) *Open Space Preservation.*

(1) Before final approval of a planned unit development, adequate provisions must be developed for preservation and maintenance in perpetuity of open spaces and for the continued existence and functioning of the development.

(2) Deed restrictions, covenants, permanent easements, public dedication and acceptance, or other equally effective and permanent means must be provide to ensure long-term preservation and maintenance of open space. The instruments must include all of the following protections:

(a) Commercial uses prohibited;

(b) Vegetation and topographic alterations other than routine maintenance prohibited;

(c) Construction of additional buildings or storage of vehicles and other materials prohibited;

(d) Uncontrolled beaching of watercraft prohibited.

(3) Planned unit developments must contain open space meeting all of the following criteria:

(a) At least fifty (50) percent of the total project area within the Shoreland zone must be preserved as open space.

(b) Dwelling units or sites, road rights-of-way, or land covered by road surfaces, parking areas or structures, except water-oriented accessory structures or facilities, are developed areas and shall not be included in the computation of minimum open space.

(c) Open space must include areas with physical characteristics unsuitable for development in their natural state, and areas containing significant historic sites or unplatted cemeteries.

(d) Open space may include outdoor recreational facilities for use by owners of dwelling units or sites, by guests staying in commercial facilities or uses, but may contain water-oriented accessory structures or facilities.

(e) Open space must not include commercial facilities or uses, but may include water-oriented accessory structures or facilities.

(f) The appearance of open space areas, including topography, vegetation, and allowable uses, must be preserved by use of restrictive deed covenants, permanent easements, public dedication and acceptance, or other equally effective and permanent means.

(g) The shore impact zone, based on normal structure setbacks, must be included as

open space. For residential PUDs, at least fifty (50) percent of the shore impact zone area of existing developments or at least seventy (70) percent of the shore impact zone area of new developments must be preserved in its natural or existing state.

Section 7: Amendment to Appendix B, Chapter 15, Article 6, Design Standards. The Faribault City Council hereby amends Appendix B, Chapter 15, Article 6 of the Faribault Code of Ordinances by the addition of the underlined language and removal of the ~~stricken~~ language as follows:

ARTICLE 6. DESIGN STANDARDS

Sec. 15-250. Minimum design standards.

The design standards set forth below are deemed to be minimum requirements. The city may impose additional or more stringent requirements concerning lot size, streets, and overall design as deemed appropriate considering the property being subdivided.

Sec. 15-260. Blocks.

(A) *Block length.* In general, intersecting streets, determining block lengths, shall be provided at such intervals so as to serve cross-traffic adequately and to meet existing streets. Where no existing plats control, the blocks in residential subdivisions should not exceed one thousand three hundred twenty (1,320) feet nor be less than four hundred (400) feet in length, except where topography or other conditions justify a departure from such standards. In blocks longer than eight hundred (800) feet, pedestrian ways and/or easements through the block may be required near the center of the block. Blocks intended for commercial or industrial use shall be of sufficient size to provide for adequate off-street parking, loading, and other site requirements.

(B) *Block width.* The width of the block shall normally be sufficient to allow two (2) tiers of lots of appropriate depth. Blocks intended for business or industrial use shall be of such width as to be considered most suitable for their respective use, including adequate space for off-street parking and deliveries.

Sec. 15-270. Lots.

(A) *In general.* All lots shall have size, width, depth, shape, and orientation that is appropriate for the type of development and use contemplated.

(B) *Area and dimension requirements.* The minimum lot area, width, and depth shall not be less than that established for the individual zoning districts in effect at the time of adoption of the final plat.

(C) *Corner lots.* Corner lots for residential use shall have additional width to permit appropriate building setback from both streets as required within the individual zoning districts.

(D) *Side lot lines.* Side lines of lots shall be approximately at right angles to street lines or radial to curved street lines.

(E) *Required street frontage.* Every lot must have minimum street frontage, as required within the individual zoning districts, on a city approved street other than an alley, except that lots permitted as part of a planned unit development may front a private street.

(F) *Natural features.* In the subdividing of land, due regard shall be shown for all natural features, such as tree growth, watercourses, historic spots, or similar conditions which, if preserved, will add attractiveness and stability to the proposed development.

(G) *Lot remnants.* All remnants of lots below minimum size left over after subdividing of a larger tract must be added to adjacent lots, rather than allowed to remain as unusable parcels.

(H) *Frontage on two streets.* Double frontage, or lots with frontage on two (2) parallel streets shall not be permitted except where lots back on arterial streets or highways or where topographic or other conditions render subdividing otherwise unreasonable. Such double frontage lots shall have an additional depth of at least twenty (20) feet in order to allow space for screen planting along the back lot line.

(I) *Turn-around access.* Where proposed residential lots abut a collector or arterial street, they should be platted in such a manner as to encourage turn-around access and egress on each lot.

Sec. 15-280. Streets and alleys.

(A) *Street network.* Except for culs-de-sac, streets shall connect with streets already dedicated in adjoining or adjacent subdivisions, or provide for future connections to adjoining unsubdivided tracts, or shall be a reasonable projection of streets in the nearest subdivided tracts. The arrangement of thoroughfares and collector

streets shall be considered in their relation to the reasonable circulation of traffic, to topographic conditions, to runoff of storm water, to public convenience and safety, and in their appropriate relation to the proposed uses of the area to be served.

(B) *Local streets and dead-end streets.* Local streets should be so planned as to discourage their use by non-local traffic. Dead-end streets are prohibited, but culs-de-sac shall be permitted where topography or other physical conditions justify their use. Culs-de-sac shall not serve more than twenty (20) lots nor be longer than six hundred fifty (650) feet in length, including a terminal turn around which shall be provided at the closed end, with a right-of-way radius of not less than fifty (50) feet. Such distance shall be measured from the centerline of the street of origin to the center point of the cul-de-sac.

(C) *Access to arterial streets.* In cases where a proposed subdivision abuts a limited access highway or arterial street, there shall be no direct vehicular or pedestrian access from individual lots to such highway or street.

(D) *Street plans for future subdivisions.* Where the plat to be submitted includes only part of the tract owned or intended for development by the subdivider, a tentative plan of a proposed future street system for the unsubdivided portion shall be prepared and submitted by the subdivider.

(E) *Provisions for resubdivision of large lots and parcels.* When a tract is subdivided into larger than normal building lots or parcels, such lots or parcels shall be so arranged as to permit the logical location and openings of future streets and appropriate resubdivision, with provision for adequate utility connections for such resubdivision.

(F) *Street intersections.* Under normal conditions, streets shall be laid out so as to intersect as nearly as possible at right angles, except where topography or other conditions justify variations. Under normal conditions, the minimum angle of intersection of streets shall be sixty (60) degrees. Street intersection jogs with an offset of less than one hundred twenty-five (125) feet, as measured from centerline to centerline, shall be avoided.

(G) *Subdivisions abutting major rights-of-way.* Wherever the proposed subdivision contains or is adjacent to the right-of-way of a U.S. or State highway or thoroughfare, the city may require the provision of a marginal access street, located approximately parallel and adjacent to the boundary of such right-of-way. Due consideration shall be given to proper circulation design or for a

street at a distance suitable for the appropriate use of land between such street and right-of-way. Such distance shall be determined with due consideration of the minimum distance required for approach connections to future grade separations, or for lot depths.

(H) *Sidewalks.* In cases where the city deems it appropriate, sidewalks of not less than five (5) feet in width shall be provided. Where sidewalks are provided provisions shall be made for handicapped access.

(I) *Service access, alleys.* Service access shall be provided in commercial and industrial districts for off-street loading, unloading, and parking consistent with and adequate for the uses proposed. Dead-end alleys shall not be permitted.

(J) *Half streets.* Dedication of half streets shall not be considered for approval except where it is essential to the reasonable development of the subdivision and in conformity with the other requirements of these regulations or where it is found that it will be practical to require the dedication of the other half when the adjoining property is subdivided.

(K) *Right-of-way width.* Right-of-way widths shall conform to the minimum standards identified below. In the case of a local or collector street, the minimum right-of-way width may be reduced, at the discretion of the City Council, when anticipated traffic volumes, area circulation patterns, or other factors warrant such a reduction.

Arterial street 80 feet

Collector street 80 feet (66 feet when specifically allowed)

Local street 66 feet (50 feet when specifically allowed)

Cul-de-sac50 feet

Alley20 feet

Pedestrian way20 feet

(L) *Street grades.* Except when, upon the recommendation of the City Engineer, the topography warrants a greater maximum, the grades in all streets shall not exceed those identified below. In addition, there shall be a minimum grade on all streets and thoroughfares of not less than five-tenths (.5) percent.

Arterial street 5 percent

Collector street 6 percent

Local street 8 percent

Cul-de-sac 8 percent

Alley 8 percent

(M) *Street alignment.* A tangent of at least one hundred (100) feet shall be provided between reverse curves on arterial or collector streets and fifty (50) feet on lesser streets. Other than at intersections, connecting street lines that deflect from each other shall be connected by a curve with a radius adequate to ensure a sight distance of no less than the following:

Arterial street500 feet

Collector street320 feet

Local street100 feet

Cul-de-sac100 feet

(N) *Reserve strips.* Reserve strips controlling access to streets shall be prohibited.

(O) *Naming of streets.* The City Council reserves the right to establish street names, which shall be based on area naming patterns, ease of public safety response, and other pertinent factors.

Sec. 15-290. Easements.

(A) *For utilities.* An easement for utilities at least five (5) feet wide shall be provided along side and rear lot lines, which when combined with easements on adjoining lots, forms a continuous easement of at least ten (10) feet. Additionally, a similar easement of at least ten (10) feet shall be provided across the front lot line. If necessary for the extension of main water or sewer lines or similar utilities, easements of greater width may be required along lot lines or across lots, at the discretion of the City Engineer.

(B) *For storm water drainage.* Where a subdivision is traversed by a water course, drainage way, channel, or stream, there shall be provided a drainage easement or other means of land dedication conforming substantially with the lines of such water course and of such further width as determined by the City Engineer.

(C) *For walkways or trails.* Pedestrian easements, with a width not less than twenty (20) feet, may be required where deemed necessary to provide circulation, access to schools, parks, or other community facilities, or as part of a planned community-wide trail system.

(D) *Guy wires.* Additional easements for pole guys should be provided, where appropriate, at the outside of turns. Where possible, lot lines shall be arranged to bisect the exterior angle so that pole guys will fall along side lot lines.

(E) *Continuous easement provision.* All required easements, when approved as part of a final plat, shall not thereafter be changed without the approval of the City Council of a vacation of such easement, as specified in Section 2-500.

Sec. 15-300. Erosion and sediment control.

(A) *In general.* The development shall conform to the natural limitations presented by topography and soil so as to create the least potential for soil erosion.

(B) *Erosion, ~~and~~ siltation, and waste control measures.* Erosion, ~~and~~ siltation, and waste control measures shall be coordinated with the different stages of construction. Appropriate control measures shall be installed prior to development when necessary to control pollution and in accordance with the NPDES General Stormwater Permit for Construction Activity and the City's Developer Guidelines for Stormwater Management ~~erosion~~.

(C) *Incremental development.* Land shall be developed in increments of workable size such that adequate erosion and siltation controls can be provided as construction progresses. The smallest practical area of land shall be exposed at any one period of time.

(D) *Soil exposure or removal.* When soil is exposed, the exposure shall be for the shortest feasible period of time, as specified in the development agreement. Where topsoil is removed, sufficient arable soil shall be set aside for respreading over the developed area. Top soil shall be restored or provided to a depth of four (4) inches and shall be of a quality at least equal to the soil quality prior to development.

(E) *Runoff.* Runoff water shall be diverted to a sedimentation basin before being allowed to enter the natural drainage system.

Sec. 15-310. Storm drainage.

All subdivision design shall incorporate adequate provisions for storm water, subject to review and approval of the City Engineer. Permanent structural best management practices may be used to achieve the applicable minimum requirements for water quality. The rate of runoff for the area being subdivided is to be maintained at a level equal to that which existed in an undeveloped state, except as may be approved by the City Engineer. All permanent stormwater management facilities shall

be designed and constructed in accordance with Chapter 28, Section 28-230 Minimum design standards for permanent stormwater facilities, the City's Developer's Guidelines for Stormwater Management, and Surface Water Management Plan.

Sec. 15-320. Protected areas.

Where land proposed for subdivision is deemed environmentally sensitive by the city, due to the existence of wetlands, drainage ways, watercourses, floodable areas or steep slopes, the design of said subdivision shall clearly reflect all necessary measures of protection to insure against adverse environmental impact. Based upon the necessity to control and maintain certain sensitive areas, the city shall determine whether said protection will be accomplished through lot enlargement and redesign or dedication of those sensitive areas in the form of protection shall include design solutions which allow for construction and grading involving a minimum of alteration to sensitive areas. Where these areas are to be incorporated into lots within the proposed subdivision, the subdivider shall be required to demonstrate that the proposed design will not require construction on slopes over fifteen (15) percent, or result in significant alteration to the natural drainage system such that adverse impacts cannot be contained within the plat boundary.

(Ord. No. 99-20, § 1, 11-23-99; Ord. No. 2010-08, § 1, 5-25-10)

Section 8: Effective Date. This ordinance shall be effective immediately upon its passage and publication per the provisions of the Faribault City Charter.

Public Hearing: May 16, 2022

First Reading: _____, 2022

Second Reading: _____, 2022

Publication: _____, 2022

Faribault City Council

_____

Kevin F. Voracek, Mayor

ATTEST:

Timothy C. Murray, City Administrator

Developer's Guide for Stormwater Management

Updated Month Day, 2022

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Forward

These guidelines, as well as the City's Standard Construction Specifications and Ordinances, the City's Stormwater Management Plan, the City's Municipal Separate Storm Sewer System (MS4) permit, the Minnesota Pollution Control Agencies Construction Storm Water Permit and related local, state and federal rules and regulations are intended to manage stormwater pollution and provide water quality and flood control improvements within the City of Faribault.

This guide is intended as a reference source of information and standards. Developers, builders, contractors and their Engineers in charge of construction activity within the City are expected to prepare complete and competent plans and specifications for their work. Compliance with these documents will help provide quality projects and assure uniform performance standards for construction activities in Faribault. In the event of any conflict or inconsistency between the terms and conditions in this Developer's Guide and any terms or conditions set forth in any codified City Ordinances or Codes, the terms and conditions set forth in in any codified City Ordinances or Codes shall prevail.

City staff is available to answer your questions or concerns as the project progresses through the plan review process. For general questions relating to this document, you may contact:

Mark DuChene, PE
Director of Engineering
507-333-0360
mduchene@ci.faribault.mn.us

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Table of Contents

Definitions and Terms 6

1. GENERAL PROVISIONS 9

2. WHO NEEDS A PERMIT? 9

3. PLAN REVIEW PROCEDURES 10

4. SUBMITTAL REQUIREMENTS 10

5. DESIGN STANDARDS 10

5.1 Stormwater Pollution Prevention Plan (SWPPP) 11
5.2 Permanent Stormwater Management Practices 12
5.3 Grading, Erosion, and Sediment Control 13
5.3.1 Grading Plans 13
5.3.2 Erosion, Sediment, and Waste Controls 15
5.4 Permanent Stormwater Management 16
5.4.1 Acceptable Practices 16
5.4.2 Basic Sizing Criteria 17
5.4.3 Long-Term Operation and Maintenance 20
5.5 Stormwater Design Criteria 20
5.5.1 Storm Sewer 20
5.5.2 Outlet and Inlet Pipes 20
5.5.3 Channels and Overland Drainage 21
5.5.4 Ponds and Detention Basins 21
5.5.5 Infiltration/Filtration Practices 22
5.5.6 Emergency Overflows 23

6. WETLAND AND WETLAND BUFFER STRIPS 23

6.1 Minimum Protections for Wetlands During Construction 23
6.2 Assessment of Wetlands and Wetland Buffer Strips 23
6.3 Required Submittals 24
6.4 Determination of Required Wetland Buffer Strips and Structure Setbacks 24
6.5 Property Exempt from Wetland Buffer Strip and Setback Requirements 25
6.6 Septic and Soil Absorption System Setback Requirements 25
6.7 Wetland Buffer Strip Markers 25
6.8 Wetland Buffer Strip Vegetation Requirements 26
6.9 Encroachment Into Wetland Buffer Strips and Wetlands 26
6.10 Water Quality and Rate Control Upstream of Wetlands 26

7. SHORELAND MANAGEMENT DISTRICT 27

8. APPENDICES 27

DRAFT

Appendices

Appendix A SWPPP Submittal Checklist
Appendix B Permanent Stormwater Management Submittal Checklist
Appendix C Maintenance Agreement

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Definitions and Terms

For this Developer's Guide, the following definitions describe the meanings of the terms used in this document:

Applicant means any person, entity or group that applies to the city for a building permit, subdivision approval, or a grading permit. Applicant also means that person or entity's agents, employees, contractors, subcontractors, and others acting under the person, entity, or group's direction.

Best management practices or *BMPs* means erosion and sediment control and water quality management practices that are the most effective and practicable means of controlling, preventing, and minimizing the degradation of surface water, including construction phasing, minimizing the length of time soil areas are exposed, prohibition of practices, and other management practices published by state or designated area-wide planning agencies.

Common plan of development or sale means a contiguous area where multiple separate and distinct land disturbance activities may be taking place at different times, or on different schedules, but under one proposed plan of development.

Developer's Guide means the standards adopted and amended from time to time by resolution of the Council which provide information and establish standards, specifications, and details for the construction of public and private improvements, as on file with the City Engineer.

Discharge means the release, conveyance, channeling, runoff, or drainage of stormwater including snow melt, from a construction site.

Energy dissipation means methods employed at pipe outlets to prevent erosion. Examples include, but are not limited to, aprons, riprap, splash pads and gabions that are designed to prevent erosion.

Erosion means any process that wears away the surface of the land by the action of water, wind, ice, or gravity. Erosion can be accelerated by the activities of people or nature.

Erosion control means the methods employed to prevent erosion. Examples include soil stabilization practices, horizontal slope grading, temporary or permanent cover, and construction phasing.

FEMA means the Federal Emergency Management Agency.

Final stabilization means that all land disturbance activities on the site have been completed, and that a uniform (evenly distributed, without any large bare areas) perennial vegetative cover with a density of seventy-five (75) percent of the total of all unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures have been employed. The sowing of grass seed is not considered to be final stabilization. Where agricultural land is involved, final stabilization shall require that the site be returned to its preconstruction agricultural use.

Grading permit means a written warrant or license granted by the city to allow land disturbance activities.

Impaired water means all bodies of water that are listed on the Minnesota Pollution Control Agency's List of Impaired Waters.

Impervious surface means a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than existed prior to any development of the property. Examples include, but are not limited to, rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads.

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Land disturbance activity/activities means any activity or activities on a site that may result in soil erosion from water or wind. It shall also mean any movement of sediments upon lands or into or upon waters within the city's jurisdiction, including construction, clearing and grubbing, grading, excavating, transporting and filling of land. Within the context of this article, land disturbance activities shall not include:

(1) Activities such as home gardens or residential landscaping, or other repairs or maintenance work that creates less than five thousand (5,000) square feet of exposed soil or impervious surface;
(2) Additions or modifications to an existing single family structure that results in creating less than five thousand (5,000) square feet of exposed soil or impervious surface;
(3) The construction, installation, and maintenance of fences, signs, posts, poles, and electric, telephone, cable television, utility lines or individual service connections to these utilities, which result in creating less than five thousand (5,000) square feet of exposed soil or impervious surface;
(4) The tilling, planting, or harvesting of agricultural, horticultural, or silvicultural crops; and
(5) Emergency work performed in order to protect life, limb, or property. If SWPPP would have been required for the emergency work pursuant to this article, then the disturbed land area shall be shaped and stabilized in accordance with the requirements set forth in this article as soon as possible after the emergency situation is under control.

MnDOT means the Minnesota Department of Transportation.

MPCA means the Minnesota Pollution Control Agency.

Native vegetation means plant species indigenous to or naturalized to Minnesota and classified as native to Minnesota by the Minnesota Department of Natural Resources.

New Development means any site with less than 15% of existing impervious prior to the commencement of construction activity.

NPDES General Stormwater Permit for Construction Activity means the most current version of the National Pollutant Discharge Elimination System General Stormwater Permit for Construction Activity as required by the Minnesota Pollution Control Agency.

Ordinary high water level means the boundary of water basins, watercourses, public waters, and public waters wetlands, and:

(1) The ordinary high water level is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial;
(2) For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel; and
(3) For reservoirs and flowages, the ordinary high water level is the operating elevation of the normal summer pool.

Premises means any building, lot, parcel of land, or portion of land whether improved or unimproved, including adjacent sidewalks.

Redevelopment means any site with more than 15% of existing impervious surfaces prior to the commencement of construction activity.

Sediment means the product of an erosion process which consists of solid material that may be mineral or organic that is in suspension, is being transported, or has been moved by water, wind, or ice, and has come to rest on the earth's surface either above or below the water level.

Sedimentation means the process or action of depositing sediment.

Sediment control means the methods employed to prevent sediment from leaving the site. Examples of sediment control practices are silt fences, sediment traps, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, storm drain inlet protection, and temporary or permanent sedimentation basins.

Soil means the unconsolidated mineral or organic material on the immediate surface of the earth. For the purposes of this article, temporary stockpiles of clean sand, gravel, aggregate, concrete, or bituminous materials are not considered soil.

Stabilized or *stabilization* means the exposed ground surface, after it has been covered by sod, an erosion control blanket, riprap, pavement, or other material that prevents erosion. Simply sowing grass seed is not considered stabilization.

Steep slope means any slope steeper than fifteen (15) percent of rise for every one hundred (100) feet of horizontal run.

Stormwater shall mean any precipitation runoff, stormwater runoff, snow melt off, and any other surface runoff and drainage.

Stormwater pollution prevention plan or *SWPPP* means a plan for stormwater drainage that includes erosion prevention measures and sediment controls that, when implemented, will minimize soil erosion on a site and minimize off-site non-point pollution to the maximum extent possible.

Structure means any improvement that is manufactured, constructed or erected which is normally attached to or positioned on a site, including, but not limited to, portable structures, earthen structures, roads, parking lots and paved storage areas.

Subdivision shall mean land that is divided for the purpose of sale, rent, or lease, including a planned unit development.

Very steep slope means any slope steeper than one foot of rise for each three (3) feet of horizontal run (a slope of thirty-three (33) percent).

Waters of the state shall mean all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural, or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

Wet detention facilities shall mean permanent man-made structures that contain permanent pools of water that are used for the temporary storage of stormwater runoff.

Wetlands shall mean those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Constructed wetlands designed for wastewater treatment are not waters of the state. Wetlands must have the following attributes:

(1) A predominance of hydric soils;

(2) Inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition; and

(3) Under normal circumstances support a prevalence of such vegetation.

Wetland buffer strip means a protective vegetated zone located adjacent to a water of the state or a wetland, that is subject to direct or indirect human alteration. A wetland buffer strip is an integral part of protecting an aquatic ecosystem of a body of water by trapping sheet erosion, filtering pollutants, reducing channel erosion and providing adjacent habitat.

1. GENERAL PROVISIONS

As set forth in various sections of City Code, certain site improvements of property within the City of Faribault are required to submit plans and specifications for review and approval prior to initiating land disturbing activities. These plans include, but are not limited to, grading plans, drainage plans, surveys, utility plans, and specifications. Competent professionals are required to prepare these plans and specifications.

These guidelines serve as a general reference for engineering requirements in the design, plan, and specification preparation to facilitate consistent plan preparation and construction of stormwater management practices and to improve the quality of plan submittal and subsequent review and approval time.

The Developer's Guide is a living document that will be updated and revised as necessary to facilitate the development of projects within the City of Faribault.

2. WHO NEEDS A PERMIT?

The following describes what requirements and permits are required based on the proposed disturbed land area. These are general thresholds and not absolute as there are many factors to consider during land alterations other than simply the area disturbed such as how deep is the proposed excavation, what are the proposed impacts on site/upstream/downstream, what special environmental concerns are there, etc. The City reserves the right to require supplemental information up to and including engineering drawings and storm water calculations based on proposed land disturbance activities as determined by the City Engineer. Not requiring a grading permit or engineered drawings and/or calculations does not relive the property owner of following all federal, state and local laws regarding drainage, erosion control and water treatment requirements.

- **Disturbed Area Less than 5,000 sf** – No grading permit required unless project is covered under a parent NPDES CSW permit (such as a new home build in a new subdivision). Cannot block or alter drainage such as to negatively impact upstream or downstream properties. Recommend discussion of grading concept with City Engineer.

- **Disturbed Area 5,000 sf to Less than 21,780 sf (Half Acre)** – Grading permit required. Grading permit shall include a sketch showing plan. Sketch generally need not be prepared by Engineer/Surveyor unless determined to be needed by City Engineer or required by other codes (such as new building construction requirement for a certificate of survey). Cannot block or alter drainage such as to negatively impact upstream or downstream properties.

- **Disturbed Area 21,780 sf (Half Acre) to Less than One Acre** – City Grading permit required as well as stormwater management plan. Improvements must not increase the rate of water runoff on the site after improvements to more than existed on the site prior to the improvements. Grading plan and stormwater management calculations must be performed by a licensed engineer and rate must be controlled for the 2-, 10- and 100-year 24 hour Atlas 14 rainfall events unless approved otherwise by the City Engineer.

- **Disturbed Area Equal to/or Greater than One Acre** – City Grading permit required as well as stormwater management plan/stormwater pollution prevention plan (SWPPP). Improvements must not increase the rate of water runoff on the site after improvements to more than existed on the site prior to the improvements and also must meet the water quality treatment requirements of the MPCA NPDES CSW Permit and the City's MS4 Permit. Grading plan and stormwater management calculations must be performed by a licensed engineer and rate must be controlled for the 2-, 10- and 100-year 24 hour Atlas 14 rainfall events unless approved otherwise by the City Engineer.

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3. PLAN REVIEW PROCEDURES

The general review process, from the submittal of the concept and final plans to the issuance of the SWPPP approval, is summarized in the following six steps:

1. Determine what stormwater management provisions apply (e.g., stormwater management, erosion control, buffers, floodplain management).
2. What permits, or approvals, are required for the project site, and what waivers and/or exemptions are applicable (e.g., COE, DNR, MPCA, WCA, etc.)
3. Are the selected practices appropriate for this site?
4. Are the practices designed to meet the minimum performance criteria?
5. Does the SWPPP meet other resource protection requirements as specified in City Code?
6. Are provisions for long-term maintenance adequate, including access and methods for maintenance defined?

4. SUBMITTAL REQUIREMENTS

No site plans or permit applications will be approved until all requirements are met.

- **Disturbed Area Less than 5,000 sf** – No grading permit required unless project is covered under a parent NPDES CSW permit (such as a new home build in a new subdivision). Recommend submitting a sketch and/or discuss grading concept with City Engineer. Property owner must install appropriate erosion control measures prior to work commencing.

- **Disturbed Area 5,000 sf to Less than 21,780 sf (Half Acre)** – Grading permit shall include a sketch plan or certificate of survey as required showing erosion control measures. Property owner must install appropriate erosion control measures prior to work commencing.

- **Disturbed Area 21,780 sf (Half Acre) to Less than One Acre** – City Grading permit shall include a grading plan, stormwater management plan and erosion control plans. Refer to the Design Standards section for requirements.

- **Disturbed Area Equal to/or Greater than One Acre** – City Grading permit shall include a grading plan, stormwater management plan and a stormwater pollution prevention plan (SWPPP). Refer to the Design Standards section for requirements.

5. DESIGN STANDARDS

The City of Faribault's Surface Water Management Plan identifies the goals and policies that define the City's stormwater management program, which are implemented via the City's SWPPP and Wetland Protection Ordinance (Chapter 28, Article VII.) and these Developer Guidelines. Faribault's stormwater requirements were written to meet the City's goals to preserve, protect, and manage its water resources, as well as to meet federal, state, and watershed stormwater regulations that comprise the following objectives:

1. Minimize increases in stormwater runoff rates from any development to reduce flooding, siltation, and erosion and to maintain the integrity of stream channels.
2. Minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality.
3. Minimize the total annual volume of surface water runoff that flows from any specific site during and following development so as not to exceed the predevelopment hydrologic regime to the maximum extent practicable.
4. Ensure that these management controls are properly maintained and pose no threat to public safety.
5. Implement stormwater management controls to help meet current and future total maximum daily load (TMDL) goals, to address the need to improve water quality, and to meet objectives in the Surface Water Management Plan.

The Applicant is solely responsible for providing a quality design that meets all applicable laws and design requirements. The City has adopted the following design standards for erosion and sediment control and permanent stormwater management. These standards are meant to enhance not replace sound engineering judgement and industry standards.

No grading permits requiring a stormwater management plan or stormwater pollution prevention plan (SWPPP) will be approved unless it includes a detail of how runoff and associated water quality impacts resulting from the development will be controlled or managed. These plans must be designed with accepted engineering practices and indicate temporary and permanent best management practices, and whether stormwater will be managed on-site or off-site and, if on-site, the general location and type of practices.

5.1 Stormwater Pollution Prevention Plan (SWPPP)

Any project that disturbs one or more acres of land, or is part of a common plan of development, must acquire a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater (CSW) Permit. The SWPPP and proof of coverage under the NPDES CSW Permit must be submitted to the City Engineer prior to initiating land disturbing activities.
All projects shall develop a SWPPP that contains erosion, sediment, and waste control BMPs that at a minimum observe the standards established by the most current version of the MPCA's General Permit to Discharge Stormwater Associated with Construction Activity, the City of Faribault's Local Surface Water Management Plan, City Code, or as modified herein.
The SWPPP must be prepared by a trained individual. All SWPPPs must meet the submittal requirements outlined in the SWPPP Submittal Checklist found in **Appendix A**. At a minimum, the SWPPP must contain:

1. The name and address of the applicant;
2. A legal description of the site;
3. A map of all adjacent areas to the site that identifies all waters of the state, subdivisions, roads, utilities and other areas which might be affected by the land disturbance activity. If SWPPP involves directing some or the entire site's runoff to adjacent properties, the applicant shall obtain from adjacent property owners any necessary easements to permit the runoff to flow onto their properties;
4. A map of the existing site conditions that includes the existing topography of the site, the location of any steep and very steep slopes, the location of existing drainage systems and patterns, the types of soils, the location of any waters of the state, the location of any vegetative cover, the location of any one hundred (100) year floodplain boundaries and the locations of any existing and proposed wetland buffer strips;
5. A description of the project, including the nature and purpose of the land disturbance activity and a description of the grading work, utility work, and building construction involved;
6. A schedule of the start and completion dates of each land disturbance activity on the site, including the estimated dates of installation of the required erosion prevention measures for each phase and the construction schedule;
7. A site construction plan that includes the location of the proposed land disturbance activities and any stockpile locations;
8. A designation of the site's areas that have the potential for serious erosion problems;
9. A description of the proposed erosion and sediment control measures to be undertaken, including the methods that will be used to control erosion and sedimentation on the site, both during and after construction;
10. A description of the proposed permanent stabilization measures to be taken, including stabilization specifications, time frames and schedules;
11. The location of all existing and proposed permanent and temporary sedimentation basins;

12. A description of the method to be used to dispose of temporary erosion and sediment control measures;
13. A description of the method to be used to maintain the temporary and permanent erosion and sediment controls;
14. A description of the method to be used to collect and dispose of sediment and floating debris; and,
15. A street sweeping schedule for the site.

5.2 Permanent Stormwater Management Practices

Permanent stormwater management practices must be designed by a licensed professional engineer in the State of Minnesota, who will verify that all practices meet the submittal requirements outlined in the Permanent Stormwater Management Submittal Checklist found in **Appendix B**.

A stormwater management concept plan is an option offered by the City. An applicant should include within a concept plan measures for controlling existing stormwater runoff discharges and water quality from the site in accordance with the standards of this guide. After review of the concept plan and modifications are made to that plan as deemed necessary by the City, a final Stormwater Management Plan may be submitted for approval.

A stormwater management concept plan submittal is optional, but highly encouraged. A concept plan identifies basic site information, locations of proposed development features, and preliminary locations and sizing of permanent stormwater management practices. The concept submittal has a greater chance of identifying major obstacles and can facilitate alternative stormwater management arrangements in a timely fashion and at the onset of project planning. If a concept plan is submitted for review, it should include sufficient information (e.g., maps, basic hydrologic and water quality calculations etc.) to evaluate the environmental characteristics of the project site. This information should show the potential impacts of all proposed development of the site, both present and future, on the water resources, and show the effectiveness and acceptability of the measures proposed for managing stormwater generated at the project site. The intent of this conceptual planning process is to determine the type of stormwater management of stormwater runoff form future development, and to identify major issues prior to completing final plans. The concept plan is less time consuming and more efficient to evaluate proposed development plans with this step of the review process. The final plan provides more detailed design information for the proposed stormwater treatment practices and includes much more detail in terms of hydrologic conditions and site features.

The following permanent stormwater management practices must be considered in developing the stormwater management portion of the SWPPP:

1. Protect and preserve as much natural or vegetated area on the site as possible;
2. Minimize impervious surfaces;
3. Direct runoff to vegetated areas rather than to adjoining streets, storm sewers and ditches;
4. Flow attenuation of treated stormwater by the use of open vegetated swales and natural depressions;
5. Utilize stormwater wet detention facilities (including percolation facilities); and,
6. Reduce the need for permanent stormwater management facilities by incorporating the use of natural topography and land cover such as natural swales and depressions as they existed prior to the land disturbance activities to the degree that they can accommodate the additional flow of treated water without compromising the integrity or quality of the body of water.

No building permit or subdivision approval shall be issued until a satisfactory final Stormwater Management Plan, or a waiver thereof, shall have undergone a review and been approved by the City after determining that the plan waiver is consistent with the requirements of this guide.

Record drawings are required for all projects that disturb a half-acre or more of land, impact wetlands and/or the floodplain, require water quality ponding, have significant grade changes, and/or have other unusual circumstances. Record drawings must be certified by a professional land surveyor or civil engineer. Record drawings should not include temporary erosion control measures.

5.3 Grading, Erosion, and Sediment Control

5.3.1 Grading Plans

Any applicant proposing a land disturbance activity that is 5,000 sf or greater shall apply to the City for a grading permit and submit a grading plan with the application. The grading plan must include all the items that are specified below unless waived by the City Engineer.

Plan Details

 North arrow, street names, and lot and block numbers for property or subdivision
 Location of benchmark, based on the City/County benchmark system
 Key with all line types, symbols, shading, and cross-hatching denoted
 Illustration key showing symbols for all information pertaining to lot and building design, including grades, easements, lot and block, setbacks, etc…
 Plan scale (shown graphically on a bar scale) of: 1 inch = 20 feet, 1 inch = 30 feet, 1 inch = 40 feet, or 1 inch = 50 feet. Plans in other scales will not be reviewed.
 Total area of subject property, with subtotals of disturbed and undisturbed areas (tabulation permitted)
 Subject property's boundary lines, lot lines and right of way lines
 All existing and proposed drainage and utility easements
 All man-made features, including existing and proposed buildings, structures, and paved areas
 All existing storm sewer facilities within 150 feet of the subject parcel
 All proposed storm sewer facilities (include grades and size of structures)
 All existing and proposed natural features including, but not limited to, significant trees and tree lines, wetlands, ponds, lakes, streams, drainage channels, floodplain, etc…
 Show setbacks and buffers for wetlands, ponds, lakes, streams, and floodplains
 All adjacent plats, parcels, rights-of-way, section lines, extended a minimum of 100 feet (50 feet for single family home construction) beyond the subject parcel in all directions

Existing and proposed contour lines

 Existing contours shall be shown at vertical intervals of two feet. Elevations shall be referenced to the national geodetic vertical datum (NGVD 1929).
 Contour lines shall be different line weights for existing contour lines versus proposed contour lines.
 Contours shall be shown to a minimum of 150 feet into adjacent property or to the centerline of the adjacent street.

Lot and block layout

 Lot dimensions to the nearest foot;
 Typical lot detail indicating where lot and house elevations are shown;
 Building setback lines
 Proposed top of curb elevations at lot corners and driveway or entrances
 Finished spot elevations at all high and low points
 Proposed elevations at garage and lowest floor for proposed buildings

 Proposed finished ground elevations around home for final grading
 Front and rear lot corner elevations;
 House pads layout, showing hold down elevations and finished garage elevations;
 Spot elevations as appropriate to define drainage patterns on the lot; and
 Legend with type of house styles and grade difference for garage floor to walkouts or lookouts.
 Lot grading and drainage. Lots shall be graded so water drains away from building locations and flows along lot lines within the proposed drainage and utility easements. Any drainage flow from one lot onto an abutting lot must be within a drainage easement.

Street/Site layout
 Typical street section;
 Preliminary street grades and drainage;
 Centerline street elevations at 100 foot stations with high and low points; and
 Cul-de-sac frontage along curb tines with spot elevations.
 Street grade.
 Storm sewer alignment. Storm sewer alignment shall be shown with top and invert elevations. Also, flared ends shall be shown with invert elevations.
 Easements. Existing and proposed easements

Grading plan
 The grading plan for all single-family residential subdivisions shall provide for an area with a slope not greater than 10% extending not less than a depth of 20 feet from the rear line of the building pad the entire width of the building pad, except as approved by the City Engineer.
 House pad setback from flood elevations: House pads shall be set back 30 feet from 100-year flood elevation for storm sewer ponds and lakes if the lake lot has municipal sewer; and 75 feet from the 100-year flood elevation for lakes if the lake lot is unsewered.
 Lowest opening elevation: two feet above the 100-year flood elevation of adjacent storm sewer ponds. Flooding elevations shall be one foot above the ordinary high water level of any standing water if determined. If sufficient data on known high water levels is not available, the elevation of the line of permanent aquatic vegetation shall be used as the estimated high water standing water elevation.
 Garage floors. Minimum elevation: 1½ feet above the top-of-curb elevation, as measured from the top-of-curb at the high side of the driveway to the garage floor.
 Driveway slopes. Maximum slope: 10% from the top-of-curb to the garage floor, as measured at the centerline of the driveway.
 Open areas, including yards and swales.
Minimum slopes, 1%; and (Preferred design is 1.5% or greater.)
Maximum slopes, 3:1, except existing slopes being protected, which are subject to review.

Emergency overflows
 Emergency overflows shall be labeled and shown with spot elevations and drainage arrows. Emergency overflows must be established for catch basins in the street and in rear lots. Areas along rear lot lines which are below the emergency overflow elevation shall be designated as drainage easement on the final plat.
 Minimum elevation is 2.0 feet below the lowest opening house elevation.
 Storm sewer ponds' slopes, 6:1 maximum grade.

Elevations and boundaries of lakes, wetlands and ponds
 Ordinary high water level contours of all lakes, streams, wetlands, watercourses, marshes, and surface water features required in M.S. § 505.02 (1), as it may be amended from time to time, obtained from United States Geological Survey quadrangle topographic maps or more accurate sources;

 Location of 100-year floodplain areas, 100-year flood elevations, and limits of floodway and flood fringe;
 Delineated wetland boundaries, completed by a qualified professional according to the most current U.S. Corps of Engineers methodology, and approved by the city's designated official;
 Wooded areas;
 Rock outcrops;
 Power transmission poles and lines; and
 Other significant features required to be shown.
 Watercourses.

Temporary Erosion Control Best Management Practices (BMPs)
Show location of all structural erosion control measures (with standard detail plates and maintenance information for each), including, but not limited to:
 Temporary rock entrance/exit for all vehicle access points (show on plan and provide detail)
 Perimeter silt fence; silt fence and/or bale checks should also be placed along swales or slopes greater than 50 feet in length (flare ends of silt fence up slope)
 Storm sewer inlet filters (indicate type and show graphically on plan at each location)
 Temporary sediment basins
 Erosion control mats, fiber blankets, netting, temporary seed, or temporary mulch. All exposed soil areas must be stabilized as soon as possible to limit soil erosion but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased and no later than seven (7) days after construction activity in that portion of the site has temporarily or permanently ceased when discharge points on the project is within one mile of a special or impaired water and flows to that special or impaired water.
 Soil stockpile areas (indicate temporary stabilization measures)
 Street Sweeping Required
Plans must include a note indicating that all adjacent streets will be swept daily, or as directed by the City, to remove all accumulated materials. Failure to perform any street sweeping within six hours of notice by the City will result in the work being performed by the City and all associated costs billed. The City also requires removal of accumulated materials on streets during winter.

Final Stabilization
New resident construction requires vegetated stabilization from the front curb line to the back of the structure for the entire width of the lot. Show seeding and/or turf establishment locations and specifications, including:
 Type of seeding (permanent, temporary, dormant)
 Seed type and application rate
 Fertilizer type and application rate
 Mulch type, application rate, and method of anchoring
 Specifications for installation and maintenance of erosion control mats, blankets, or netting
 Note requiring seeding/restoration to be completed within 48 hours of final grading
 Location of all areas to be vegetated

5.3.2 Erosion, Sediment, and Waste Controls

At a minimum, all erosion, sediment, and waste control practices set forth in the SWPPP and all work on the site must conform to the requirements as stated in the most current version of the NPDES General Stormwater Permit for Construction Activity, including, but not limited to:

A. Erosion prevention practices;
B. Sediment control practices;
C. Dewatering and basin draining;

D. Inspection and maintenance;
E. Pollution prevention management measures;
F. Temporary sediment basins; and,
G. Termination conditions.

Site plans must be updated during construction to reflect current site activities.

5.4 Permanent Stormwater Management

Designers are expected to follow the requirements of this section to meet the water quality requirements of the City of Faribault. Designs should meet the stormwater design standards of these Developer Guidelines and the *Minnesota Stormwater Manual*. Deviations from recommended guidance in the *Minnesota Stormwater Manual* will require detailed written explanation. Approval of any deviation from the *Minnesota Stormwater Manual* guidance will be at the discretion of the City.

5.4.1 Acceptable Practices

In the development of the permanent stormwater management practices appropriate for the development or redevelopment, infiltration (e.g., water quality volume) is foremost in importance to apply in the design. Filtration is warranted when site conditions do not allow for an effective infiltration practice. For flooding or rate control, detention systems are typically the preferred practice. Low Impact Design (LID) practices are encouraged when they can be functionally incorporated into the design. Alternative practices may be approved at the discretion of the City Engineer. When infiltration is not feasible, the permanent stormwater management practice proposed shall meet the performance identified in the *Minnesota Stormwater Manual*.

Below is a summary of permanent stormwater management practices that are accepted by the City of Faribault:

Table 1. List of Acceptable Practices

<table>
<tr><th>Volume Control</th><th>Filtration</th><th>Detention</th><th>Wetlands</th><th>Open Channel Systems</th></tr>
<tr><td>Infiltration Trench</td><td>Surface Sand Filter</td><td>Wet Pond</td><td>Shallow Wetland</td><td>Dry Swale</td></tr>
<tr><td>Infiltration Basin</td><td>Underground or Perimeter Sand Filter</td><td>Stormwater Reuse</td><td rowspan="7">Pond/Wetland Systems</td><td>Wet Swale</td></tr>
<tr><td>Raingarden</td><td>Tree Trench</td><td>Multiple Pond System</td><td>Grass Swale</td></tr>
<tr><td>Underground Storage</td><td>Organic Filter</td><td>Extended Detention Basin</td><td rowspan="6">Natural Channel/Stream</td></tr>
<tr><td>Reuse</td><td>Bioretention System</td><td>Micro-Pool Extended Detention Basin</td></tr>
<tr><td>Green Roofs</td><td>Raingarden with Underdrain</td><td>Dry Detention Pond</td></tr>
<tr><td rowspan="2">Trees/Tree Planters</td><td>Pervious Pavement with Underdrain</td><td>Underground Storage</td></tr>
<tr><td>Underground Storage with Underdrain</td><td>Other, as approved</td></tr>
</table>

The design process for each of the acceptable practices is detailed in the Minnesota Stormwater Manual, http://stormwater.pca.state.mn.us/index.php/Main_Page.

5.4.2 Basic Sizing Criteria

Proposed Stormwater Management Plans must incorporate Volume Control, Water Quality, and Rate Control as the basis for stormwater management in the proposed development plan.

5.4.2.1. Volume Control

Volume control measures are required on projects to meet the requirements of the City of Faribault's MS4 Permit obligations. Volume control shall be required for any project where the sum of the new impervious surface and the fully reconstructed impervious surface equals one or more acres, unless granted by waiver from the City.

Non-Linear Projects

A proposed development shall capture and retain on site 1.0 inches of runoff times the sum of the new and fully reconstructed impervious surfaces. If an applicant can demonstrate that the volume control standard has been met, then the water quality sizing criteria shall be considered satisfied.

Volume reduction practices must be considered first. If site constraints prohibit infiltration, other volume reduction practices, such as a wet sedimentation basin, or filtration basin may be considered. In all circumstances, a reasonable attempt must be made to obtain right-of-way during the project planning and all attempts of infeasibility must be recorded. When restrictions exist and the entire water quality volume cannot be treated due to lack of right-of-way, easements, or other permissions from property owners to install treatments systems that can treat the total water quality volume on site, the remaining water quality volume must be addressed through off-site treatment and, at a minimum, satisfy the following conditions:

A. Select an off-site treatment location in the following order of preference:
    1) Locations that yield benefits to the same receiving water that receives runoff from the original construction activity;
    2) Locations within the same DNR catchment area as the original construction activity;
    3) Locations in the next adjacent DNR catchment area upstream; or,
    4) Locations anywhere within the City of Faribault's jurisdiction.
B. Must involve the creation of new permanent stormwater management BMPs or the retrofit of existing BMPs, or the use of a properly designed regional permanent stormwater management practice[1]; and,
C. Must be completed within 24 months after the start of the original construction activity.

Linear Projects

For linear projects, the water quality volume shall be calculated as the larger of:

a. One-inch times the new impervious surface; or,
b. One-half (0.5) inch times the sum of the new and fully reconstructed impervious surface.

If the total water quality volume cannot be treated within the existing right-of-way (ROW), a reasonable attempt to obtain additional ROW, easement, or other permission to treat the stormwater must be initiated. However, volume reduction practices will not be required if the practices are cost prohibitive. All attempts of infeasibility must be recorded,

[1] Previously required routine maintenance of permanent stormwater management practices cannot be considered mitigation.

and treatment of the water quality volume must be maximized prior to discharge to the City's storm sewer system and surface waters.

Projects Less than One Acre
For projects less than one acre, the City encourages applicants to incorporate volume control and water quality provisions to the maximum extent feasible.

Stormwater Design Criteria for ponds and detention basins, and infiltration and filtration practices can be found in Section IV.C.4 and Section IV.C.5.

5.4.2.2. Infiltration Restrictions
The use of infiltration techniques shall be prohibited where the infiltration practice will be constructed in any of the following areas:

a. That receive discharges from vehicle fueling and maintenance areas;
b. Where high levels of contaminants in soil or groundwater may be mobilized by infiltration;
c. Where soil infiltration rates are more than 8.3 inches per hour unless soils are amended to slow the infiltration rate below 8.3 inches per hour;
d. With less than three feet of separation from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock;
e. Of predominately Hydrologic Soil Group D (clay) soils;
f. In an Emergency Response Area (ERA) within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, Subp. 13, classified as high or very high vulnerability as defined by the Minnesota Department of Health;
g. In an ERA within a DWSMA as defined in Minn. R. 4720.5100, Subp. 13, classified as moderate vulnerability unless the applicant performs a higher level of engineering review[2] sufficient to provide a functioning treatment system and to prevent adverse impacts to groundwater;
h. Outside of an ERA within a DWSMA classified as high or very high vulnerability unless the applicant performs a higher level of engineering review[3] sufficient to provide a functioning treatment system and to prevent adverse impacts to groundwater;
i. Within 1,000 feet upgradient or 100 feet downgradient of active karst features; or,
j. That receive stormwater runoff from these types of entities regulated under NPDES for industrial stormwater: automobile scrap yards, scrap recycling and waste recycling facilities, hazardous waste treatment, storage, or disposal facilities, or air transportation facilities that conduct deicing activities.

Where the site factors listed above limit the construction of infiltration systems, the applicant shall provide appropriate documentation to the City regarding the limitations. If the City determines that infiltration is prohibited onsite, the applicant shall consider alternative volume reduction BMPs and the water quality volume must be treated by a wet sedimentation basin, filtration system, regional ponding, or similar method prior to the release of stormwater to the City's storm sewer system and other surface waters.

5.4.2.3. Water Quality
The water quality control standard shall be considered satisfied if the volume control standard has been satisfied. If it is infeasible to meet the volume control standard due to site constraints, the applicant shall consider alternative volume reduction BMPs and the water quality volume must be treated by a wet sedimentation basin, filtration system, regional ponding, or similar method prior to the release of stormwater to the City's storm sewer system and other surface waters. In the case of alternative volume reduction

[2] See "higher level of engineering review" in the Minnesota Stormwater Manual for more information.
[3] See "higher level of engineering review" in the Minnesota Stormwater Manual for more information.

BMPs, at least 60% TP and 90% TSS removal will be required on an average annual basis. A wet sedimentation basin with a permanent pool (dead storage) volume greater than or equal to the runoff from a 2.5-inch 24-hour storm event over the entire contributing drainage area is considered to meet these requirements.

PondNET, P-8, MIDS and/or scientifically valid field studies are acceptable methods for verifying water quality performance.

Additional Stormwater Design Criteria information can be found in **Section IV.C**.

5.4.2.4. Rate Control

A. At a minimum, post-construction stormwater management practices shall maintain existing flow rates for the 2-, 10-, and 100-year 24 hour rainfalls in accordance with Atlas 14 data as shown in **Table 2**.

Table 2. Atlas 14 Data for City of Faribault

Event	Rainfall/Snowmelt Depth (inches)
2-year, 24 hour	2.84
10-year, 24 hour	4.25
100-year, 24 hour	7.29
100-year, 10 day snowmelt	10.1

B. Overland conveyance, ponds, and BMPs – including design of the flood storage, outlets, and emergency overflows – shall be designed for the 100-year critical flood event. The 100-year critical flood event is either the 100-year, 24-hour storm event or the 100-year 10-day snowmelt event, whichever produces the highest high water level (HWL).
C. All drainage system analyses and designs shall be based on proposed full development land use patterns.
D. A MSE3 24-hour rainfall distribution with average antecedent moisture conditions should be utilized for runoff calculations.
E. The recommended minimum outlet diameter is 6 inches due to plugging susceptibility and may supersede the rate control requirement for the 2-year event.
F. Outlet structures should be designed in three phases with primary outlet structure and secondary overflow structure routed to the storm sewer and a defined emergency overflow as the tertiary outlet structure.

5.4.2.5. Freeboard

A. The low opening elevation for all new structures will be a minimum of 2 feet above the HWL for the 100-year critical event and at least 1 foot above the as-built emergency overflow (EOF) elevation from any area where surface water is impounded during a rain event.
B. For landlocked basins, where structures are proposed below the EOF, the low opening elevation will be a minimum of 2 feet above the HWL as determined by the 100-year critical back-to-back event.
C. Adjacent to channels, creeks, and ravines the low opening elevation will be at least 2 feet above the HWL for the 100-year critical event.
D. The low floor elevation for all new structures will be a minimum of 3 feet above historic high groundwater levels and 1 foot above the NWL of adjacent waterbodies.
E. Drainage easements and outlots for ponds, lakes, wetlands, streams, etc., shall encompass the area to the 100-year HWL plus 2 feet.

5.4.3 Long-Term Operation and Maintenance

No private permanent stormwater management practices may be approved unless an operation and maintenance agreement are provided that defines how access will be provided, who will conduct maintenance, the type of maintenance, and the maintenance intervals. An example maintenance agreement is provided in **Appendix C**.

The City of Faribault reserves the right to ensure maintenance responsibility for private permanent stormwater management practices when those responsibilities are legally transferred to another party. The applicant shall obtain all necessary easement or other property interests to allow access to the permanent stormwater management practices for inspection or maintenance for both the responsible party and the City of Faribault. At a minimum, all private stormwater facilities shall be inspected annually and maintained in proper condition consistent with the performance goals for which they were originally designed and as executed in the operations and maintenance agreement. If the private permanent stormwater management practice changes, causing decreased effectiveness, a new, repaired, or improved structural stormwater practice must be implemented to provide equivalent treatment to the original practice.

All settled materials including settled solids, shall be removed from ponds, sumps, grit chambers, and other devices, and disposed of properly.

5.5 Stormwater Design Criteria

5.5.1 Storm Sewer

A. Manhole spacing shall not exceed 400 feet.
B. Where more than one pipe enters a structure, a catch basin/manhole shall be used.
C. Storm sewer pipe should match top of pipe on top of pipe unless grade constraints prevent this. In that case, hydraulic calculations will be necessary to verify that excessive surcharging will not occur.
D. Storm sewer systems shall be designed for the 10-year 24-hour storm event using the Rational Method. The outlets from ponds or BMPs shall be designed for the 100-year critical flood event as previously described.
E. The minimum full flow velocity within the storm sewer should be 3 feet per second (fps). The maximum velocity shall be 10 fps, except when entering a pond, where the maximum velocity shall be limited to 6fps.
F. For storms greater than the 10-year event, and in the case of plugged inlets, transient street ponding will occur. For safety reasons, the maximum depth in streets should not exceed 1.5 feet at the deepest point.
G. To promote efficient hydraulics within manholes, manhole benching shall be provided to 1/2 diameter of the largest pipe entering or leaving the manhole.
H. Vaned grate (3067V or 3067 VB in low point) catch basin castings shall be used on all streets.
I. The maximum design flow at a catch basin for the 10-year storm event shall be three (3) cubic feet per second (cfs), unless high capacity grates are provided. Catch basins at low points will be evaluated for higher flow with the approval of the City Engineer.
J. All structures located in the street are to be a minimum of four feet deep (rim to invert) and a minimum of three feet deep elsewhere. Two-by-three catch basins are to be four (4) feet deep.

5.5.2 Outlet and Inlet Pipes

A. Inlet pipes of stormwater ponds shall be extended to the pond NWL whenever possible.

B. Outfalls with velocities greater than 4 fps into channels, where the angle of the outfall to the channel flow direction is greater than 30 degrees, requires energy dissipation or stilling basins.
C. Outfalls with velocities of less than 4 fps, that project flows downstream into a channel in a direction 30 degrees or less from the channel flow direction, generally do not require energy dissipaters or stilling basins, but will require riprap protection.
D. In the case of discharge to channels, riprap shall be provided on all outlets to an adequate depth below the channel grade and to a height above the outfall or channel bottom. Riprap shall be placed over a suitably graded filter material and filter fabric to ensure that soil particles do not migrate though the riprap and reduce its stability. Riprap shall be placed to a thickness at least 2.5 times the mean rock diameter to ensure that it will not be undermined or rendered ineffective by displacement. If riprap is used as protection for overland drainage routes, grouting may be recommended.
E. Discharge velocity into a pond at the outlet elevation shall be 6 fps or less. Riprap protection is required at all inlet pipes into ponds from the NWL to the pond bottom.
F. Where outlet velocities to ponds exceed 6 fps, the design should be based on the unique site conditions present. Submergence of the outlet or installation of a stilling basin approved by the City is required when excessive outlet velocities are experienced.

5.5.3 Channels and Overland Drainage

A. Overland drainage routes where velocities exceed 4 fps should be reviewed by the City Engineer and approved only when suitable stabilization measures are proposed.
B. Open channels and swales are recommended where flows and small grade differences prohibit the economical construction of an underground conduit. Open channels and swales can provide infiltration and filtration benefits not provided by pip.
C. The minimum grade in all unpaved areas shall be two (2) percent.
D. Maximum length for drainage swales shall be 400 feet.
E. Channel side slopes should be a maximum of 4:1 (horizontal to vertical) with gentler slopes being desirable.
F. Riprap shall be provided at all points of juncture, particularly between two open channels and where storm sewer pipes discharge into a channel.
G. Open channels should be designed to handle the expected velocity from a 10-year design storm without erosion. Riprap may need to be provided.
H. Periodic cleaning of an open channel is required to ensure that the design capacity is maintained. Therefore, all channels shall be designed to allow easy access for equipment.

5.5.4 Ponds and Detention Basins

A. Where on site water quality detention basins are required, copies of the calculations determining the design of the basin(s) will be provided. The size and design considerations will be dependent on the receiving water body's water quality category, the imperviousness of the development and the degree to which on site infiltration of runoff is achieved. Design of on-site detention basins, as described in the site's runoff water management plan, shall incorporate recommendations from the nationwide urban runoff program (NURP) and "Protecting Water Quality in Urban Areas", published by the Minnesota pollution control agency, as adopted by the city, or the applicable publications, as adopted by the city. The following design considerations are required for on-site water quality detention basins based on the receiving water's water quality category. These designs include permanent detention for water quality treatment; extended detention designs may be substituted if they provide treatment equivalent to the requirements below:
    a. A permanent pool (dead storage) volume below the normal outlet shall be greater than or equal to the runoff from a two and one-half inch (2.5") 24-hour storm over the entire contributing drainage area assuming full development.

b. A permanent pool average depth (basin volume/basin area) which shall be greater than four feet (4'), with a maximum depth of less than ten feet (10').
c. An emergency spillway (emergency outlet) adequate to control the 100-year frequency critical duration rainfall event.
d. Basin side slopes above the NWL should be no steeper than three to one (3:1) when possible, and preferably flatter. A basin shelf with a minimum width of ten feet (10') and a maximum slope of ten to one (10:1) below the NWL is required to enhance wildlife habitat, reduce potential safety hazards, and improve access for long term maintenance.
e. A flood pool (temporary storage) volume above the principal outlet spillway shall be adequate so that the peak discharge rate from the 1-, 10- and 100-year frequency critical duration storm is not greater than the peak discharge for a similar storm and predevelopment watershed conditions.
f. Extended detention of runoff from the more frequent (1-year to 5-year) storms shall be achieved through a principal spillway design which shall include a perforated vertical riser, a small orifice outlet or a compound weir. The spillway must be constructed of a limited maintenance material. The use of treated or naturally decay resistant timber shall not be allowed.
g. Effective energy dissipation devices which reduce outlet velocities to four feet (4') per second or less shall consist of riprap, stilling pools or other such measures to prevent erosion at all stormwater outfalls into the basin and at the detention basin outlet.
h. For purposes of erosion control, vegetation protection and wildlife habitat enhancement, the 10-year flood level of the basin shall be no more than two feet (2') above the normal level of the basin.
i. All constructed ponds shall be provided a maintenance access from an adjacent roadway. The maintenance access shall be provided in the form of an easement no narrower than 20 feet. The maintenance access shall have a longitudinal slope no steeper than 6:1 and minimal cross slope. Maintenance access routes, due to their extra width, also serve well as emergency overflow (EOF) routes.

5.5.5 Infiltration/Filtration Practices

A. Sizing of filtration/infiltration practices shall be in conformance with the volume control requirements of this manual and the Minnesota Stormwater Manual.
B. When designing an infiltration practice for volume control and water quality management, on-site testing and detailed analysis are strongly encouraged to determine the infiltration rates of the proposed infiltration facility. Documented site-specific infiltration or hydraulic conductivity measurements (double ring infiltrometer) completed by a licensed soil scientist or engineer is required. In the absence of a detailed analysis, the saturated infiltration rates listed in the Infiltration Rates for Infiltration Practices table found on the Minnesota Stormwater Manual shall be used. A piezometer shall be installed to ascertain the level of the local groundwater table and demonstrate at least three feet of separation between the bottom of the proposed facility and the groundwater. The soil boring is required to go to a depth of at least five feet below the proposed bottom of the infiltration practice. The soils shall be classified using the Unified Soil Classification system. The least permeable soil horizon will dictate the infiltration rate. Infiltration practices shall be designed to infiltrate the required runoff volume within 48 hours.
C. Pretreatment, in the form of ponds, forebays, filter strips, or other approved methods, shall be provided for all infiltration areas. Pretreatment upstream of volume management practices is a key element in the long-term viability of infiltration areas. The level of pretreatment varies largely depending on the infiltration practice and drainage area. Minnesota Stormwater Manual recommendations shall be utilized for determining the appropriate level of pretreatment on a case-by-case basis.
D. The infiltration practice shall not be used within fifty feet of a municipal, community or private well, unless specifically allowed by an approved wellhead protection plan.

E. The infiltration practice shall not be used for runoff from fueling and vehicle maintenance areas and industrial areas with exposed materials prosing contamination risk unless the infiltration practice is designed to allow for spill containment.
F. The infiltration practice shall not be used in Hydrologic Soil Group (HSG) D soils without soil corrections.
G. A plan for management for vegetation shall be included in the Stormwater Pollution Prevention Plan.
H. If soils are unsuitable for infiltration, then filtration may be used with drain tile.
I. Subgrade soils for infiltration/filtration practices shall assume a 40% void ratio for clean washed rock and 20% for construction sand for the purposes of volume calculations.
J. Rock storage beds shall be constructed using crushed angular granite that has been thoroughly washed to remove all fine particles that could result in clogging of the system.
K. For infiltration benches adjacent to ponds, benches shall have slopes no steeper than 5:1 over the proposed infiltration zone. A slope of 10:1 is preferred. The Minnesota Stormwater Manual cites concerns with locating infiltration features immediately adjacent to ponds. To address this, benches shall be located to maintain hydraulic separation from the saturated zone of the pond to minimize the loss of infiltration potential over time.

5.5.6 Emergency Overflows

A. EOFs shall be labeled and shown with spot elevations and drainage arrows. EOFs must be established for catch basins in the street and in rear lots. Areas along rear lot lines which are below the EOF elevation shall be designated as drainage easement on the final plat.
B. Maximum elevation is 1 foot below the lowest opening of adjacent structures.

6. WETLAND AND WETLAND BUFFER STRIPS

The Rice County Soil and Water Conservation District is the Wetland Conservation Act (WCA) Local Government Unit (LGU) for Rice County and requires any projects that impacts wetlands to conform to the WCA and the City's wetland ordinance. The City requires wetlands to be assessed with the most recent version of Minnesota Routine Assessment Method (MnRAM) or equal assessment recommended by BWSR to be completed for any subdivision or project that impacts wetlands.

The provisions for wetlands and wetland buffer strips outlined below pertain to all wetlands within the city, including any that are regulated by other entities.

6.1 Minimum Protections for Wetlands During Construction

1. Any runoff from the site must not be discharged directly into any wetland without appropriate quality and quantity stormwater runoff control, depending on the individual wetland's sensitivity classification as determined by the Board of Soil and Water Resources (BSWR).
2. All work by the applicant in and around wetlands must be conducted using the following standards and in accordance with MN Rules Chapter 8420: avoid activities that may directly or indirectly destroy or diminish the wetland; limit the degree or magnitude of the wetland-related activity; repair, rehabilitate, or restore the affected wetland environment with one wetland of at least equal value; perform preservation and maintenance operations on the wetland throughout any activity on the site.
3. The Minnesota Pollution Control Agency's Stormwater Best Management Practices shall be adhered to at all times during the construction process in order to avoid any erosion and sedimentation to the wetland.

6.2 Assessment of Wetlands and Wetland Buffer Strips

1. It is the responsibility of the applicant to determine whether a wetland exists on a site or a structure setback from a wetland on an adjacent property is required. The applicant must delineate and document the boundaries of any wetlands on the site in a report in accordance with the WCA requirements and US Army Corps of Engineers Wetland Delineation Manual (1987). For applications involving property containing a wetland or adjacent property containing a down-gradient wetland submitted after the date this article is effective and unless otherwise exempted, a permanent wetland buffer strip must be maintained around each wetland located on or adjacent to the site along with structure setbacks required by this article.
2. The type of wetland buffer strip that is required shall be determined by the functional value of the wetland through the results of a Minnesota Routine Assessment Method ("MNRAM") assessment or equal assessment recommended by BWSR that shall be conducted by the applicant. Wetlands are classified as high, medium, or low quality based on the MNRAM assessment.

6.3 Required Submittals

When a wetland buffer strip is required by the City, the following must be delivered to the City before the City will issue any building permits for the site:

1. Reports of the applicant's MNRAM assessment and wetland delineation for the site;
2. An executed conservation easement in favor of the city for protection of the wetlands and wetland buffer strips on the site. The easement must legally and geographically describe the boundaries of the wetlands and wetland buffer strips, wetland buffer strip markers and their locations and prohibit any structures, paving, mowing, introduction of non-native vegetation, cutting, filling, dumping, yard waste disposal, fertilizer application or removal of the wetland buffer strip markers within the wetland buffer strip or the wetland;
3. Evidence that the easement document was recorded in the Rice County recorder's office along with a duplicate original of the easement document; and
4. Proof that the wetland buffer strip markers have been installed.

6.4 Determination of Required Wetland Buffer Strips and Structure Setbacks

The wetland buffer strips required for each wetland shall be measured from the wetland boundary or ordinary high water level in cases involving wetlands and the top of the bank of the channel in cases involving rivers and streams. The structure setbacks shall be measured from the outer edge of the wetland buffer strip to the structure. The required dimensions for all wetland buffer strips and structure setbacks are listed below. The wetland buffer strip's width may be adjusted along the wetland's boundaries so long as the width does not fall below the minimum width required by this

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article. Publicly owned trails for educational and recreational purposes may be included as part of the wetland buffer strip's width calculations.

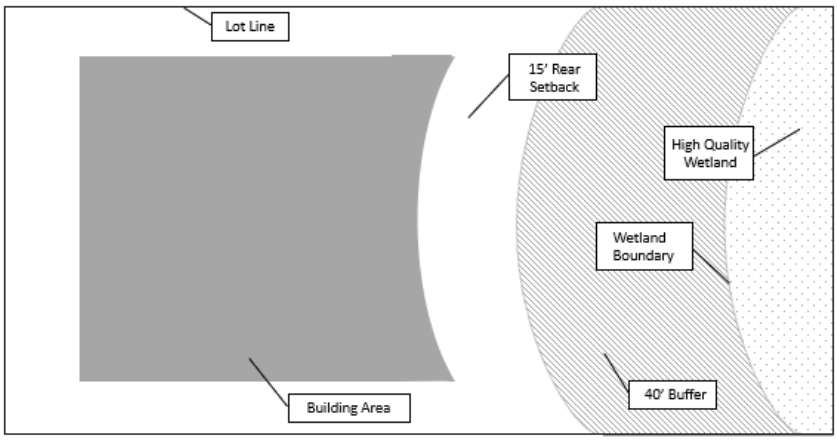
Table X. Wetland Buffer Strips and Structure Setbacks

MNRAM Wetland Classification or equivalent assessment	High Quality	Medium Quality	Low Quality
Wetland buffer strip minimum width:	40 feet	25 feet	15 feet
Minimum structure setback: (from the outer edge of the wetland buffer strip)	15 feet	15 feet	15 feet

Example of wetland buffer strip and minimum structure setback requirements as applied to a high quality wetland:

6.5 Property Exempt from Wetland Buffer Strip and Setback Requirements

Wetland buffer strips and setbacks are not required for wetlands on or adjacent to sites where the WCA would exempt the draining or filling of the wetland from the replacement plan requirements. Wetland buffer strips and setbacks shall also not be required for roadways that must be aligned either adjacent to or across a wetland and are subject to WCA replacement requirements where additional wetland filling would be required to create a wetland buffer strip. Public trails shall also be exempted from the wetland buffer strip and setback requirements. The required wetland buffer strip structure setback for all other roadways, private trails, parking lots and related retaining walls and fences shall be five (5) feet from the wetland buffer strip.



6.6 Septic and Soil Absorption System Setback Requirements

All septic and soil absorption systems on the site must be set back a minimum of fifty (50) feet from any boundary of the wetland. For purposes of determining this setback, the boundary of the wetland shall be determined by the MNRAM assessment.

6.7 Wetland Buffer Strip Markers

All wetland buffer strips shall be equipped with permanent markers in order to identify the boundary of the wetland buffer strip on each lot. One marker shall be placed per lot at the upslope edge of

the required wetland buffer strip and placed every two hundred (200) feet and on all common lot lines. The marker may be purchased from the city at cost and must be installed before building permits are issued.

6.8 Wetland Buffer Strip Vegetation Requirements

Where acceptable predevelopment natural vegetation exists in a wetland buffer strip, the retention of that vegetation in an undisturbed state shall be required. An existing wetland buffer strip is deemed acceptable if it has acceptable natural vegetation and if it has a continuous, dense layer of perennial grasses, trees, and/or shrubs that have been uncultivated or unbroken for at least ten (10) consecutive years.

6.9 Encroachment Into Wetland Buffer Strips and Wetlands

All wetland buffer strips and wetlands must be kept free of all structures, including, but not limited to, fences and play equipment and shall stay in an undisturbed state. Patios and decks may encroach up to a maximum of six (6) feet into wetland buffer strip setback areas. Porches shall not encroach into wetland buffer strip setback areas. All structures on a site that are intended to provide access across a wetland (such as boardwalks) are prohibited on a wetland buffer strip or wetland unless a wetland permit is obtained from the Rice County Soil and Water Conservation District. Wet detention facilities may encroach into wetland buffer strips, provided that the amount of the wetland buffer strip encroached upon does not exceed fifty (50) percent of the total area required for such ponding, and provided that the amount of wetland buffer strip encroached upon does not exceed fifty (50) percent of the total area required for the wetland buffer strip with the exception of instances where two (2) cell water quality ponding that is approved by the city is utilized.

6.10 Water Quality and Rate Control Upstream of Wetlands

This section describes minimum control measures for water quality and rate control upstream of wetlands. The criteria depend upon the susceptibility of the wetland to negative impacts from urban stormwater. **Table X** lists differing wetland types and their susceptibility to impacts from stormwater.

Table X Wetland Susceptibility to Stormwater Impacts

Highly Susceptible	Moderately Susceptible	Slightly Susceptible	Least Susceptible
Sedge Meadows	Shrub-carrs	Shall Open Water Communities	Cultivated Hydric Soils
Bogs	Alder Thickets	Floodplain Forests	Dredge/Fill Disposal Sites
Coniferous Bogs	Fresh Meadows	Deep Marshes	Gravel Pits
Open Bogs	Shall Marshes	Seasonally Flooded Basins	Reed Canary Grass Monotypes
Calcareous Fens			
Low, Wet, and Fresh Prairies			
Lowland Hardwood Swamps			
Coniferous Swamps			

Source: Guidance for Evaluating Urban Storm Water and Snowmelt Impacts To Wetlands by the State of Minnesota Storm Water Advisory Group

The following criteria should be used to determine what type of rate control and water quality treatment should occur upstream of a wetland.

- Case 1: least susceptible wetland
  - Water quality volume (runoff from the 2.5-inch event) can be provided within wetland
  - All flood storage can occur within the wetland
- Case 2: slightly or moderately susceptible wetland
  - Water quality volume (runoff from the 2.5-inch event) must be provided upstream of the wetland
  - Flood storage must be provided upstream of wetland such existing discharge rates for the 10-year event rate are maintained to the wetland
- Case 3: highly susceptible wetland
  - Water quality volume (runoff from the 2.5-inch event) must be provided upstream of the wetland
  - Infiltration or filtration must be provided beyond the water quality volume
  - Flood storage must be provided upstream of wetland such existing discharge rates for the 10-year event rate are maintained to the wetland

7. SHORELAND MANAGEMENT DISTRICT

The purpose of the shoreland management district is to guide development along protected lakes, rivers, and creeks in the City of Faribault to preserve water quality, protect natural resources, and provide wise utilization of water and related land resources. The public waters of the City of Faribault have been classified below consistent with the criteria found in in Minnesota Regulations, Part 120.3300, and the Protected Waters Inventory Map for Rice County, Minnesota:

Table 4. City of Faribault Public Waters Inventory

***Protected Waters* Classification**	**Protected Waters ID Number**	**Legal Description *From/To***
Natural Environment Lakes		
Unnamed Lake	66-19	S23, 26 T110-R21
General Development Lakes		
Wells Lake	66-10	S36 T110-R21 to City Boundary
Faribault Lake (Mill Pond)	66-7	S25, T110-R21 - S30, T110-R20
Wild and Scenic River		
Cannon River		S19, T110-R20 to City Boundary
Agricultural River		
Straight River		City Boundary to S30, T110-R20
Urban River		
Cannon River		S36, T110-R21 to S19, T110-R20
Tributary River		
Crocker's Creek		City Boundary to S25, T110-R21
Falls Creek		S33, T110-R20
Unnamed Creek to CR		S26, T110-R21

Special considerations for setbacks, lot sizes, and related land use and zoning standards may apply. Additional information can be found in City Code Appendix B, Chapter 13, Article 6. Shoreland Management District.

8. APPENDICES

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SURFACE WATER MANAGEMENT PLAN

CITY OF FARIBAULT, MN

APRIL 2022

WSB Project No. 017566-000

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

_____

Jake Newhall, PE Reg. No. 49170

Title Page

Certification

Table of Contents

Glossary

SECTION 1: Executive Summary

SECTION 2: Land and Water Resource Inventory

SECTION 3: Agency Cooperation

SECTION 4: Assessment of Problems and Issues

SECTION 5: Goals and Policies

SECTION 6: Implementation Program

SECTION 7: Administration

LIST OF APPENDICES

Appendix A – Figures

Figure 1: Location Map

Figure 2: Subwatershed Map

Figure 3: Soils Map

Figure 4: Existing Land Use

Figure 5: Proposed Land Use

Figure 6: Wetlands and Lakes

Figure 7: DWSMA and Wellhead Protection Areas

Figure 8: MLCCS

Figure 9: Sites of Biological Significance

Figure 10: Problem Areas

Appendix B – TMDLs

Appendix C – XP-SWMM Modeling Report

BMPs – Best Management Practices

BWSR – Board of Water and Soil Resources

cfs – Cubic feet per second

City – City of Faribault

CIP – Capital Improvement Projects

DNR – Department of Natural Resources

DWSMA – Drinking Water Supply Management Area

EOF – Emergency Overflow

EPA - Environmental Protection Agency

FIS – Flood Insurance Study

HSG – Hydrologic Soil Group

HWL – High Water Level

LGU – Local Governing Unit

MCBS – Minnesota County Biological Survey

MDH – Minnesota Department of Health

MLCCS – Minnesota Land Cover Classification System

MPCA – Minnesota Pollution Control Agency

MS4 – Municipal Separate Storm Sewer System

NPDES – National Pollutant Discharge Elimination System

NOAA – National Oceanic and Atmospheric Administration

NRCS – Natural Resources Conservation Service

NRI – Natural Resources Inventory and Management Plan

NWI – National Wetland Inventory

OHW – Ordinary High Water Level

PPB – Parts Per Billion

RLEs – Residential Lot Equivalents

SSURGO – Soil Survey Geographic

SWCD – Soil and Water Conservation District

SWMP – Surface Water Management Plan

SWPPP – Storm Water Pollution Prevention Plan

TMDL – Total Maximum Daily Load

TP – Total Phosphorus

TSS – Total Suspended Solids

USACE - U.S. Army Corps of Engineers

WCA – Wetland Conservation Act

WLA – Waste Load Allocation

WHPP – Wellhead Protection Plan

1. EXECUTIVE SUMMARY

1.1. Local Surface Water Management Plan Purposes

This report provides the City of Faribault (City) with a Comprehensive Surface Water Management Plan (SWMP) that will serve as a guide to managing the surface water system throughout the City. Based on the guidance provided by the Faribault City Council and staff, this report addresses the City's current surface water management needs and provides a framework for successful implementation of a comprehensive stormwater management program.

Two of the City's guiding principles, as articulated in Journey to 2040: Comprehensive Plan, are to:

> *Ensure that the planning we do, or fail to do, does not place undue burdens on future generations.*
>
> *Plan for community resilience and sustainability.*

This plan contributes to those goals, as it addresses existing infrastructure issues of an aging drainage system and gives the framework for resilient, well-planned infrastructure resulting from new development.

1.2. Executive Summary

The Faribault Surface Water Management Plan is organized as follows:

- ***Section 1.0 Executive Summary*** provides background information and summarizes the plan's contents.
- ***Section 2.0 Land and Water Resource Inventory*** describes the physical setting, the history, natural resources, and land uses within the City.
- ***Section 3.0 Agency Cooperation*** outlines other governmental controls and programs that affect stormwater management.
- ***Section 4.0 Assessment of Problems and Issues*** presents the City's water management related problems and issues.
- ***Section 5.0 Goals and Policies*** outlines the City's goals and policies pertaining to water management.
- ***Section 6.0 Implementation Program*** presents the implementation program for the City, which includes defining responsibilities, prioritizing, and listing the program elements.
- **Section *7.0 Administration*** outlines the continued administration of this plan with respect to plan updates and amendments.

1.2.1. Summary of Water Resource Related Issues

Two of the main stormwater management issues in the City of Faribault are localized flooding due to undersized infrastructure and impaired waters and the Total Maximum Daily Loads (TMDLs) associated with them. Preliminary designs and cost estimates have been completed for the known flooding areas to reduce risk to the City, its residents, and businesses. After undertaking pollutant monitoring and studies, the City will implement Best Management Practices (BMPs) as recommended and feasible to address the TMDLs.

1.3. SWMP Regulations

The City of Faribault is not required to have a local water management plan under State statues. However, the statutes and regulations regarding the plan form the basis of its content. Minnesota statute 103B.235 defines content for local water management plans. According to the statute's text:

Each local plan, in the degree of detail required in the watershed plan, shall:

(1) describe existing and proposed physical environment and land use;
(2) define drainage areas and the volumes, rates, and paths of stormwater runoff;
(3) identify areas and elevations for stormwater storage adequate to meet performance standards established in the watershed plan;
(4) define water quality and water quality protection methods adequate to meet performance standards established in the watershed plan;
(5) identify regulated areas; and
(6) set forth an implementation program, including a description of official controls and, as appropriate, a capital improvement program.

Minnesota rules 8410, written for the Board of Water and Soil Resources (BWSR), provide more detail on local plan content. Although the BWSR guidance applies specifically to watershed management organizations, this guidance has historically been used to frame expectations for municipal plans. According to rules 8410 local plans must provide or address:

- Executive summary
- Land and water resource inventory
- Impact on other units of government
- Establishment of goals and policies
- Assessment of problems
- Implementation program
- Implementation priorities
- Plan contents; amendments
- Annual reporting requirements

Additionally, Faribault must satisfy the requirements of the Minnesota Pollution Control Agency's (MPCA) Municipal Separate Storm Sewer System (MS4) program and is using this plan to help do so. This program is designed to reduce the sediment and pollution that enters groundwater and surface waters to the maximum extent practicable. The MS4 program is regulated through the use of National Pollutant Discharge Elimination System (NPDES) permits. These NPDES permits require the development of Storm Water Pollution Prevention Plans (SWPPPs).

2. LAND AND WATER RESOURCE INVENTORY

2.1. Location and History

The City of Faribault is located in southern Rice County, at the confluence of the Cannon and Straight Rivers. The City lies along Interstate 35, about 25 minutes south of the Twin Cities Metropolitan area, as shown on **Figure 1, Appendix A**. Faribault is a growing community of approximately 23,000 people, founded in 1852 by Alexander Faribault, the town's namesake. As the City continues to grow, the importance of adequate stormwater management controls also grows. The intent of the Faribault SWMP is to describe these controls and make the connection between them and the overall City goals of preserving and enhancing natural resources and protecting residents from flooding.

The river corridors define the City of Faribault as the core of the community developed around the convergence of the two rivers. The bluffs along the east side of the Straight and Cannon Rivers are home to several important and historic institutions. West of the City are several lakes including Roberds, Wells, and Cannon. Falls Creek, which meets the Straight River near the River Bend Nature Center, is a Department of Natural Resources (DNR) protected watercourse.

2.2. Physical Setting

2.2.1. Topography and Watersheds

The topography of Faribault consists of three distinct features:

1. Steep ravines and bluffs, particularly along the east side of the Cannon and Straight Rivers.
2. Extensive floodplain adjacent to the rivers, characterized by relatively flat terrain.
3. Rolling topography, sometimes steep, but generally suited to agriculture.

The direct stormwater management impacts of Faribault's topography consist of high peak flows from steeps slopes, erosion due to high velocities within the city's ravines, and a general awareness of the necessity of preserving floodplain areas and keeping structures out of the floodplain.

The City's subwatersheds and drainage patterns, including the extents of the area included in the City-wide XP-SWMM model, are shown in **Figure 2, Appendix A**.

The SWMP organizes the study area into 9 distinct subwatersheds extended to the XP-SWMM model and City boundary. The watersheds were broken up by receiving Public Water Basins or Watercourse sections; the public watercourse identification numbers are shown in parenthesis after the subwatershed name.

2.2.1.1. *Cannon River via Unnamed Creek (M-048-024)*

The northern portion of the City drains to the Cannon River via an Unnamed Creek. Most of the watershed is agricultural land with large, open water wetlands. Along I-35, industrial, commercial, and residential land use is predominant.

2.2.1.2. *Cannon River (M-048)*

The Cannon River watershed includes drainage to the Cannon River downstream of the confluence with the Straight River. Land use includes industrial, commercial, residential, agricultural, and woods. The western half of the watershed is more developed than the eastern half.

2.2.1.3. *Cannon River Reservoir (M-048)*

Runoff to the Cannon River Reservoir, downstream of Wells Lake and upstream of the Woolen Mill Dam, is categorized within the Cannon River Reservoir watershed. This subwatershed is characterized by large open water wetlands adjacent to the river, open land, and industrial, commercial, and residential land uses. The north side of the reservoir has banks with steep slopes.

2.2.1.4. *Cannon River via Crocker's Creek (M-048-027)*

Crocker's Creek conveys watershed runoff to the Cannon River Reservoir. Most of the watershed consists of agricultural land. Northeast of I-35, residential land use predominates.

2.2.1.5. *Just Below Dam (M-048)*

Runoff entering the Cannon River just below the Woolen Mill Dam and upstream of the confluence with the Straight River is classified as a watershed. Land use primarily consists of open space, residential, commercial, and industrial.

2.2.1.6. *Roberds Lake (M-048-028)*

The Faribault Municipal Airport makes up most of the Roberds Lake watershed within City limits. Roberds Lake flows to the Cannon River via an Unnamed Creek with a public watercourse identification of M-048-028.

2.2.1.7. *Straight River (M-048-026)*

The southeast portion of the City drains to the Straight River which flows into the Cannon River. The upstream section of the watershed consists of agricultural land. Residential and commercial land uses dominate the remainder of the watershed. The Straight River watershed is characterized by steep slopes and deep ravines heading to the river.

2.2.1.8. *Wells Lake (M-048)*

West Faribault flows to Wells Lake which is on the Cannon River. Large open water wetlands, ravines, agricultural land, residential areas, and I-35 make up most of the watershed.

2.2.1.9. *Falls Creek (M-048-026-001)*

A portion of the City on the eastern boundary drains to Falls Creek and subsequently to the Straight River. Land use is predominantly agricultural. The area is not included in the XP-SWMM model.

2.2.2. Soils

The Natural Resources Conservation Service (NRCS) published the most recent *Soil Survey of Rice County Minnesota* in 2000. The *Soil Survey* provides mapping and physical properties for soil types found in Faribault. The *Soil Survey* was added to the Soil Survey Geographic (SSURGO) Database in 2005, providing digital access to the information.

2.2.2.1. *Hydrologic Soil Groups*

Faribault contains all four hydrologic soil groups (HSGs), as shown in **Figure 3, Appendix A**.

The four HSG soil classifications are defined as follows, with stated infiltration rates from the Minnesota Stormwater Manual:

Group A - These soils have high infiltration rates even when thoroughly wetted. The infiltration rates range from 0.8 to 1.63 inches per hour. These soils consist chiefly of deep, well drained to excessively drained sands and gravel. Group A soils have a high rate of water transmission, therefore resulting in a low runoff potential.

Group B - These soils have moderate infiltration rates ranging from 0.3 to 0.45 inches per hour when thoroughly wetted. Group B soils consist of deep moderately well to well drained soils with moderately fine to moderately coarse textures.

Group C - These soils have slow infiltration rates of 0.2 inches per hour when thoroughly wetted. Group C have moderately fine to fine texture.

Group D - These soils have very slow infiltration rates ranging from 0 to 0.06 inches per hour when thoroughly wetted. Group D soils are typically clay soils with high swelling potential, soils with high permanent water table, soils with a clay layer at or near the surface, or shallow soils over nearly impervious material.

2.2.2.2. *Soil Associations*

Three soil associations are found within the City: Lester-Hayden-LeSueur, Colo-Estherville-Waukegan, and Clarion-Webster-Nicollet.

The Lester-Hayden- LeSueur association is found on the flatter areas above the Straight and Cannon Rivers. These loams and clay loams form in friable glacial till on uplands. Nearly all this association is suitable for cultivated crops and fertility is generally high. Surface water management concerns relate to controlling erosion due to water moving over these soils. This association predominates within the north and southeast portions of the City.

The Colo-Estherville-Waukegan association is found within the rivers and their floodplains. These silty clay loams, sandy loams, and silt loams form in alluvium on bottomlands, terraces and outwash plains. These soils are also suitable for cultivation though fertility can be low in parts of this association.

The Clarion-Webster-Nicollet association consists of loams and clay loams which form on friable glacial till on uplands. As with the Lester-Hayden- LeSueur association, these soils have high fertility, organic content, and available water capacity and are thus suitable for agricultural use. This association predominates in the southwest portion of the City.

2.2.3. Climate and Precipitation

The climate within south central Minnesota, around Faribault, is sub-humid, characterized by large seasonal variations in temperature, rainfall that is normally sufficient for crops, and moderate snowfall. It is generally understood that global climate change has an effect on the local climate. One area where climate change manifests itself is in rainfall intensities and rainfall depths. The City has seen more intense rainfalls the last two decades and even the average rainfall seems more intense. The implications are clear:

- Flood control facilities, if designed for the 100-year storm event, may get larger as the statistical 100-year rainfall depth increases.
- Facilities designed for smaller events, such as rain gardens and storm sewer, may also get larger as rainfall depths increase for the 1- to 10-year storm events.

Table 2.2 provides a summary of average temperature, precipitation, and snowfall data for

Faribault. The total average annual precipitation in the City is approximately 35.5 inches. The total average annual snowfall is approximately 39.6 inches.

Rainfall frequency estimates are used as design tools in water resource projects. Rainfall frequencies are summarized in *Technical Paper No. 40, Rainfall Frequency Atlas of the United States*, published by the U.S. Weather Bureau in 1961. This document was updated in 2013. Atlas 14 is the new document used as reference for rainfall frequencies. The U.S. Weather Bureau was combined with other agencies in 1970 to form the National Oceanic and Atmospheric Administration (NOAA). **Table 2.3** lists rainfall frequencies for Faribault.

Table 2.2 Average Monthly Climate Data

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Daily Temperature (°F)[1]	14.0	18.0	30.4	44.2	56.7	67.8	71.3	68.9	61.2	47.3	33.1	20.7
Total Precipitation (in.)[1]	0.97	1.00	1.92	3.13	4.37	5.57	4.64	4.66	3.68	2.60	1.67	1.24
Total Snowfall (in.)[2]	8.4	7.5	8.2	2.4	0.1	0.0	0.0	0.0	0.0	0.3	3.9	8.8

Source: [1]DNR Normals, 1991-2020, [2]Western Regional Climate Data, 1890-2016

Additional climatological information for the area can be obtained from the Minnesota State Climatology Office website.

Table 2.3 Atlas 14 Rainfall Depths and Frequency

Event	Rainfall/Snowmelt Depth (inches)
1-year, 24 hour	2.46
2-year, 24 hour	2.84
5-year, 24 hour	3.55
10-year, 24 hour	4.24
25-year, 24 hour	5.32
50-year, 24 hour	6.26
100-year, 24 hour	7.29
100-year, 10 day snowmelt	10.1

The City of Faribault uses the 10-year storm event for storm sewer design and the 100-year critical event for pond design and evaluating freeboard.

Additional precipitation information for the area can be obtained from the NOAA website.

2.2.4. Land Use

In Faribault, the use of land is controlled and guided by policies, plans, and ordinances put in place by the Faribault City Council. The City's authority in land use matters and other areas is provided in state law and refined through court decisions at both the state and federal level. The Land Use section of the Built Assets chapter of the City's Comprehensive Plan details the City's existing land uses and visions for the future.

75% of the land in Faribault fits into six existing land use categories: detached single-family residence, agriculture, right-of-way, parks/recreation/preserve, industrial and utility, and institutional. **Figure 4, Appendix A** shows the existing land use for the City.

As stated in the City's Comprehensive Plan,

> *"The Land Use Plan guides land in a manner consistent with Community Vision 2040, but it also allows developers to respond to market demands and to*

changing community needs. It guides land for continued investment and reinvestment in the community while maintaining and enhancing the character of existing neighborhoods."

The Land Use Plan provides the basis for land use and development decisions made by City Staff, the Planning Commission, the City Council, property owners, developers, and others. **Figure 5, Appendix A** shows the Land Use Plan.

Complete Neighborhoods are a goal of the Land Use Plan. Complete Neighborhoods provide safe and convenient access to a variety of housing options, grocery stores, quality public schools, public open spaces, affordable transportation options, and civic amenities.

Land use data is an important factor for estimating surface water runoff. The hard or impervious surface areas associated with each land use greatly affect the amount of runoff generated from an area. Future land use projections indicate those areas that may be available for water resource enhancement and where improvements should be a priority. Significant changes in land use can increase runoff due to added impervious surfaces. However, changes in land use also allow for the construction of stormwater BMPs.

2.3. Water Resources Data

The City's waterbodies, including rivers, lakes, and wetlands are shown in **Figure 6, Appendix A**.

2.3.1. Streams, Rivers, and Lakes

2.3.1.1. *Cannon River*

The Cannon River is approximately 120 miles long (including the Straight River) and flows from its headwaters at Tetonka and Sakatah Lakes through Faribault, Northfield and Cannon Falls to the Mississippi River. The Cannon River meets the Vermillion River ½ mile upstream of the Mississippi. The river ranges in width from 50 to 200 feet and has a fairly constant base flow such that it can be canoed much of the year. Upstream of Faribault northern pike, black crappies, blue gills, and bullheads are found. Downstream of Faribault smallmouth bass, northern pike, and walleye are common.

The Cannon, downstream of the current Faribault City limits, was added to Minnesota's Wild and Scenic Rivers Program list in 1980.

Upstream of the King's Mill Dam in Faribault, the Cannon's drainage area is approximately 302 square miles. As determined in the 2012 Flood Insurance Study (FIS) for Rice County, the peak 100-year discharge over the King's Mill Dam (Cannon Lake) is 2,160 cubic feet per second (cfs) and the base flood elevation at the dam is 981.8 feet. From immediately downstream of the dam to the northern City limits, the 100-year flood elevations range from 970.9 to 863.8 feet.

2.3.1.2. *Straight River*

Where it meets the Cannon River, the Straight River is actually larger owing to its 443 square mile drainage area. The Straight river originates near Geneva Lake and the Steele/Freeborn County line. It flows through farmland in southeastern Minnesota, meanders between Owatonna to Faribault, where it joins the Cannon River. The river ranges in width from 30 to 80 feet and is typically no more than four feet deep. In late summer and fall, low water often makes the river impassable by canoe. Northern pike, crappies, smallmouth bass, and carp are fish typical in the Straight River.

According to the 2012 FIS the 100-year Straight River discharge, at its confluence with the Cannon, is 18,300 cfs. This is approximately 8 times the Cannon's discharge at this point. The base flood elevation of the Straight River in southeastern Faribault, near Glynnview Trail and Aldrich Way, at the limit of the detailed study, is 984.1 feet. It is 967.3 at the confluence with the Cannon River.

2.3.1.3. *Crocker's Creek*

Crocker's Creek is a DNR protected watercourse discharging to the Cannon River between the King's Mill Dam and the Woolen Mill Dam. The DNR protection extends to the creek's headwaters near Rice County Road 15, approximately 4 miles south of the current City limits. Crocker's Creek has a drainage area of approximately 8.9 square miles and a peak 100-year discharge, to the Cannon, of 1,600 cfs. The creek's floodway is approximately 300 feet wide south of Jensen Drive. Downstream of Jensen Drive, as the creek flows through the commercial areas adjacent to State Highway 21, the floodway ranges in width from 48 to 180 feet.

2.3.1.4. *Falls Creek*

Falls Creek is a DNR protected watercourse discharging to the Straight River near the River Bend Nature Center. Falls Creek originates approximately 6 miles east of Faribault near Rice County Road 24 in Wheeling Township. The drainage area, peak flows, and base flood elevations for Falls Creek are unknown.

2.3.1.5. *Unnamed stream from Roberds Lake to Cannon River*

Roberds Lake discharges via an intermittent stream to the Cannon River immediately upstream of Interstate 35. This stream is a DNR protected watercourse.

2.3.1.6. *Roberds Lake*

Roberds Lake lies outside the current City limits but is partly within the City's subdivision authority. The lake has a surface area of 618 acres and a maximum depth of 38 feet. The lake is monitored for certain water quality parameters. Water clarity averages 1 meter and in-lake phosphorus averages 236 parts per billion (ppb). This data, available through the MPCA, indicates that the lake is eutrophic, which means the lake is nutrient-rich, usually shallow, and with limited oxygen in the bottom layer of water. The excessive fertility of the lake is most likely due to fertilizer runoff from its primarily agricultural watershed.

2.3.1.7. *Cannon Lake*

Cannon Lake lies along the Cannon River and is created, along with Wells Lake, by the Kings Mill Dam. Cannon Lake has a surface area of 1,603 acres and a maximum depth of 15 feet. The in-lake phosphorus concentration of 348 ppb and water clarity of 1 meter indicate that this lake is also eutrophic.

2.3.1.8. *Wells Lake*

Wells Lake lies immediately downstream of Cannon Lake and immediately upstream of the Kings Mill Dam. Wells Lake has a surface area of 691 acres and a maximum depth of 5 feet. Similar to Roberds Lake and Cannon Lake, the in-lake phosphorus concentration of 338 ppb and water clarity of 1 meter indicate that the lake is eutrophic.

2.3.1.9. *Other Natural and Water Resources*

A Natural Resource Inventory and Management Plan (NRI) was completed in 2002 for the

City of Faribault. This report provides detailed information on the natural communities and recommends management options. Significant resources identified in that report include:

- Maple/Basswood forest
- Floodplain Forest
- Shrub Swamp
- Emergent Marsh
- Wet Prairie

2.3.2. Wetlands

In conjunction with the 2002 Faribault Natural Resources Inventory and Management Plan (NRI), this plan seeks to use the abundant wetlands within the City as a part of the natural storm drainage system. This involves maintaining water quality, reducing flooding and erosion, and stabilizing or restoring water levels. The wetlands are important physical, educational, ecological, aesthetic, recreational and economic assets to the City. **Figure 6, Appendix A** shows the National Wetland Inventory (NWI) wetlands within the City.

Historically, most of the wetlands in the City have been affected by agriculture or urbanization. In urbanizing areas, wetland degradation can be an ongoing process. However, some degraded wetlands can be improved by stabilizing water levels and reducing sediment loads.

Water quality plays a significant role in the overall quality of a wetland. When the quality of the incoming stormwater declines, the wetland's plant community may become less diverse, retaining only those species that are tolerant of high nutrient and sediment loads. Once a wetland's plant community is changed, the wetland's character and ecosystem will change, often to a less valuable system in terms of diversity, wildlife habitat and aesthetic qualities.

2.3.3. Hydrologic and Hydraulic Modeling (Water Quantity)

A City-wide XP-SWMM model containing drainage areas, storm sewer infrastructure, and storage basins throughout the City of Faribault was developed to identify flood prone locations and assist in the design of future flood mitigation projects.

The modeled watershed area consists of 25.2 square miles of a mix of urban and rural settings. Applying Rice County Atlas 14 rainfall depths to the model for various storm events, runoff is generated for each drainage area within the total watershed via land use, impervious area, percent slope, width, and soil parameters.

The runoff is routed through the hydraulic model components including storm sewer pipes, basins, and channels. Outfall conditions were set according to FEMA flood elevations on the Cannon River and Straight River.

Pertinent model results include flow rates, high water levels and depths at ponding areas, primary structures potentially impacted by floodwaters, and identification of storm sewer pipes that may be undersized.

A detailed XP-SWMM model summary can be found in **Appendix C**.

2.3.4. Impaired Waters and Total Maximum Daily Loads

The MPCA is required to publish a list of impaired waters, which are lakes and streams in the state that are not meeting federal water quality standards. For each water body on the list, the MPCA is required to conduct a study to determine the allowable TMDL for each pollutant that exceeds the standards. Impaired waters in Faribault, or those receiving discharge from Faribault, are summarized in **Table 2.5**.

Table 2.5 – Impaired Waters

Impaired Water	Affected Use	Pollutant	Year Added to List	TMDL Completion
Cannon River (07040002-540)	Aquatic Life, Aquatic Recreation	Nutrients, E. coli	2016, 2010	2025, 2017
Cannon River (07040002-581)	Aquatic Consumption, Aquatic Recreation	Mercury in fish tissue, E. coli	1998, 2010	2008, 2017
Straight River (0704002-515)	Aquatic Life, Aquatic Recreation	Benthic macroinvertebrates bioassessments, Turbidity, Fecal coliform	2014, 2004, 2002	2017, 2017, 2006
Unnamed Creek to Cannon River (07040002-702)	Aquatic Life, Aquatic Recreation	Dissolved oxygen, E. coli	2020, 2010	2025, 2017
Roberds Lake* (66-0018-00)	Aquatic Recreation	Nutrients	2006	2017
Wells Lake* (66-0010-00)	Aquatic Consumption, Aquatic Recreation	Mercury in fish tissue, Nutrients	2012, 2010	2013, 2017
Cannon Lake* (66-0008-00)	Aquatic Consumption, Aquatic Recreation	Mercury in fish tissue, Nutrients	2012, 2006	2013, 2017

*These waterbodies are outside of City limits.

In 2021, the MPCA required the City to complete the Simple Estimator to determine whether the Waste Load Allocations (WLAs) assigned to the City were met. The waterbodies for which the City has a nutrient WLA are summarized in **Table 2.6**. This table includes an analysis of loading estimates and indicates whether the City is currently meeting its WLAs for each waterbody.

Table 2.6 – WLA Summary

TMDL Study Name & Waterbody	Loading Estimate	WLA	WLA Met?
Cannon River WRAPS Byllesby (19-0006-00) TP	4027 lb/yr	1947 lb/yr	No
Cannon River WRAPS Cannon River (07040002-509) TSS	481 ton/yr	293.6 ton/yr	No
Cannon River WRAPS Straight River (0704002-515) TSS	156 ton/yr	117.7 ton/yr	No
Lower Cannon River Turbidity Cannon River (07040002-502) TSS	481 ton/yr	213.1 ton/yr	No
Lower Cannon River Turbidity Cannon River (07040002-646) TSS	481 ton/yr	220.7 ton/yr	No
South Metro Mississippi TSS TMDL Mississippi River (07040001-531) TSS	104 lb/ac/yr	154 lb/ac/yr	Yes

For more information on impaired waters and TMDL Plans visit the MPCA's Impaired Waters List. **Appendix B** includes the approved TMDL plans affecting Faribault.

2.3.5. Groundwater

The City of Faribault developed a Wellhead Protection Plan (WHPP) that delineates drinking water supply management areas and wellhead protection areas. The WHPP was approved by the Minnesota Department of Health (MDH) in 2010. The City amended the Wellhead Protection Plan due to the age of the plan in 2021. **Figure 7, Appendix A** shows the wells and the Drinking Water Supply Management Area (DWSMA) for the City.

The City is served by five primary water supply wells, Wells 1, 2, 5, 6, and 7, that draw from three aquifers, Prairie de Chien group, Jordan Sandstone, and Wonewoc Sandstone. All wells are considered vulnerable, except for Well 7, based on criteria including geology at the well, well construction, pumping rate, and water quality. The central portion of the DWSMA has high vulnerability, the southern portion has moderate vulnerability, and the northwest and east portions have low vulnerability. Infiltration is restricted within the DWSMA as defined by the MPCA in the NPDES Construction Stormwater General Permit.

The goals of the WHPP focus on reducing the potential contamination pathways to the source water aquifers, and include:

- Work to maintain or improve the current level of water quality so that the municipal water supply will continue to meet or exceed all applicable state and federal water quality standards.
- Work with Rice County and appropriate State agencies to protect the source water aquifers.
- Provide information and promote activities that protect the source water aquifers that provide water to the municipal system.
- Continue to collect data to support future wellhead and source water protection efforts.

2.4. Natural Resources Data

The natural communities remaining in the City have been fragmented and altered by settlement, agriculture, and urbanization. Many of these communities have been invaded by non-native and naturalized plant species.

The City's Comprehensive Plan lists three natural assets goals including promoting awareness and understanding of the importance of the City's natural assets, protecting, restoring and managing those assets, and cooperating with neighboring entities to do so. Map 7-2 in Journey to 2040: Comprehensive Plan shows existing significant open spaces, as well as native plant communities.

2.4.1. MLCCS and MCBS

The Minnesota Land Cover Classification System, or MLCCS, categorizes urban and built up areas in terms of land cover rather than land use. MLCCS serves as a tool for City staff to integrate natural area preservation into land planning, land use, and zoning decisions. The City is dominated primarily by developed area with some areas of forest along the river corridors. **Figure 8, Appendix A** provides MLCCS coverage for Faribault.

According to the DNR, the Minnesota County Biological Survey (MCBS) began in 1987 as a systematic survey of rare biological features on a county-by-county basis. Faribault has several areas identified as outstanding biological significance, generally in the eastern part of the City, along the Straight River corridor. The MCBS sites of outstanding biodiversity significance are

associated with DNR native plant communities, and records of federal or state listed as threatened or endangered species (DNR Natural Heritage Information System [NHIS]; LA – 1003, expiry September 2022). Therefore, it is recommended that coordination with the DNR and U.S. Fish and Wildlife Service be made prior to any construction, development, or hydrological activities within or near (i.e., one mile) any MCBS sites of biodiversity significance, DNR native plant communities, or DNR NHIS records. **Figure 9, Appendix A** provides the locations of rare and biological features in the City.

2.4.2. Unique Features and Scenic Areas

There are numerous natural resource corridors connecting large portions of Faribault. These corridors also connect Faribault with the outlying natural and water resources. The City has identified several of these corridors as high priority resources for protection and management. The majority of these corridors are also listed with detailed plant community descriptions in the 2002 NRI.

- Straight River corridor
- Cannon River corridor
- Falls Creek Corridor
- Woods and wetlands from Roberds Lake east to the Cannon River
- Wooded corridor from Roberds Lake south to Wells Lake and the Cannon River
- Crocker's Creek
- Middle School Creek
- Interconnected wetlands and agricultural ditches on the northeast side of the City, running north to the ravines surrounding the Cannon River.

These corridors present an ideal opportunity for stormwater conveyance and restoration, and as a connection between other natural resources. They also increase the health of plant and animal communities. The NRI ranks each of the corridors by ecological value and status, based on rare features, community integrity, and wildlife habitat.

The stormwater portion of the corridors is typically composed of wetlands, ponds and channels. Each stormwater aspect plays an important role in enhancing the natural corridor. There are several general design standards that apply to each greenway corridor. Rate control and sediment removal is provided by ponds adjacent to the channels. Ponds are located outside of desirable vegetation providing a natural buffer. Proposed channel cross sections match the existing to the extent possible. In situations where the cross sections didn't provide adequate capacity, revisions have been made. In several cases the corridors are connected by agricultural ditches. Irregular slopes along the ditches through the corridor may necessitate some construction and planting of native vegetation.

3. AGENCY COOPERATION

There are a number of local, State, and Federal agencies that have rules and regulations related to local water management. The City recognizes the roles of these other agencies and will cooperate, coordinate, and partner when possible with these agencies. This section describes the City's current surface water management program and practices and identifies the agencies and organizations having roles in the City's management of these resources. **Table 3.1** summarizes the City's and other agencies' regulatory controls related to water resources management and protection.

3.1. City Policy and Regulations

The Engineering and Public Works departments are responsible for the planning, design, construction, administration, operations, and maintenance of the City's infrastructure systems. These departments coordinate with outside agencies regarding water resource management and conservation. The Community and Economic Development Department provides programing, review, and administration for everything associated with the development of land and buildings. The development of land and buildings impacts the infrastructure systems and their need to be expanded or upgraded.

Current regulations and policies governing surface water management within Faribault include the City Code of Ordinances, Developer's Guide for Stormwater Management, and previous surface water management plans. **Table 3.1** summarizes the City's regulatory controls regarding surface water.

Table 3.1 – Regulatory Control

Official Control	Responsibility	Mechanism
Grading and Stormwater Management	City	City Ordinance Chapter 28, Article VII. Unified Development Ordinance Chapter 13, Article 6, Section 13-700. Developer's Guide.
Erosion and Sediment Control	City, MPCA	City Ordinance Chapter 28, Article VII. Developer's Guide.
Shoreland	City, DNR	Unified Development Ordinance Chapter 13, Article 6. Developer's Guide.
Floodplain	City, DNR	Unified Development Ordinance Chapter 13, Article 2.
Wetlands	County, SWCD as LGU, City, DNR, USACE, BWSR	Public Waters Rules (DNR). Section 404 of the Clean Water Act (USACE). City Ordinance Chapter 28, Article VII, Section 28.231. Developer's Guide.
Illicit Discharge	City	City Ordinance Chapter 28, Article VIII.

City staff is supported by several commissions and committees. These include:

- Environmental Commission advises City Council on environmental issues and opportunities affecting the City while respecting the City's economic and social environments.
- Park & Recreation Advisory Board advises City Council on park development and recreation program opportunities.
- Planning Commission hears requests and provides recommendations to the City Council regarding land use, planning, and zoning issues.

3.2. Outside Agency Regulatory Controls

3.2.1. Minnesota Department of Natural Resources

At the state level, Types 3, 4, and 5 wetlands are protected by statute. These are areas typically recognized as wetlands and are generally characterized by open water and emergent vegetation throughout most of the year. The state has jurisdiction over only those wetlands appearing on the state's inventory of protected waters. Further, wetlands in the inventory were generally those in excess of 10 acres in rural areas or in excess of 2.5 acres in municipalities and incorporated areas.

If an area meets the jurisdictional criteria but is not on the state's inventory, it is not regulated. If it does not meet the statutory criteria but is listed on the inventory, it still is subject to DNR regulation. There is no mechanism presently for adding or deleting wetlands. The inventory was begun in the late 1970s and all state inventories were completed during the early 1980s.

For wetlands that fall under the DNR jurisdiction, the Ordinary High Water Level (OHW) determines the boundary of DNR jurisdiction. The OHW is established by the DNR.

The DNR rules specify that permits may not be issued for any project except those that provide for public health, safety, and welfare. Any private development projects are effectively excluded from permit consideration by this requirement.

3.2.2. U.S. Army Corps of Engineers (USACE)

Under Section 404 of the Clean Water Act, including subsequent modifications, the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) regulate the placement of fill into all wetlands of the U.S. In 1993, there was a modification of the definition of "discharge of dredged material" to include incidental discharges associated with excavation. This modification of the "discharge of dredged material" definition meant that any excavation done within a wetland required the applicant to go through Section 404 permitting procedures. In 1998, however, this decision was modified so that excavation in wetlands is now regulated by the USACE only when it is associated with a fill action.

3.2.3. Board of Water and Soil Resources

The local and regional wetland rules are governed by the Wetland Conservation Act (WCA), which BWSR oversees. The WCA, passed in 1991, extends protection to all wetlands unless they fall under one of the exemptions of the WCA. The WCA follows a "no net loss" policy. The wetlands covered under the WCA must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland of at least equal public value under an approved replacement plan. Replacement ratio is typically 2:1 (2 acres created for every 1 acre filled) for wetland impacts.

A designated Local Government Unit (LGU) is responsible for making exemption and no-loss determinations and approving replacement plans. Currently, the Rice County Soil and Water Conservation District (SWCD) acts as the LGU for WCA within the City's subdivision authority.

3.2.4. Minnesota Pollution Control Agency

The USACE implements provisions of Section 404 of the Clean Water Act with guidance from the EPA through a permitting process. The Section 404 permit also requires a Section 401 water quality certification before it is valid. The EPA has given Section 401 certification authority to the MPCA.

3.2.5. County Jurisdiction

Rice County participated in the development of the Cannon River Comprehensive Watershed Management Plan that was developed to meet the requirements of the One Watershed, One Plan program. This Watershed Management Plan was approved by BWSR on June 24, 2020. The City of Faribault supports Rice County in their efforts to implement this plan.

3.2.6. State and Federal Jurisdictional Boundaries for Public Wetlands and Waters

Wetlands are delineated in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1987). Wetlands must have a predominance of hydric soils. Hydric soils, by definition, are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, under normal circumstances, a prevalence of hydrophytic (water tolerant) vegetation typically adapted for life in saturated soil conditions. The USACE and the BWSR regulate wetlands as defined by a jurisdictional delineation.

3.3. NPDES Permitting Process

The MPCA has designated the City of Faribault as an NPDES Phase II MS4 community (MN Rules Chapter 7090). The permit requires the City to address six minimum control measures:

- Public education
- Public involvement
- Illicit discharge detection and elimination
- Construction site runoff control
- Post-construction runoff control
- Pollution prevention in municipal operations

The City's SWPPP contains several BMPs within each of the listed control measures. These were identified using a self-evaluation and input process with City staff. The MPCA updated the MS4 Permit in 2020, and permit coverage was reissued to the City in 2021 for the subsequent 5-year permit cycle.

Many of the goals and policies discussed in this SWMP are directly related to requirements listed in the NPDES program. As a result, the implementation section of this plan repeatedly references items listed in the City's SWPPP.

3.4. Support Agencies

This plan is in conformance with, but does not restate, all other agency rules that are applicable to water resource management. The following agencies deal with or regulate water resources throughout the City.

- Rice County
- Minnesota Department of Health (MDH)
- Minnesota Pollution Control Agency (MPCA)
- Board of Water and Soil Resources (BWSR) and the Wetland Conservation Act (WCA)
- Minnesota Department of Natural Resources (DNR)

- US Army Corps of Engineers (USACE)
- Minnesota Department of Agriculture (MDA)
- US Fish and Wildlife Service
- Minnesota Environmental Quality Board
- Minnesota Department of Transportation (MnDOT)
- US Environmental Protection Agency (EPA)
- Federal Emergency Management Agency (FEMA)
- Natural Resources Conservation Service (NRCS)
- U.S. Geological Survey

While these other agencies' rules, policies, and guidelines are not all restated in this Plan, they are applicable to projects, programs, and planning within the City. The MPCA Minnesota Stormwater Manual, which is a document intended to be frequently updated, is also incorporated by reference into this Plan and can be found at MPCA website.

4. ASSESSMENT OF PROBLEMS AND ISSUES

Previous sections of this SWMP provide background on the physical and regulatory forces shaping surface water management in Faribault. This section describes problems and challenges of specific waters, neighborhoods or programs identified by the City and others. Potential future corrective actions have been described and incorporated into an Implementation Plan (**Section 6**).

4.1. Flooding and Stormwater Rate Control

Issue 4.1.1: A portion of the stormwater runoff from Airtech Industrial Park in the northeast corner of State Highway 21 and Interstate 35 discharges to existing basins that are undersized for the contributing drainage areas. Minor localized flooding occurs in the parking lots adjacent to the existing basins.

> **Corrective Action:** To mitigate existing flooding and provide post development regional stormwater quality and quantity management, enhance the two existing basins with sedimentation basins sized to NURP standards and filter benches that allow the existing site as well as future development within the industrial park area to meet NPDES standards for stormwater management.

Issue 4.1.2: Several basins within the Twin Lakes chain lack functioning or adequate capacity outlets. The ultimate overland overflow from the chain of lakes is at 999-feet, causing flood waters in large storm events to back up on adjacent roadways.

> **Corrective Action:** Install an outlet control structure from basin 20219 and a secondary outlet from basin 20220 to mitigate inadequate outlet capacity and overland flow issues. Upsize and lower the outlets from basin 20080, 20081, and 20154 to allow adequate freeboard between the 100-year 24-hour high water levels and the adjacent roadway shoulder.

Issue 4.1.3: Erosion is present at the storm sewer outfall from 18th Avenue. There is localized flooding at the low points along 18th Avenue and Paulis Drive due to limited inlet and pipe capacity. 18 acres of existing impervious area lack adequate stormwater management prior to discharging to the Cannon River.

> **Corrective Action:** With the area slated to develop further, construct a regional basin to provide stormwater management to NPDES standards for the post development impervious area. To mitigate the erosion at the outfall, pipe the stormwater from 18th Avenue to the proposed basin. Upsize the trunkline storm sewer along Paulis Drive and 18th Avenue to pass the 10-year 24-hour storm event and provide additional inlet capacity within the watershed to mitigate localized flooding issues.

Issue 4.1.4: Localized flooding along 5th Street, 6th Street, and 7th Street is present due to limited pipe and inlet capacity. In the 100-year 24-hour event, backwater from the Cannon River fills the storm sewer and prevents drainage through the system.

> **Corrective Action:** Upsize the storm sewer in the area to adequately convey the 10-year 24-hour event. Provide additional inlet capacity at the low points. To offset the increased rates to Crocker's Creek due to larger pipes, enhance an existing basin adjacent to the Faribault Chamber of Commerce to provide stormwater management to an untreated portion of the watershed. Confirm and establish appropriate emergency overflows out of the low points.

Issue 4.1.5: Residential properties reside in the FEMA floodplain adjacent to the Cannon River.

Corrective Action: Options include floodproofing the homes, constructing a levee, and purchasing the residential properties to convert the area to open space.

Issue 4.1.6: XPSWMM modeling indicates flooding potential on Division Street and adjacent streets due to undersized storm sewer along 3rd Street SW.

Corrective action: Upsize the storm sewer along 3rd Street SW through to the outfall at Crocker's Creek to provide adequate capacity to convey the 10-year event. Provide adequate inlet capacity on 3rd Street. To offset increased runoff rates to Crocker's Creek due to the increased storm sewer size, locate stormwater treatment infrastructure within the watershed. Ensure that adequate freeboard is provided between the overland flow elevations from the low points and adjacent home low opening elevations.

Issue 4.1.7: Approximately 87 acres drain to the Straight River without adequate stormwater treatment via the storm sewer outfall adjacent to the former Lockerby property.

Corrective Action: With the potential for future development on the former Lockerby property, construct a series of NURP basins on the former Lockerby property and within a drainage and utility easement to the south of the property to provide stormwater management for the post development impervious area within the watershed.

Issue 4.1.8: The culvert under Mattson Street is undersized for its contributing watershed and has nearly blown out in the past. Erosion is present upstream of the culvert.

Corrective Action: Construct a basin upstream of Mattson Street, install an outlet control structure, replace the pipe under Mattson Street, and construct ditch checks as grade control in the ditches upstream of the pond.

4.2. Water Quality

Issue 4.2.1: The City is not currently meeting its WLA for TP for water draining to Lake Byllesby.

Corrective Action: Establish a pollutant monitoring program for drainage to Lake Byllesby via the Cannon River.

Issue 4.2.2: The City is not currently meeting its WLAs for TSS on the Straight or Cannon Rivers.

Corrective Action: Conduct pollutant removal studies to identify the best strategies to reduce pollutant discharges from the City and meet its WLAs.

4.3. Erosion and Sediment Control

Issue 4.3.1: Crocker's Creek is prone to flooding and resulting erosion.

Corrective Action: The City will coordinate with the County and State to investigate, prevent, and repair areas of significant erosion. Much of the land surrounding Crocker's Creek is County or State owned, so any projects will need to be pursued in cooperation with other entities.

4.4. Operation and Maintenance Concerns

Issue 4.4.1: The City wants to ensure that private, structural stormwater BMPs are maintained long term to provide the rate control and water quality benefits for which they were designed.

Corrective Action: The City will continue to record Operations and Management agreements when private BMPs are constructed. The City will establish a program to proactively check on the status of private BMPs to ensure their function.

4.5. Adequacy of Existing Regulations and Programs to Manage Local Water Resources

Issue 4.5.1: Changing regulations, particularly at the State level, make it necessary for the City to adapt and update their rules, ordinances, and guidance to stay in compliance.

Corrective Action: The City will review their Ordinances and the Developers Guide as regulations (MS4 Permit for example) are issued or updated.

Issue 4.5.2: The City's Stormwater Utility was established in 2001. The most recent rate study was completed in 2017 and included a proposed fee schedule through 2026.

Corrective Action: The City will complete an updated Stormwater Utility Rate Study no later than the end of 2026.

5. GOALS AND POLICIES

5.1. Summary

Two of the City's guiding principles as articulated in the Journey to 2040: Comprehensive Plan and developed through extensive community input are to:

> *"Ensure that the planning we do, or fail to do, does not place undue burdens on future generations"* and
> *"Plan for community resilience and sustainability."*

These principals point to the need for a SWMP that reflects current and planned conditions in the City and provides the framework not only to address existing issues but to build resilient, well-planned infrastructure that will serve generations to come.

This section outlines the goals and policies specific to enacting those principles related to surface water management in Faribault. Many of the City's policies specific to stormwater management have been incorporated into the Developer's Guide for Stormwater Management, as noted below. Goals and policies are grouped by their relationship to the key issues:

- Section 5.2 – Flood Protection
- Section 5.3 – Water Quality
- Section 5.4 – Control of Hazardous Materials
- Section 5.5 – Education and Public Participation
- Section 5.6 – Wetland Management

5.2. Flood Protection

5.2.1. Goal

To provide flood protection for all residents and structures as well as protect the integrity of conveyance channels and storm water detention areas.

5.2.2. Policies

1. **Specific design guidance can be found in the Developer's Guide for Stormwater Management.**
   This includes requirements for rate control, volume control, freeboard, storm sewer design, and BMP and pond design.

2. **Rural drainage**
   Where new development introduces urban drainage into agricultural areas (not including county ditches, DNR waterways, or DNR wetlands) the City requires that the developer acquire easements for stormwater conveyance or storage from the agricultural landowner. Where agricultural drainage discharges into new urban developments, the City requires that the new development accommodate this drainage in fundamentally the same manner as it was accommodated prior to development.

3. **Ravines**
   The City protects ravines from the adverse effects of urban and agricultural drainage by limiting development on steep slopes, stabilizing ravines where necessary, and, where these are not sufficient, limiting flow into the ravines through the City's rate control policy or by routing stormwater around ravines through trunk storm sewer.

4. **Overland conveyance**
   The City and its outskirts are characterized by streams and channels. The City encourages the use of overland versus pipe conveyance so that the benefits of natural channels can be realized. These benefits include filtration, flow attenuation, infiltration, and other water quality and quantity benefits. The City encourages the use of natural vegetation within overland conveyance systems.

5.3. Water Quality

5.3.1. Goal

To promote the reduction of TP and TSS loading as well as other pollutants to water bodies by regulation, municipal management activities, and public education.

5.3.2. Policies

1. **Specific design guidance can be found in the Developer's Guide for Stormwater Management.**
   This includes requirements for TP and TSS removals and water quality basin design.

2. **Street sweeping**
   The City sweeps all urban streets a minimum of three times per year. Spring and fall sweeping target winter sanding and leaf pickup, respectively. The downtown area is swept every other week. The City provides a compost site where property owners can dispose of yard wastes, typically open from April to November. Property owners are not allowed to rake leaves into City streets for pick up.

3. **Erosion control**
   The City of Faribault has adopted the MPCA's most current Construction Stormwater General Permit (MNR100001) for its erosion, sediment, and waste control standards

5.4. Control of Hazardous Materials

5.4.1. Goals

To prevent hazardous material from entering the stormwater system.

5.4.2. Policies

1. **Illegal dumping in storm sewer system**
   The City ordinances prohibit illicit discharge and illicit connections to the storm drain system to prevent the dumping of foreign material into the stormwater system, including oil, gasoline, antifreeze, paint, solvents, herbicides/pesticides, grass clippings/leaves, pet wastes, and other ecologically harmful chemicals.

2. **Spill response capability**
   The City has a spill response capability in place. The response program focuses on containing, neutralizing, and properly disposing of spilled material. This includes preventing the discharge of spilled toxic or hazardous materials into the storm water system. The Fire Department and the Public Works Department have a limited supply of response materials, effective for small scale incidents. For any significant spill, the State of Minnesota Chemical Assessment Team and Emergency Response Team are requested through the Department of Homeland Security/Emergency Management.

5.5. Education and Public Participation

5.5.1. Goals

To involve the general public, City staff, and the business community in water quality management efforts.

5.5.2. Policies

1. **Public education**
   The City will assist with the development and implementation of public education programs in cooperation with the County, the SWCD, and the Clean Water Partnership.

2. **City staff involvement**
   The City is committed to educating its own staff on aspects of stormwater management that are important to their jobs.

3. **City setting an example regarding housekeeping practices on City-owned land**
   The City follows BMPs in managing and maintaining City-owned land. These practices include soil fertility testing for maintained areas and following fertilizer application recommendations based on those test results, fall (not spring) application of fertilizers containing phosphorus (if needed), preservation of natural unmaintained buffers between watercourses and turf areas and preventing discharge of grass clippings from mowing operations onto paved areas.

4. **City cooperation in providing information on state fertilizer regulations**
   The state bans application of lawn fertilizers containing phosphate with some exceptions, such as where a recent soil test has shown the lawn soil is deficient in phosphorus. The City will continue to promote awareness of this law among its residents and business owners.

5.6. Wetland Management

5.6.1. Goals

To identify and protect wetland resources in order to maintain or improve their function and value.

5.6.2. Policies

1. **No net loss of wetlands**
   The City supports Rice County, the LGU for the implementation of WCA, in realizing “no net loss” of wetlands within the City’s jurisdiction.

2. **Use of wetlands for urban stormwater**
   Wetland requirements and their use for stormwater control are outlined in the Developer’s Guide for Stormwater Management.

6. IMPLEMENTATION PROGRAM

6.1. Overview

Faribault has developed its implementation program to address issues identified earlier in this SWMP. This program reflects the needs and concerns of many stakeholders including the City Council, City staff, and citizens. The program also considers Faribault's ability to fund these items through its stormwater utility fee. The implementation program consists of the following components:

- Capital Improvement Projects (CIP)
- MS4 Permit and Additional Operations and Maintenance Activities
- Official Controls
- Monitor and Study

Capital Improvements consist of on-the-ground projects intended to remedy issues identified as current problems.

MS4 Permit and Additional Operations and Maintenance Activities items consist primarily of the general maintenance of Faribault's drainage system including ponds, storm sewer, and culverts. Operation and maintenance also includes activities related to NPDES MS4 Permit compliance such as annual meetings, SWPPP updates, and SWPPP implementation.

Official Controls include ordinance and policy revisions intended to achieve water quality benefits. Each proposed implementation item has a specific driver, which are identified in **Table 6.1**. Over time, codes must be updated to remain consistent with goals, policies, and practices. City ordinances are revised as needed to stay current with the MS4 permit requirements.

Monitor and Study items consist primarily of projects designed to collect water resource data such as water quality monitoring projects, and projects to evaluate cost benefits for various stormwater treatments or planning opportunities.

6.2. 10-Year Implementation Plan

Table 6.1 presents Faribault's Implementation Program. More importantly, the Implementation Program aligns with the City's goals and policies presented in this SWMP. The implementation program incorporates Faribault's SWPPP through direct reference of items that have a financial impact. The City will update the implementation program in conjunction with its annual NPDES MS4 public meeting. The City's CIP is reevaluated yearly and therefore this table may change, which does not require an amendment to this SWMP.

6.3. Financial Considerations

The City has a Stormwater Utility Fee which is charged to all parcels based on assigned Residential Lot Equivalents (RLEs). Each single-family residential parcel is considered to be one RLE, which equals 3,500 square feet of impervious surface. All other developed properties are assigned RLEs based on their property size and impervious surface coverage, except those that are deemed exempt in the City ordinances. Exempt properties include parks and open space, natural areas, cemeteries, and public rights-of-way. Credit is given for properties with on-site stormwater retention ponds or BMPs.

The City will use funds generated from its Stormwater Utility Fee as the primary funding mechanism for its implementation program. If funds from this fee do not cover necessary costs,

the City will consider adjusting the Stormwater Utility Fee. The City will also take advantage of grant or loan programs to offset project costs where appropriate and cost-effective. Below is a list of various sources of revenue that may be available to the City:

- Grant monies possibly secured from various agencies. This could include Rice County, MnDOT, MPCA, DNR, Legislative-Citizen Commission on Minnesota Resources, BWSR, and others.
- Special assessments for local improvements performed under authority of Minnesota Statutes Chapter 429.
- Other sources potentially including tax increment financing, tax abatement, state aid, and others.

TABLE 6.1

SURFACE WATER MANAGEMENT IMPLEMENTATION PLAN

No.	Project Description	10 Year Total Cost Estimate [1,3]	Possible Funding Sources [2]	Proposed Cost By Year[1]										Comments
				2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Capital Improvement Projects (CIP)														
1	Airtech Industrial Park Flood Reduction and Stormwater Management	$1,989,500	State and/or Federal					$1,990,000						Issue 4.1.1: A portion of the stormwater runoff from Airtech Industrial Park in the northeast corner of State Highway 21 and Interstate 35 discharges to existing basins that are undersized for the contributing drainage areas. Minor localized flooding occurs in the parking lots adjacent to the existing basins.
2	Twin Lakes Chain Outlet Improvements	$571,100	State and/or Federal		$575,000									Issue 4.1.2: Several basins within the Twin Lakes chain lack functioning or adequate capacity outlets. The ultimate overland overflow from the chain of lakes is at 999-feet, causing flood waters in large storm events to back up on adjacent roadways.
3	18th Avenue and Paulis Drive Flood Reduction, Erosion Mitigation, and Regional Stormwater Management	$1,925,200	State and/or Federal							$1,925,000				Issue 4.1.3: Erosion is present at the storm sewer outfall from 18th Avenue. There is localized flooding at the low points along 18th Avenue and Paulis Drive due to limited inlet and pipe capacity. 18 acres of existing impervious area lack adequate stormwater management prior to discharging to the Cannon River.
4	5th Street, 6th Street, and 7th Street Flood Reduction via Storm Sewer Improvements	$1,239,200	State and/or Federal						$1,240,000					Issue 4.1.4: Localized flooding along 5th Street, 6th Street, and 7th Street is present due to limited pipe and inlet capacity. In the 100-year 24-hour event, backwater from the Cannon River fills the storm sewer and prevents drainage through the system.
5	Homes in FEMA Floodplain	$3,320,000	State and/or Federal				$3,320,000							Issue 4.1.5: Residential properties reside in the FEMA floodplain adjacent to the Cannon River.
6	Flood Reduction on Division Street and Adjacent Streets via Storm Sewer Improvements	$3,192,700	State and/or Federal								$3,195,000			Issue 4.1.6: XPSWMM modeling indicates flooding potential on Division Street and adjacent streets due to undersized storm sewer along 3rd Street SW.
7	Stormwater Management for Tributary Area to Former Lockerby Property	$1,017,400	State and/or Federal	$1,020,000										Issue 4.1.7: Approximately 87 acres drain to the Straight River without adequate stormwater treatment via the storm sewer outfall adjacent to the former Lockerby property.
8	Mitigation of Erosion at Culvert Under Mattson Street	$440,800	State and/or Federal			$440,000								Issue 4.1.8: The culvert under Mattson Street is undersized for its contributing watershed and has nearly blown out in the past. Erosion is present upstream of the culvert.
MS4 Permit and Additional Operations and Maintenance Activities														
9	Structural Stormwater BMP Projects - Infiltration basin restoration, and buffer maintenance	$1,500,000	Stormwater Utility/State Funding	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	Extend infrastructure life capacity
10	Pond Inspections - Inspections are implemented through external contracts.	$100,000	Stormwater Utility	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	
11	Pond Maintenance - Pond dredging and additinoal maintenance is implemented through external contracts.	$1,500,000	Stormwater Utility	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	
12	Raingarden Maintenance	$22,000	Stormwater Utility	$2,200	$2,200	$2,200	$2,200	$2,200	$2,200	$2,200	$2,200	$2,200	$2,200	
13	Miscellaneous Drainage Improvements	$400,000	Stormwater Utility	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	
14	Street Sweeping - Sweep urban City streets 3 times per year. Sweep downtown City streets every other week.	$250,000	Stormwater Utility	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	
15	Education Activity Implementation Plan and Program - The City will provide stormwater education and outreach programs for residents within the City. The Education Program should include: -Distribution of educational materials including through City newsletter, website, and public service announcements (local paper and TV) -Coordination with SWCD and Clean Water Partnership -Presence at environmental fairs, home and garden shows, etc. -Volunteer opportunities -Annual builders and developers meeting and trainings	$15,000	Stormwater Utility, SWCD, Clean Water Partnership	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	
16	Annual Meeting - Hold annual public meeting to provide information on the NPDES program and allow residents an opportunity to review and provide input on the SWPPP. Provide public notice of the meeting 30 days in advance. All input will be documented as part of the public record and addressed as appropriate. Revisions will be made to the SWPPP as necessary and submitted to the MPCA.	$8,000	Stormwater Utility	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	
17	Online Availability of Stormwater Pollution Prevention Program Document - Provide an electronic version of the SWPPP on the City website to solicit public opinion and provide easy access.	$500	Stormwater Utility		$250					$250				

No.	Project Description	10 Year Total Cost Estimate [1,3]	Possible Funding Sources [2]	Proposed Cost By Year[1]										Comments
				2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
18	Storm Sewer System Map - Update storm sewer map upon receipt of as builts for new infrastructure. Identify outfalls, including unique identification (ID) number assigned by the permittee, and an associated geographic coordinate and other discharge points from the City.	$4,000	Stormwater Utility		$2,000					$2,000				
19	Illicit Discharge Detection and Elimination (IDDE) Regulatory Control Program - Review ordinance to ensure that ordinance continues to meet the needs of the City and legal requirements. Review ordinances of adjacent communities with regularity.	$3,000	Stormwater Utility	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300	
20	Illicit Discharge Inspections - The City continue to require inspection of septic systems upon property transfer and completion of construction. The City will track reporting of resident pumping and cleaning of septic systems to ensure compliance (required every 3 years).	$25,000	Stormwater Utility	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	
21	IDDE Information Program - The City will develop a strategy to inform City employees, local businesses, property owners, and the public about the hazards associated with illegal discharges and improper disposal of waste. The City will cooperate with the watershed districts to develop educational opportunities.	$5,000	Stormwater Utility	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	
22	Identification of Non-Stormwater Discharge and Flows - Continue to evaluate non-stormwater discharges identified in permit as significant contributors of pollutants to MS4. Develop and implement action plans to address these flows.	$8,000	Stormwater Utility	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	
23	Standard Operating Procedures (SOPs) - Update SOPs for IDDE, including emergency response, within 12 months of the date of MS4 permit coverage.	$500	Stormwater Utility		$250					$250				
24	Source Water Protection Areas - Identify potential sources of pollution in the vulnerable well areas. Develop a plan to clean up existing pollutants and prevent introduction of future pollutants. Develop and implement an education plan.	$3,000	Stormwater Utility	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300	
25	Construction Site Inspections - Continue to inspect construction sites for compliance with erosion and sediment control plans and waste management. Distribute priority BMP sheets to builders/developers and track their use. Continue to utilize the City's Building Inspection log for issues and complaints received on construction sites and address site runoff issues.	$25,000	Stormwater Utility	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	
26	Site Plan Review - The City will continue to review site plans for development and redevelopment and require the use of structural and non-structural BMPs. The City will track the number of BMPs incorporated in site plans and assess changes due to increases in impervious area.	$40,000	Developers, Stormwater Utility	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	
27	Update Ordinance to Meet New Permit Requirements - Complete Ordinance updates for post-construction runoff from new development and redevelopment within 12 months of extension of permit coverage.	$3,000	Stormwater Utility		$1,500					$1,500				
28	Structural Stormwater BMP Maintenance Program - Inspect 20% of known public outfalls, sediment basins and ponds each year on a rotating basis. Inspect 100% of structural pollution control devices each year. Retain records of inspection, maintenance, and corrective actions for 3 years past the expiration of the MS4 permit.	$80,000	Stormwater Utility	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	
29	Municipal Operations and Maintenance Program - The City will implement an inspection, operation, and maintenance program with a training component for City Public Works employees.	$2,000	Stormwater Utility	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	
30	Stockpiles, Storage, and Material Handling Area Inspections - Conduct written inspections of all stockpile, storage, and material handling areas (Public Works facility and cold storage).	$10,000	Stormwater Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
Official Controls														
31	Ordinance Updates - The City will ensure that adequate regulatory controls are in place to manage and mitigate adverse impacts on public waters and wetlands.	$2,000	Stormwater Utility				$1,000					$1,000		
32	Developer's Guide for Stormwater Management - The Developer's Guide for Stormwater Management will be reviewed and updated as necessary to ensure that stormwater management standards, including volume control standards and erosion and sediment control standards are consistent with current engineering practices and current regulations of local and state agencies having jurisdiction within the City.	$4,000	Stormwater Utility				$2,000					$2,000		

No.	Project Description	10 Year Total Cost Estimate [1,3]	Possible Funding Sources [2]	Proposed Cost By Year[1]										Comments
				2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Monitor and Study														
33	Natural Resources Inventory (NRI) Update - The City's current NRI is from 2002. The City will complete an updated NRI to reflect current conditions.	$80,000	Stormwater Utility		$80,000									
34	Lake Byllseby Pollutant Monitoring - Establish a pollutant monitoring program to determin if the City is meeting its WLA for TP for water draining to Lake Byllsby.	$31,000	Stormwater Utility			$10,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	Issue 4.2.1
35	Pollutant Removal Studies - Conduct pollutant removal studies to identify the best strategies to reduce polluatnt discharges from the City to the Straigit and Cannon Rivers to meet its WLAs.	$20,000	Stormwater Utility			$20,000								Issue 4.2.2
	TOTAL	**$17,816,900**		**$1,419,600**	**$1,058,600**	**$849,600**	**$3,725,600**	**$2,392,600**	**$1,642,600**	**$2,331,600**	**$3,597,600**	**$405,600**	**$402,600**	

[1] Cost estimates are preliminary and subject to review and revision as engineer's reports are completed and more information becomes available. Table reflects 2022 costs and does not account for inflation. Costs generally include labor, equipment, materials, and all other costs necessary to complete each activity. Some of the costs outlined above may be included in other operational costs budgeted by the City.

[2] Funding for stormwater program activities projected to come from following sources - Stormwater Utility, Developers Agreements, Grant Funds, General Operating Fund, or Special Assessments.

[3] Staff time is not included in the cost shown.

7. ADMINISTRATION

7.1. Plan Amendments and Future Updates

The Faribault SWMP is intended to extend through the year 2031. For the plan to remain dynamic, an avenue must be available to implement new information, ideas, methods, standards, management practices and any other changes that may affect the intent and/or results of the SWMP. The amendment procedure for the SWMP is presented below.

Request for Amendment
Written request for plan amendment is submitted to City staff. The request shall outline the need for the amendment as well as additional materials that the City will need to consider before making its decision.

Staff review of Amendment
A decision is made as to the validity of the request. Three options exist: 1) reject the amendment, 2) accept the amendment as a minor issue, with minor issues collectively added to the plan at a later date, or 3) accept the amendment as a major issue, with major issues requiring an immediate amendment. In acting on an amendment request, City staff shall recommend to City Council whether or not a public hearing is warranted.

Council Consideration
The amendment and the need for a public hearing shall be considered at a regular or special Council meeting. Staff recommendations should also be considered before decisions on appropriate action(s) are made.

Public Hearing and Council
This step allows for public input based on public interest. Council shall determine when the public hearing should occur in the process. Based on the public hearing, the City Council could approve the amendment.

Council Adoption
Final action on an amendment is City Council adoption. However, prior to the adoption, an additional public hearing could be held to review the plan changes and notify the appropriate stakeholders.

7.2. Annual Report to Council

A brief annual report will be made by City staff summarizing development changes, capital improvements, and other water management-related issues that have occurred over the past year. The review will also include an update on available funding sources for water resource issues. Grant programs are especially important to review since they may change annually. These changes do not necessarily require individual amendments. The report can, however, be considered when the plan is brought up to date. The annual report should be completed by July 1st to allow implementation items to be considered in the normal budget process.

The City's SWMP will remain in effect through 2031. The City will then review the SWMP for consistency with current water resource management methods. At that time, all annual reports and past amendments will be added to the document. Depending on the significance of changes, a new printing of the SWMP may be appropriate. At a minimum, the Capital Improvement Program should be amended every five years.

Appendix A – Figures

Figure 1: Location Map

Figure 2: Subwatershed Map

Figure 3: Soils Map

Figure 4: Existing Land Use

Figure 5: Proposed Land Use

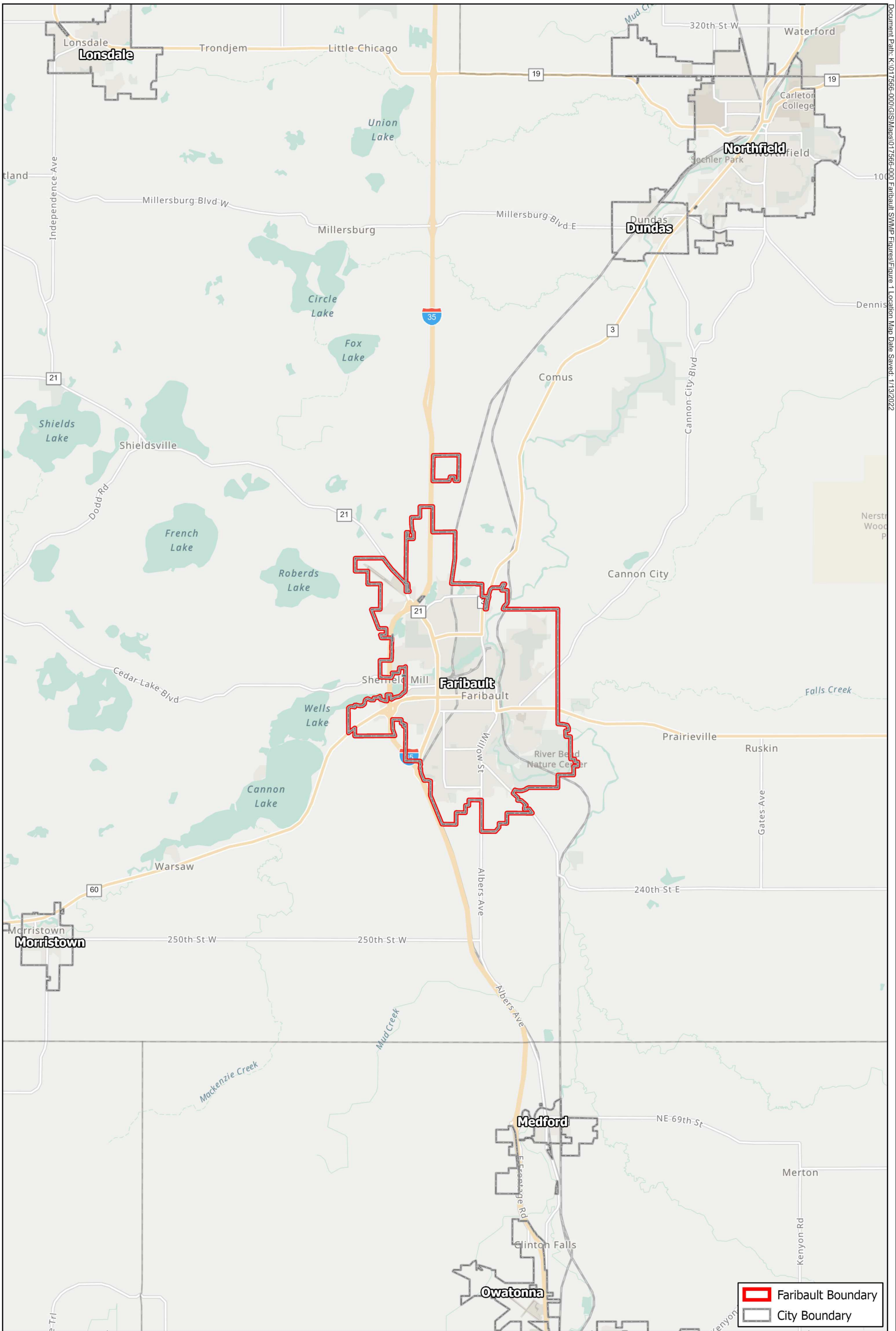
Figure 6: Wetlands and Lakes

Figure 7: DWSMA and Wellhead Protection Areas

Figure 8: MLCCS

Figure 9: Sites of Biological Significance

Figure 10: Problem Areas



City of Faribault

Figure 1 - Location Map

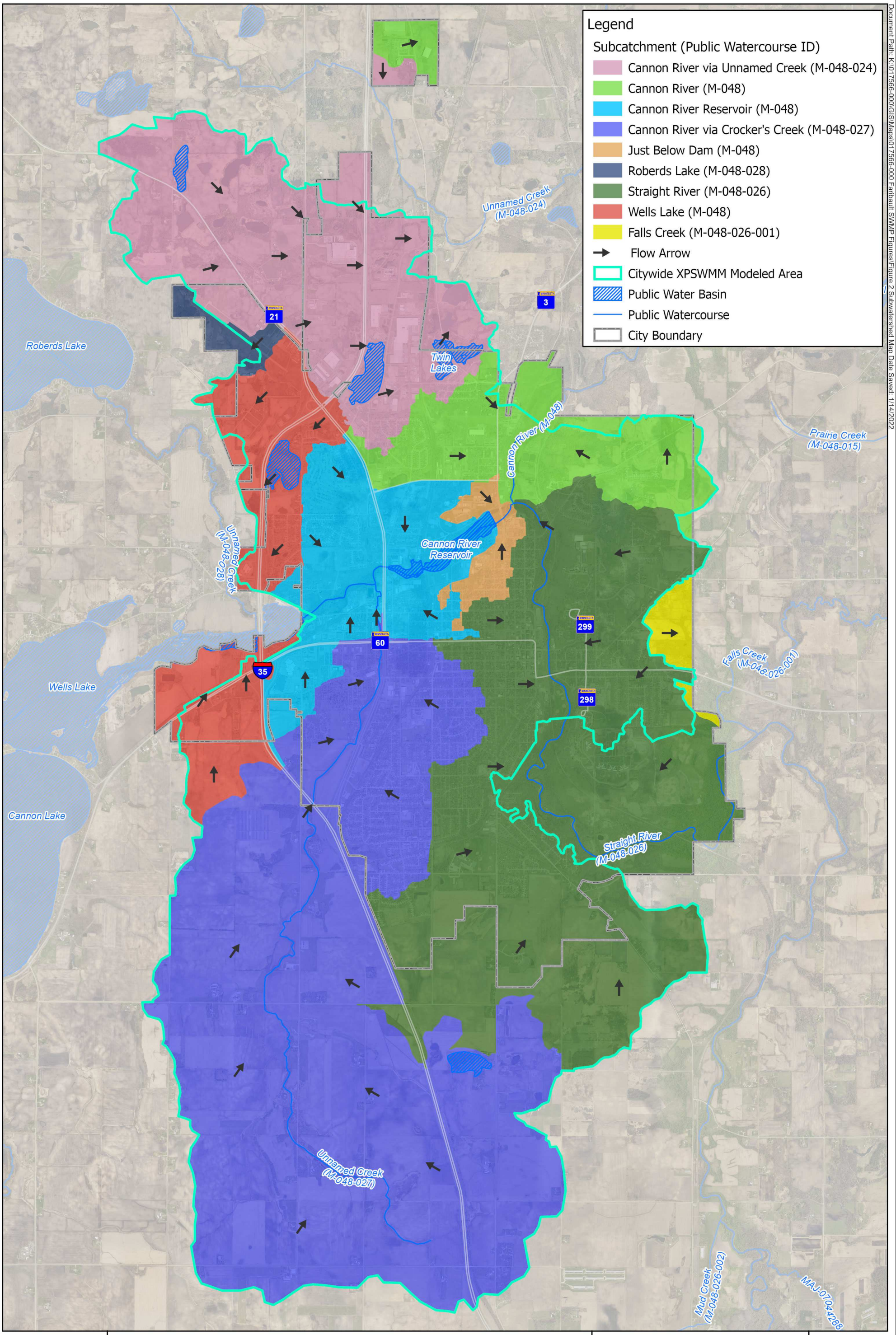
Surface Water Management Plan
City of Faribault, MN

N

0 9,000 Feet
1 inch = 9,000 feet

wsb

Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 1 Location Map Date Saved: 1/13/2022



Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 2 Subwatershed Map Date Saved: 1/14/2022

City of Faribault

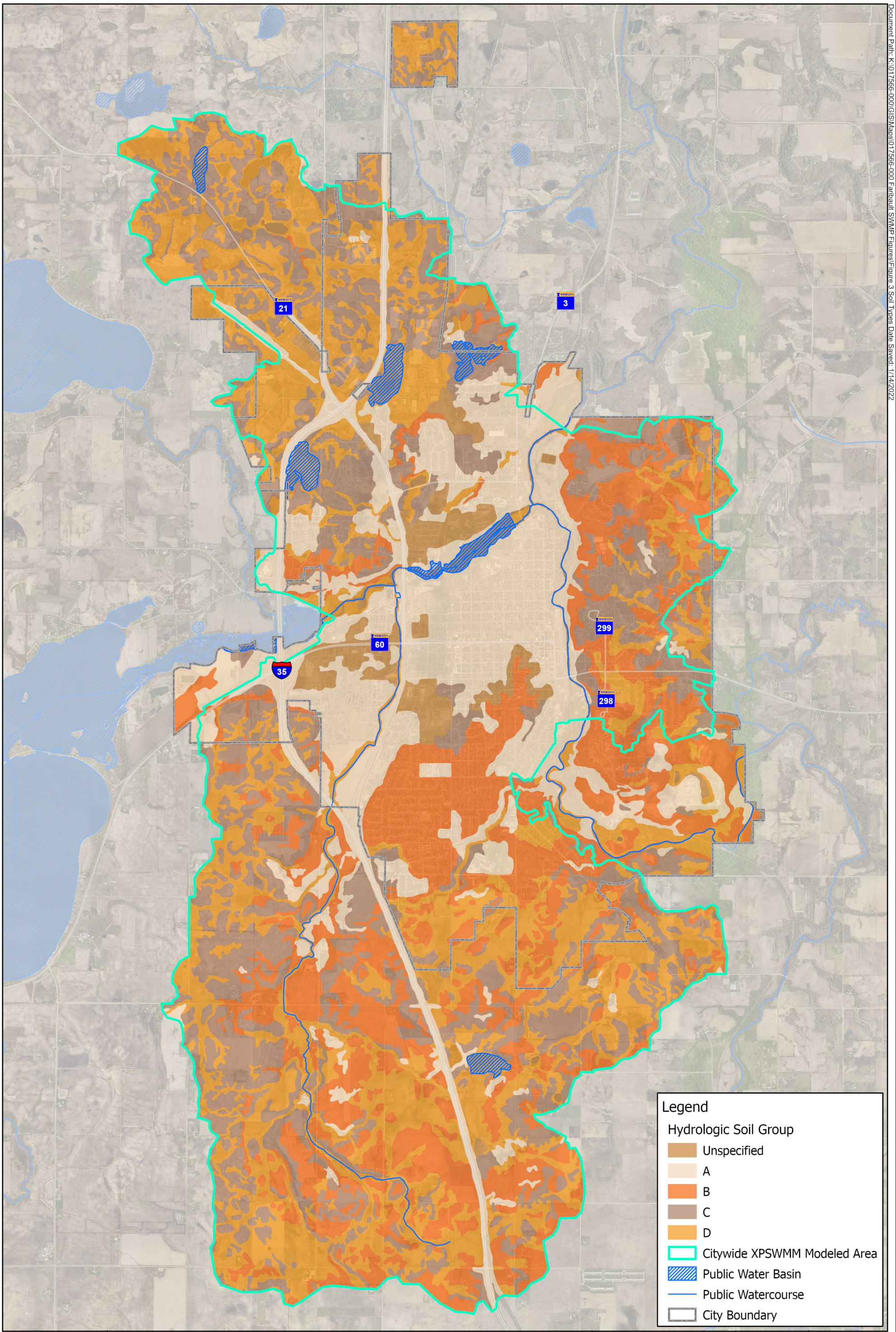
Figure 2 - Subwatershed Map

Surface Water Management Plan
City of Faribault, MN

N

0 3,500 Feet
1 inch = 3,500 feet

wsb



City of Faribault

Figure 3 - Soil Types

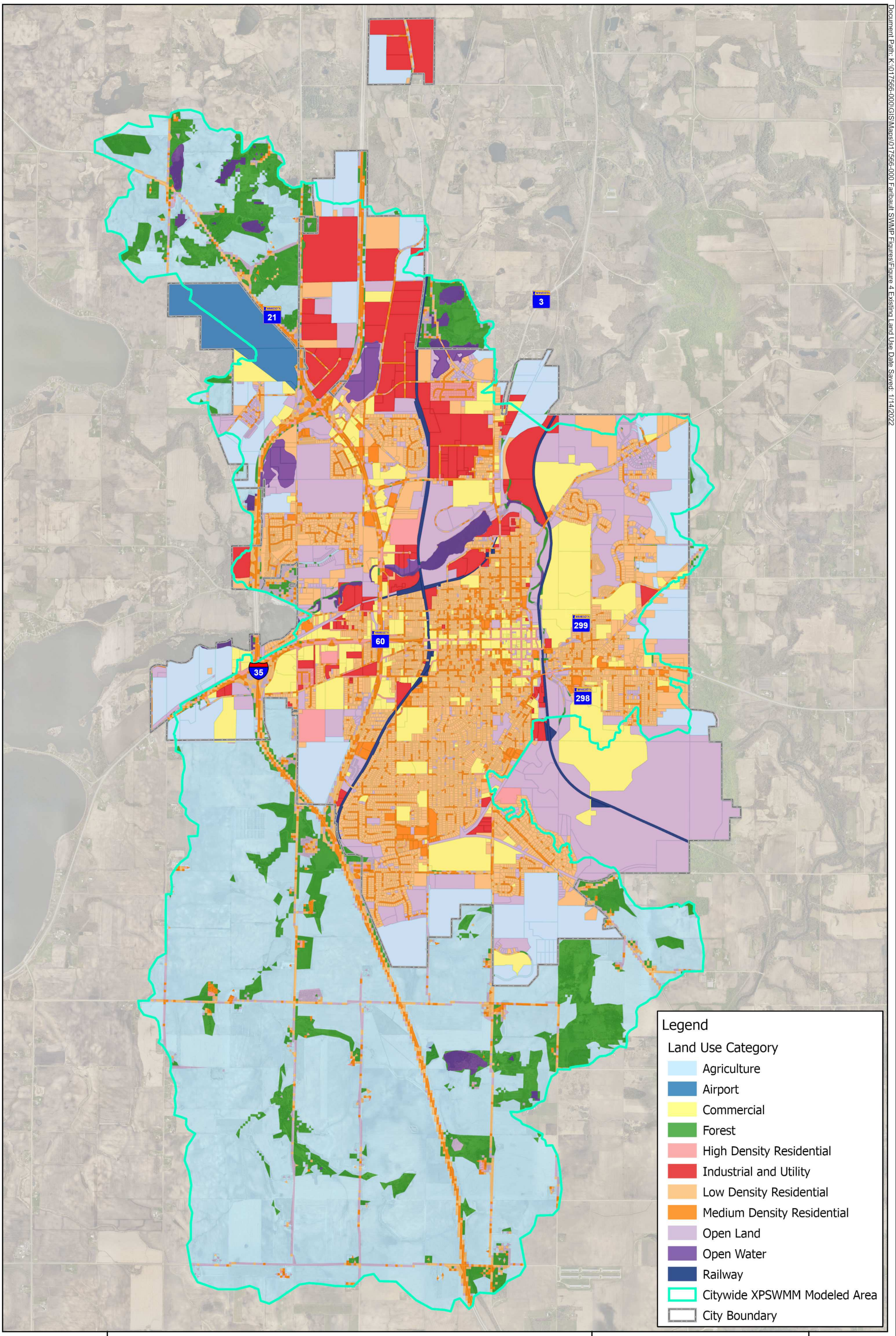
Surface Water Management Plan
City of Faribault, MN

N

0 3,500 Feet
1 inch = 3,500 feet

wsb

Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 3 Soil Types Date Saved: 1/14/2022



City Of Faribault

Figure 4 - Existing Land Use

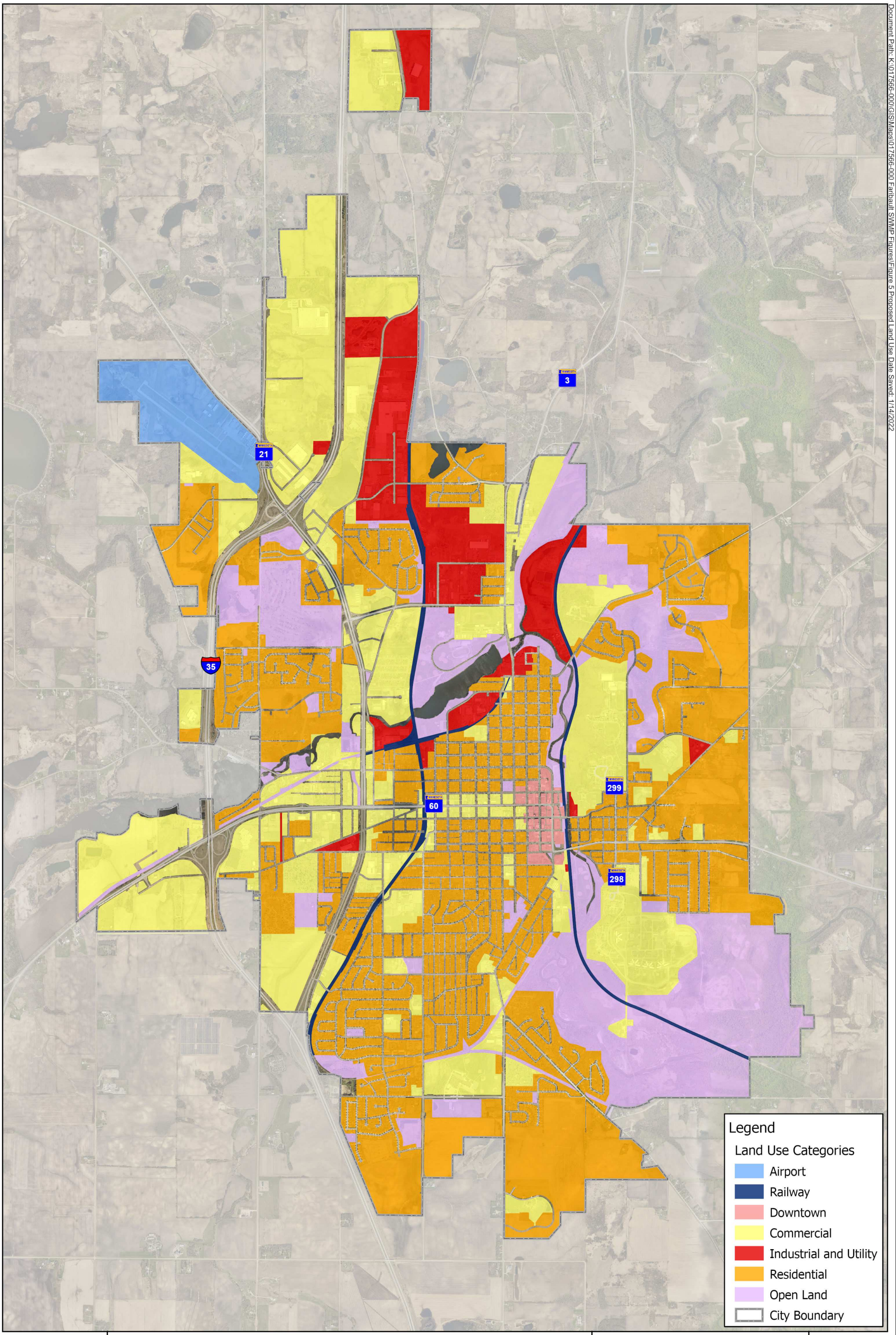
Surface Water Management Plan
City of Faribault, MN

N

0 3,500 Feet
1 inch = 3,500 feet

wsb

Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 4 Existing Land Use Date Saved: 1/14/2022



City of Faribault

Figure 5 - Future Land Use

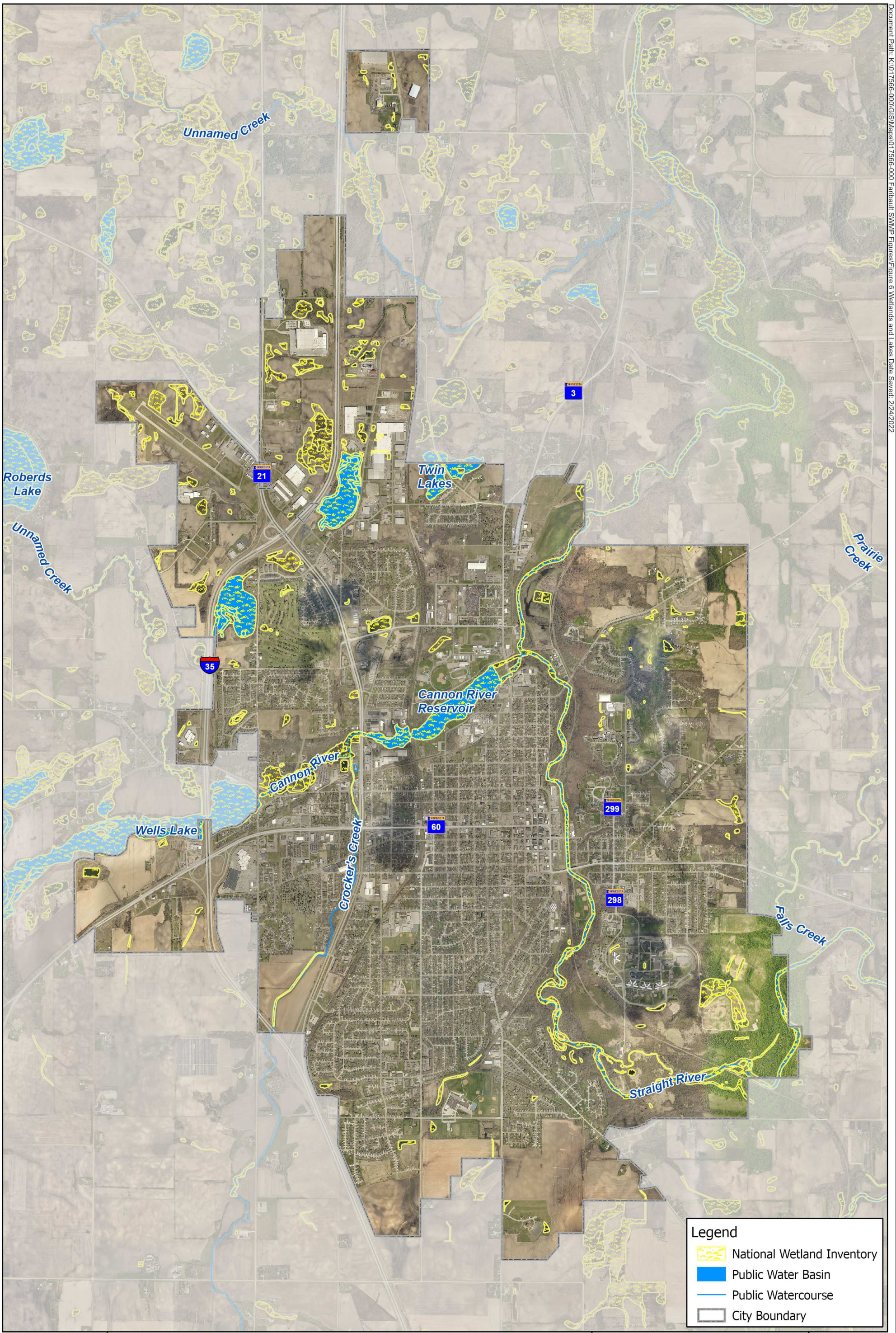
Surface Water Management Plan
City of Faribault, MN

N

0 2,800 Feet
1 inch = 2,800 feet

wsb

Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 5 Proposed Land Use Date Saved: 1/14/2022



City Of Faribault

Figure 6 - Wetlands and Lakes

Surface Water Management Plan
City of Faribault, MN

N

0 2,800 Feet
1 inch = 2,800 feet

wsb

Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 6 Wetlands and Lakes Date Saved: 2/24/2022

Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 7 DWSMA and Wellhead Protection Areas Date Saved: 1/14/2022

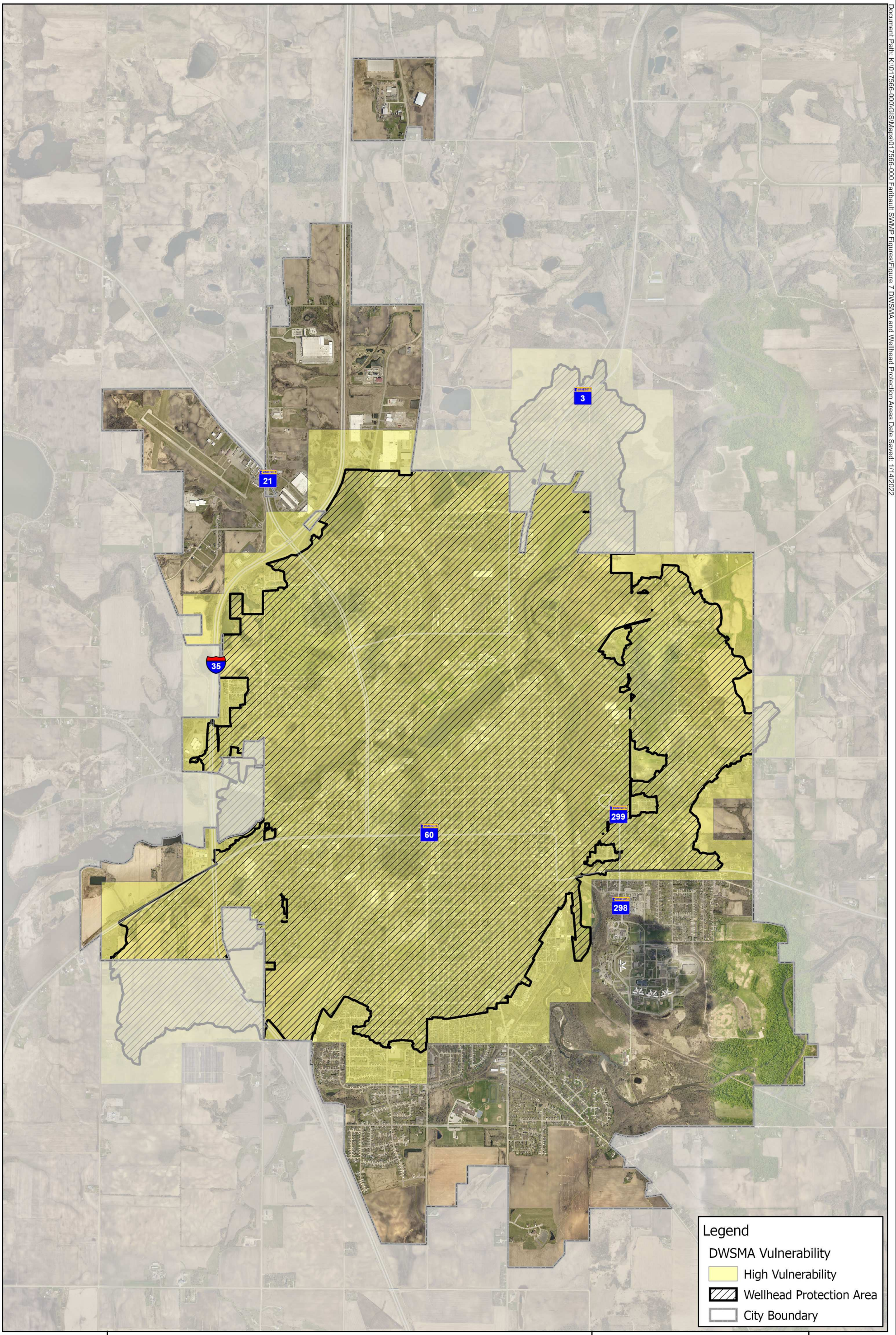
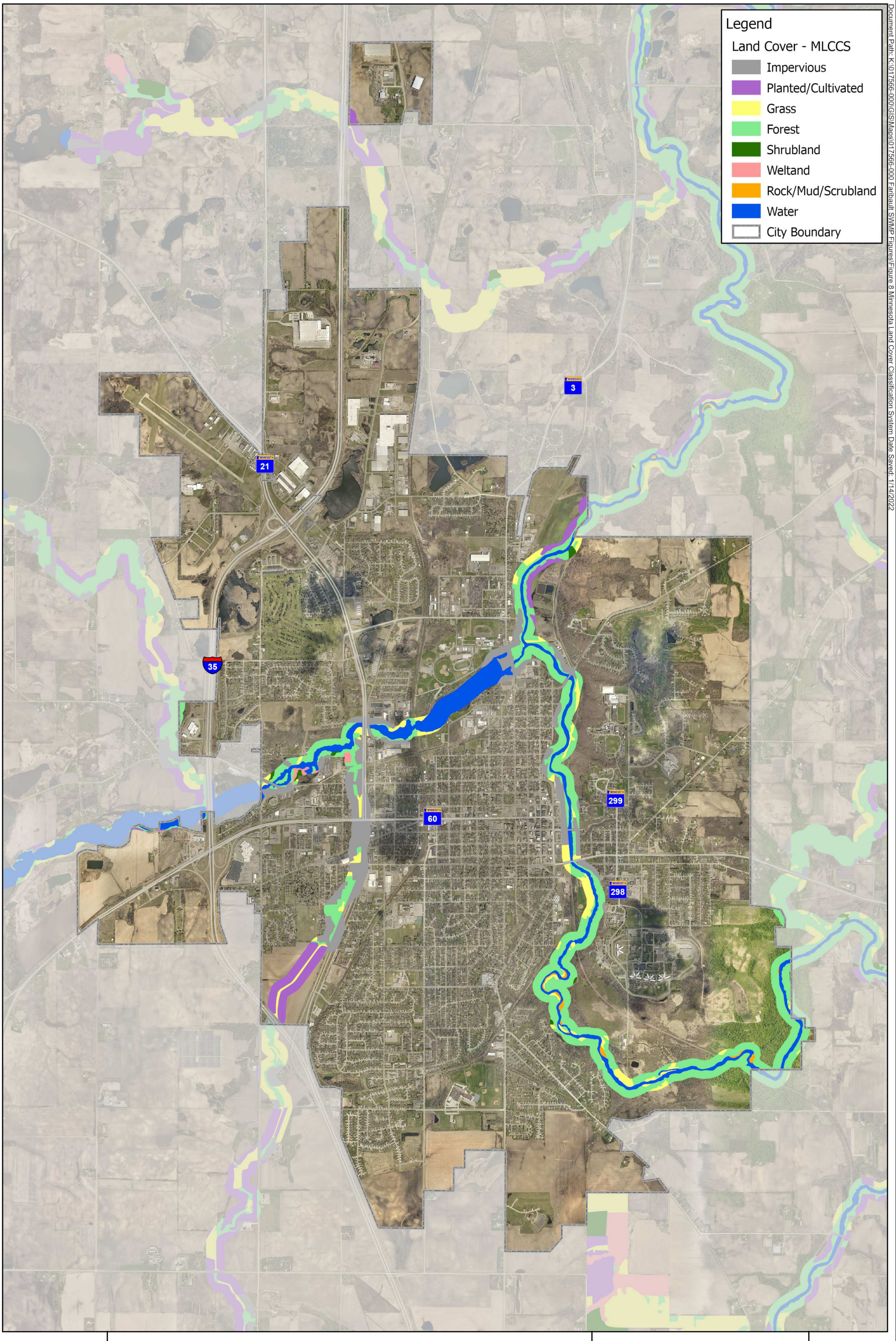


Figure 7 -
Drinking Water Supply Management Area (DWSMA) and Wellhead Protection Areas
Surface Water Management Plan
City of Faribault, MN

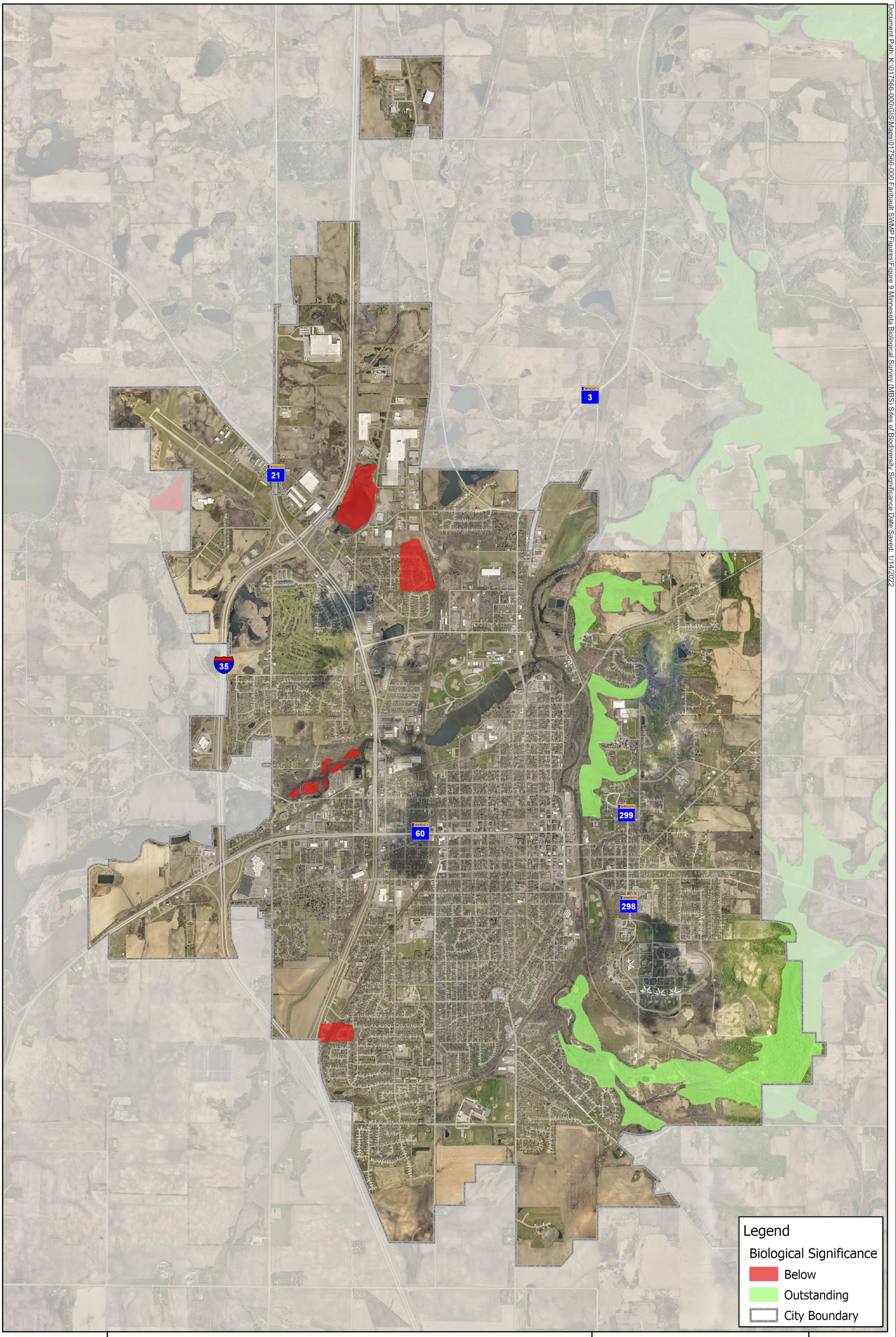
N
0 2,800 Feet
1 inch = 2,800 feet



Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 8 Minnesota Land Cover Classification System Date Saved: 1/14/2022

Figure 8 -
Minnesota Land Cover Classification System (MLCCS) Map
Surface Water Management Plan
City of Faribault, MN

N
0 2,800 Feet
1 inch = 2,800 feet

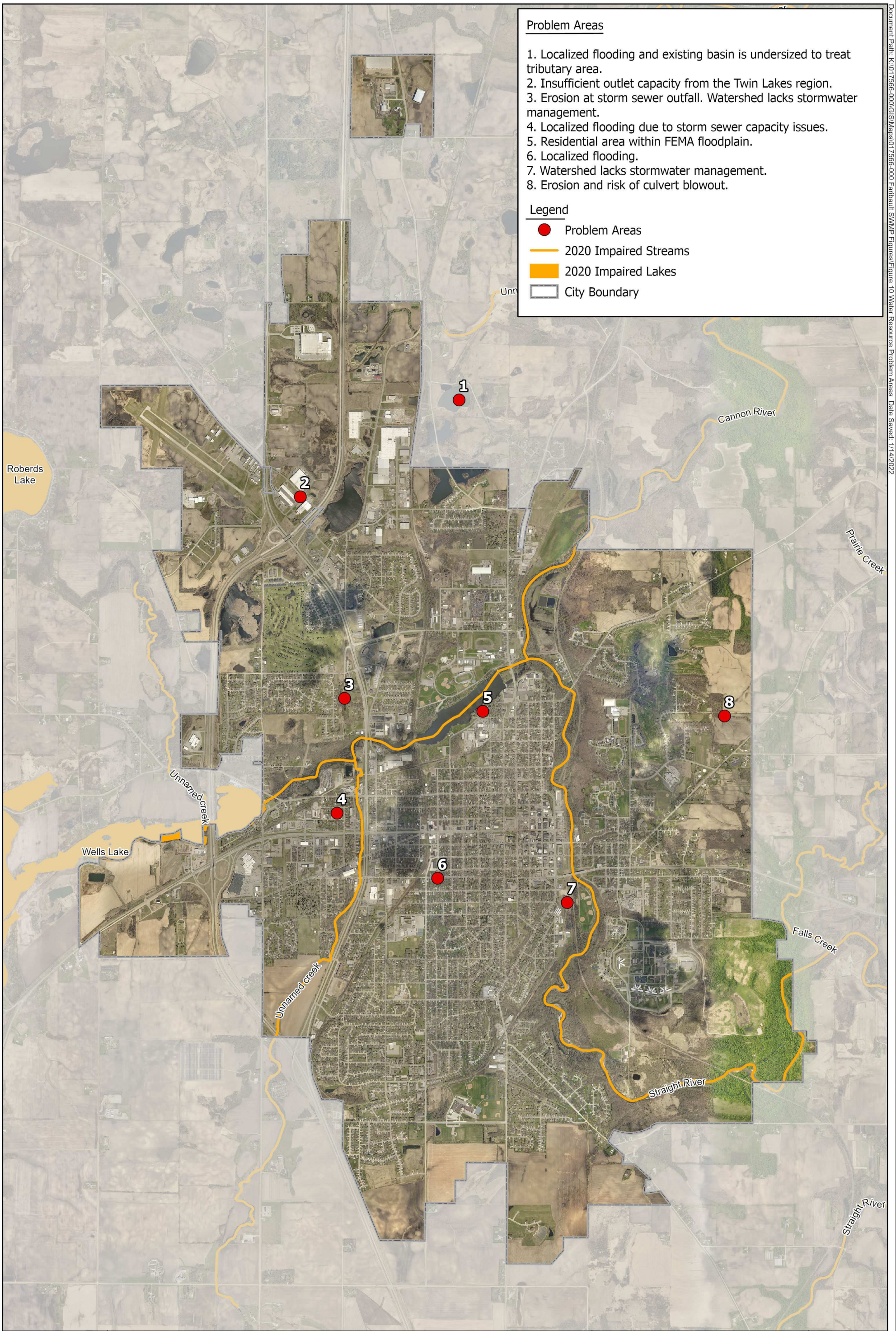


City of Faribault

Figure 9 -
Minnesota County Biological Survey (MCBS) Sites of Biodiversity Significance
Surface Water Management Plan
City of Faribault, MN

N
0 2,800 Feet
1 inch = 2,800 feet

wsb



Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault SWMP Figures\Figure 10 Water Resource Problem Areas Date Saved: 1/14/2022

Figure 10 -
Water Resource Problem Areas
Surface Water Management Plan
City of Faribault, MN

N
0 2,800 Feet
1 inch = 2,800 feet

Appendix B – TMDLs

Approved TMDLs affecting the City of Faribault can be found at the following websites.

Cannon River Watershed TMDL

- https://www.pca.state.mn.us/sites/default/files/wq-iw9-19e.pdf

Cannon River WRAPS Report

- https://www.pca.state.mn.us/sites/default/files/wq-ws4-23a.pdf

Lower Cannon River Turbidity TMDL

- https://www.pca.state.mn.us/sites/default/files/wq-iw9-04c.pdf

South Metro Mississippi TSS TMDL

- https://www.pca.state.mn.us/water/south-metro-mississippi-river-turbidity-tmdl

Appendix C – XP-SWMM Modeling Report

DRAFT

MODEL REPORT

CITYWIDE XPSWMM MODEL REPORT

CITY OF FARIBAULT | RICE COUNTY | MINNESOTA

APRIL 22, 2022

Prepared for:
City of Faribault
208 1st Avenue NW
Faribault, MN 55021

WSB PROJECT NO. 017566-000

CERTIFICATION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed professional engineer under the laws of the State of Minnesota.

Jake Newhall, PE

Date: April 22, 2022 Lic. No. 49170

Table of Contents

1. Background 1
- **1.1 Executive Summary** 1
- **1.2 Introduction** 1
- **1.3 Goals and Objectives** 1

2. Methodology 2
- **2.1 Model Development** 2
  - **2.1.1 Runoff Model Hydrology** 2
  - **2.1.2 Hydraulics Mode** 4
  - **2.1.3 Boundary Conditions and Outfalls** 6
  - **2.1.4 Rainfall** 6
  - **2.1.5 Assumptions** 6
- **2.2 Model Validation** 7
- **2.3 Model Controls** 7

3. Results 7
- **3.1 Summary of Results** 7
  - **3.1.1 Flood Areas** 7
  - **3.1.2 Undersized Storm Sewer** 8

4. Discussion and Recommendations 8
- **4.1 Flood Mitigation** 8
  - **4.1.1 Area 1 – Industrial Park** 8
  - **4.1.2 Area 2 – Twin Lakes** 8
  - **4.1.3 Area 3 – 18th Avenue Outfall** 9
  - **4.1.4 Area 4 – Park Avenue** 9
  - **4.1.5 Area 5 – Homes in Floodplain** 9
  - **4.1.6 Area 6 – Division Street** 9
  - **4.1.7 Area 7 – Former Lockerby Property** 9
  - **4.1.8 Area 8 – Mattson Street** 9
- **4.2 Future Modifications** 10

5. References 10
- **5.1 Citations** 10

APPENDICES
Appendix A – Figures
Appendix B – Technical Modeling
Appendix C – CIP Memos

1. Background

1.1 Executive Summary

A Citywide XPSWMM model of the stormwater infrastructure throughout the City of Faribault, MN has been developed to identify areas prone to flooding and to assist in the design of future flood mitigation projects. The model was built as part of the City's 2021 Surface Water Management Plan update.

The City of Faribault consists of primarily residential, commercial, industrial, and agriculture land use. The City drains through storm sewer and storm water ponds, ultimately reaching the Cannon River and Straight River. The contributing watershed covers 25.2 square miles.

The Citywide XPSWMM model was built considering storm sewer greater than or equal to 15-inches in diameter as well as all storage areas. Runoff is produced within the model using the SCS curve number method and considers catchment area, impervious percent, a pervious curve number, and a time of concentration value. The model utilizes Rice County Atlas 14 rainfall data and an MSE III distribution. To obtain accurate results, model validation was done by comparing modeled high-water levels to known high water levels and utilizing local knowledge of flood prone areas.

Model results indicate existing areas of potential flooding concerns and impacted structures in the 100-year storm event. Storm sewer pipes undersized for the 10-year event were identified. Proposed solutions were analyzed for several of the flood prone areas within the City.

1.2 Introduction

The City of Faribault (the City) covers about 13 square miles. The total modeled watershed extends beyond the City boundary and is 25.2 square miles. Water flows according to several general sub watershed patterns, as indicated on Surface Water Management Plan **Figure 2,** as attached. All drainage ultimately flows into the Cannon River to the northeast.

The City has a history of flooding issues, particularly along the Cannon River. Detailed Federal Emergency Management Agency (FEMA) studies have been done along the Cannon River and Straight River adjacent to Faribault, but a comprehensive stormwater model was desired to determine how stormwater runoff contributes to flooding within the ponding areas and streets of the City.

1.3 Goals and Objectives

The Citywide XPSWMM model will be a valuable asset to the City to identify areas prone to flooding, design future improvements to under capacity drainage infrastructure, plan future developments, and develop stormwater management policy.

Two goals were identified as part of the XPSWMM model development.

1. Identify flood problem areas and under capacity infrastructure.
2. Propose future improvements to mitigate existing flood issues.

2. Methodology

2.1 Model Development

The Citywide XPSWMM model was built utilizing XPSWMM 2019.1.3 software. The model structure as well as catchment, node, and link data were configured using ArcGIS Pro. A seamless transfer from ArcGIS Pro to XPSWMM was completed to move all the data into the modeling software. Various hand edits and error adjustments were made in XPSWMM to obtain a clean and useful model.

The XPSWMM model incorporates a runoff mode, hydraulics mode, boundary conditions, and rainfall data, each of which are described in detail in the following sections. Assumptions, model validation steps, and model controls are also documented.

All data used to build the XPSWMM model is in the NAD1983 (HARN) horizontal coordinate system for Rice County and the NAVD 88 vertical datum. The model utilizes the dynamic wave equations as a solving method.

2.1.1 Runoff Model Hydrology

The runoff mode contains the hydrology information. When the catchment parameters are subjected to rainfall, runoff is produced in the model.

Catchments

The Citywide XPSWMM model contains 1,143 catchments. Catchment delineation was completed using City of Faribault watershed data as a baseline and edited based on LiDAR (Lidar Elevation, Rice County, Minnesota, 2007), existing grading plan, storm sewer, and storage data. The catchment delineation scale was determined by storm sewer structure inlets to pipes 15-inches in diameter or greater as well as by storage areas. The area of each catchment was calculated in acres.

SCS Curve Number Method

The model utilizes the SCS curve number method to generate a hydrograph and flow for each catchment. The SCS curve number method requires a catchment area, impervious percent, pervious curve number, and time of concentration value, all of which were calculated using ArcGIS Pro.

Impervious Percent

An impervious shapefile was generated in ArcGIS Pro utilizing a heat mapping procedure over an aerial image. By intersecting the impervious area with the catchments, the total impervious percent was calculated by Equation 1.

Equation 1.

$$Impervious\ \%_{Catchment\ 1} = \frac{Impervious\ Area\ (ac)_{Catchment\ 1}}{Total\ Area\ (ac)_{Catchment\ 1}} * 100$$

XPSWMM requires the directly connected impervious percent to be inserted into the modeling software. The result of Equation 1 was multiplied by 0.75 to determine the directly connected impervious percent, estimated as 75 percent of the impervious area within the catchment.

Pervious Curve Number

To determine the pervious curve number of each catchment, the existing land use shapefile (Surface Water Management Plan **Figure 4,** as attached) was used to define areas of agricultural fields, grass, woods, and woods/grass combination. The existing land use was obtained from a combination of the Faribault current land use shapefile and the National Land Cover Database (NLCD) shapefile in the areas where the City had not defined a land use. Intersected with the

hydrologic soil groups per the SSURGO soils shapefile (Surface Water Management Plan **Figure 3,** as attached), a weighted curve number was determined for each catchment based on **Table 1**, as attached, with values determined from Technical Release 55 by the Natural Resources Conservation Service (NRCS).

Table 1. Pervious Curve Number

Land Use/Soil Type	A	B	C	D
Agricultural Fields	67	78	85	89
Grass	39	61	74	80
Woods	30	55	70	77
Woods/Grass Combination	32	58	72	79

Time of Concentration

Time of concentration values were defined for each catchment based on the size and impervious percent, as shown in **Table 2,** as attached. Time of concentration values were calculated for an appropriate size range distribution based on the NRCS velocity method of sheet, shallow concentrated, and channel flows.

Table 2. Time of Concentration Value per Catchment Size

Minimum Drainage Area Size (acres)	Maximum Drainage Area Size (acres)	Time of Concentration Value (minute)	Time of Concentration Value if Impervious Area is >75% of the Catchment
0.00	0.25	15	10
0.25	1.25	20	12
1.25	2.25	25	15
2.25	2.50	30	18
2.50	4.00	40	20
4.00	7.00	45	22
7.00	7.50	60	25
7.50	9.00	65	30
9.00	15.00	70	33
15.00	20.00	80	35
20.00	30.00	95	38
30.00	50.00	100	40
50.00	70.00	115	45
70.00	100.00	135	48
100.00	150.00	145	50
150.00	200.00	150	55
200.00	400.00	185	58
400	1000	225	60
1000	2000	320	65
2000	5500	500	70

Slope and Width
The SCS Curve Number method does not require slope and width inputs, however, XPSWMM does not allow values of 0. Both slope and width were set to 1.

2.1.2 Hydraulics Mode

Hydraulics mode represents the network of nodes and links that route water throughout the study area. The network contains storm sewer structures, ponds, outfalls, storm sewer pipes, overland flows, and channels.

Nodes
The node network contains both storm sewer structures and ponds. There are 1,986 total nodes in the model. The storm sewer structure nodes are from the City of Faribault storm sewer GIS database. The naming conventions were taken directly from the City's GIS shapefile if available. The node invert was set to the lowest incoming or outgoing storm sewer pipe invert and the spill crest elevation was set to ensure no water was lost from the model. All nodes do not allow ponding in XPSWMM.

Storage Nodes
The storage nodes represent all significant ponding areas within the City. The node name corresponds to the City's pond identification number if available. Stage storage curves for each of the ponding areas were determined by an ArcGIS master code that defined the area of each LiDAR contour below a maximum ponding elevation within a specified catchment. For ponding areas that have been constructed since LiDAR was flown, stage storage information was extracted from grading plans. The base pond elevation was set to the lowest incoming or outgoing storm sewer pipe with an initial depth set to the normal water level elevation minus the base pond elevation. If the area at the base pond depth was not calculated by the master code, the area was calculated via Equation 2.

Equation 2.

$$A_{Bottom} = \frac{(\sqrt{\pi * A_{Top}} - (D * 3))^2}{\pi}$$

Where
A_{Bottom} = Area at base of pond
A_{Top} = Area at next available depth
D = depth between base of pond and next available depth

After making any necessary adjustments to the storage array, the stage-storage curves were imported into XPSWMM using the stepwise linear method via the external geodatabase import.

Links
Links convey the water from node to node in an XPSWMM model. Made up by pipe conduits, overland flows, and channels, the network of conveyance is 2,187 links. The pipe conduit links come from the City's storm sewer GIS information for pipes with a diameter of 15-inches or larger or otherwise included in the model. Inverts, diameter, material, and shape of the storm sewer pipes were obtained from as-builts and survey information. The pipe length was approximated using the length of the shape in GIS. Pipe slopes were calculated from the inverts and pipe length.

A Manning's n value was defined for each link based on the defined material. See **Table 3,** as attached**,** for the Manning's n values used for the different link materials.

Table 3. Manning's n Values

Material	Manning's n
Corrugated Metal Pipe (CMP)	0.024[1]
Corrugated Steel Pipe (CSP)	0.012[1]
Ductile Iron Pipe (DIP)	0.013[1]
Earth Channel	0.04[1]
High Density Polyethylene Pipe (HDPE)	0.013[2]
Polyvinyl Chloride Pipe (PVC)	0.011[2]
Reinforced Concrete Pipe (RCP)	0.013[1]
Clay	0.014[1]
Vitrified Clay Pipe (VCP)	0.014[1]
Grass Floodplain (for EOFs)	0.06[1]

[1] Source: Chow, (1959). *Reference tables for Manning's n values for channels, closed conduits flowing partially full, and corrugated metal pipes.* [online] Available at: http://www.fsl.orst.edu/geowater/FX3/help/8_Hydraulic_Reference/Mannings_n_Tables.htm.
[2] Source: Engineering Toolbox, (2004). *Manning's Roughness Coefficients*. [online] Available at: https://www.engineeringtoolbox.com/mannings-roughness-d_799.html

Conduit flow in XPSWMM was set to free flowing. Defined conduit factors include the number of identical barrels and entrance and exit loss coefficients. After reviewing typical values for entrance loss coefficients for different culvert types and inlet designs, an average 0.5 coefficient value was chosen. The exit loss coefficient was set to 1.0 to represent a sudden expansion of flow, typical for a culvert (see **Appendix B,** as attached).

Single channel links were defined by an assumed depth of 10 feet, width of 20 feet, and channel side slopes of 3 horizontal units to 1 vertical unit.

Overland Flow

To accurately model storm sewer capacity issues and analyze where flooding occurs in the City, the storm sewer links were imported as multilinks with a second conduit defined as a trapezoidal channel. The urban area overland flows consist of drainage over a roadway and were defined using the urban street characteristics shown in **Table 4,** as attached. It was largely assumed that all urban overland flow follows the storm sewer routing. Overland flow paths out of depression areas were defined by visual inspection of LiDAR and aerial imagery in ArcGIS Pro. Pond overland flow characteristics are show in **Table 4,** as attached.

Table 4. Trapezoidal Channel Overland Flow Characteristics

Parameter	Urban Street	Pond Overland Flow
Upstream Invert	LiDAR Ground Elevation at Upstream Node	LiDAR Ground Elevation
Downstream Invert	LiDAR Ground Elevation at Downstream Node	Top Elevation of Downstream Pond Storage
Bottom Width	10 feet	10 feet
Channel Side Slopes	50H:1V	3H:1V
Channel Length	Equivalent to Pipe Length	Length Determined in GIS
Channel Depth	8 feet	8 feet
Channel Manning's n[1]	0.013	0.06

[1] Source: Chow, (1959). *Reference tables for Manning's n values for channels, closed conduits flowing partially full, and corrugated metal pipes.* [online] Available at: http://www.fsl.orst.edu/geowater/FX3/help/8_Hydraulic_Reference/Mannings_n_Tables.htm

Special Structures
Special structures include weir and orifice features and are modeled using both nodes and links. To define weirs in XPSWMM, information was imported according to **Table 5,** as attached.

Table 5. Weir Parameters

Parameter	Value
Weir Length	Found from as-built
Weir Crest	Elevation of the top of the weir taken from the as-built
Weir Crown	Weir Crest + 10 feet
Weir Discharge Coefficient[1]	2.6

[1] Source: Texas DOT (2019). *Basic Hydrology and Hydraulics*. [online] Available at: https://slideplayer.com/slide/13780266/

For the orifice special structures, the orifice discharge coefficient was set to 1 (LMNO Engineering, 2014).

2.1.3 Boundary Conditions and Outfalls
The Citywide XPSWMM model has 64 outfalls, or locations where water leaves the model. The outfalls were defined using either a fixed backwater elevation or free flow. A portion of the City runoff discharges to the Cannon River or the Straight River, both of which have mapped FEMA floodplains. Three different models were created for the 2-year and 10-year, 100-year, and 500-year events respectively with specific backwater outfall elevations taken from the Flood Insurance Study (FIS) study. The 2-year and 10-year model utilizes free outfalls because the river backwater is not anticipated to influence storm sewer flow in a smaller rainfall event. The 100-year model utilizes the 10-year FIS FEMA elevations, according to past FEMA guidance. The 500-year model utilizes the 100-year FIS FEMA elevations.

2.1.4 Rainfall
A MSE III distribution was imported into the model as a global database. Atlas 14 storm event rainfall depths were defined for Rice County up to the 500-year event as shown in **Table 6,** as attached.

Table 6. Rice County Atlas 14 Rainfall Depths

Storm Event	Rainfall Depth
2-year 24-hour	2.84
10-year 24-hour	4.24
100-year 24-hour	7.29
500-year 24-hour	10.10

2.1.5 Assumptions
Runoff Mode / Hydrology
Various assumptions made throughout the hydrologic data collection process include the following:

- Catchment delineation in areas of the City that have been developed more recently than LiDAR data was obtained were based upon storm sewer networks and rooflines.
- Hydrologic soil groups A/D, B/D, and C/D were assumed to be saturated and were categorized in hydrologic soil group D.

Hydraulics
In hydraulics mode, assumptions were made regarding some storm sewer and ponding information. All assumptions were discussed with the City, but only a portion were reconciled. The **Figure 3,** as attached, **Assumptions Map** highlights the XPSWMM links modeled with assumed parameters due to either the lack of an as-built or missing information on the as-built, ponds that

were constructed after LiDAR was flown and for which an as-built could not be obtained, and ponds with missing outlet information.

In urban areas, overland flow paths over streets were assumed to follow the routing of the storm sewer due to the scale of the model and the lack of an automation method. Further refinement and routing adjustments were made in the model validation stage.

2.2 Model Validation

Model validation was performed in several phases. Comparisons were completed between XPSWMM node high water levels (HWLs) and pond as-built HWLs. The City of Faribault staff also provided input and field knowledge regarding known flooding areas. Flows produced by the model were validated compared to other hydrology methods.

2.3 Model Controls

Model controls specify parameters such as model run time and solve settings. See **Table 7,** as attached, for the model controls for the various storm events. The hydrologic and hydraulic models are run simultaneously.

Table 7. Model Controls

Storm Event	Start Time (date)	End Time (date)	Hydraulics Time Step (seconds)	Runoff Time Step (seconds)
2-year	9-01-2021	9-15-2021	7	60
10-year	9-01-2021	9-15-2021	7	60
100-year	9-01-2021	9-15-2021	7	60
500-year	9-01-2021	9-15-2021	5	60

Runoff job control settings include global monthly evaporation values and a global storm event. Hydraulics job control settings include simulation tolerances for head and flow set to 0.0001, maximum time step iterations set to 500 for the dynamic wave solving method, and modification of short conduits to a 5 second equivalent length for model stability.

3. Results

3.1 Summary of Results

The Citywide model was subjected to simulations including the 2-, 10-, 100-, and 500-year 24-hour rainfall events. Notable results include locations and maps of areas prone to flooding within the City, primary structures with potential flooding issues, and identification of undersized storm sewer. Tabular outputs are included in **Appendix B,** as attached.

3.1.1 Flood Areas

The 100-year event flood boundaries and depths are displayed in **Figures 1A-1AO,** as attached. Inundated areas typically include natural low points and can be a sign of limited downstream capacity to adequately convey stormwater or a lack of flood storage. Primary structures that may be subject to flooding are identified on the figures. Because LiDAR was utilized for the inundation mapping, the building flood risk is accurate to +/- 0.5 feet (LiDAR error). [Structures that are identified on the maps are not necessarily prone to flooding but are estimated to be close].

3.1.2 Undersized Storm Sewer

Storm sewer shall be sized to pass the 10-year 24-hour storm event. In the past, storm sewer in residential areas within the City of Faribault have been held to a 5-year 24-hour storm design standard.

Storm sewer pipes that are potentially undersized for the 10-year 24-hour event are identified on **Figure 2,** as attached, **– 10-year Event Storm Sewer Capacity Map**, identified by nodes that surcharge in XPSWMM. In some cases, **Figure 2,** as attached**,** only shows the first segment of storm sewer out of a low point as undersized because the surcharged water follows above ground topography and may not enter downstream storm sewer. Because of this, it is likely that additional pipes downstream of low points are also undersized and detailed rational calculations should be performed for the entire pipe run when considering future storm sewer infrastructure upgrades.

Undersized storm sewer pipes are not necessarily an indication of flooding because streets are designed to convey water. However, in conjunction with the 100-year inundation depths, the most critical locations for undersized pipes and flooding potential may be identified.

4. Discussion and Recommendations

4.1 Flood Mitigation

With input from the City, the existing conditions XPSWMM model results were reviewed to identify several areas around the City that are prone to flooding or have other stormwater management issues. To mitigate these issues, proposed modeling was completed to identify future projects including upsizing storm sewer, expanding ponds, and providing additional storage within watersheds. A technical memorandum, cost estimate, and figure for each location and project can be found in **Appendix C**, as attached.

4.1.1 Area 1 – Industrial Park

Issue: A portion of the stormwater runoff from Airtech Industrial Park in the northeast corner of State Highway 21 and Interstate 35 discharges to existing basins that are undersized for the contributing drainage areas. Minor localized flooding occurs in the parking lots adjacent to the existing basins.

Corrective Action: To mitigate existing flooding and provide post development regional stormwater quality and quantity management, enhance the two existing basins with sedimentation basins sized to NURP standards and filter benches that allow the existing site as well as future development within the industrial park area to meet NPDES standards for stormwater management.

4.1.2 Area 2 – Twin Lakes

Issue: Several basins within the Twin Lakes chain lack functioning or adequate capacity outlets. The ultimate overland overflow from the chain of lakes is at 999-feet, causing flood waters in large storm events to back up on adjacent roadways.

Corrective Action: Install an outlet control structure from basin 20219 and a secondary outlet from basin 20220 to mitigate inadequate outlet capacity and overland flow issues. Upsize and lower the outlets from basin 20080, 20081, and 20154 to allow adequate freeboard between the 100-year 24-hour high water levels and the adjacent roadway shoulder.

4.1.3 Area 3 – 18th Avenue Outfall

Issue: Erosion is present at the storm sewer outfall from 18th Avenue. There is localized flooding at the low points along 18th Avenue and Paulis Drive due to limited inlet and pipe capacity. 18 acres of existing impervious area lack adequate stormwater management prior to discharging to the Cannon River.

Corrective Action: With the area slated to develop further, construct a regional basin to provide stormwater management to NPDES standards for the post development impervious area. To mitigate the erosion at the outfall, pipe the stormwater from 18th Avenue to the proposed basin. Upsize the trunkline storm sewer along Paulis Drive and 18th Avenue to pass the 10-year 24-hour storm event and provide additional inlet capacity within the watershed to mitigate localized flooding issues.

4.1.4 Area 4 – Park Avenue

Issue: Localized flooding along 5th Street, 6th Street, and 7th Street is present due to limited pipe and inlet capacity. In the 100-year 24-hour event, backwater from the Cannon River fills the storm sewer and prevents drainage through the system.

Corrective Action: Upsize the storm sewer in the area to adequately convey the 10-year 24-hour event. Provide additional inlet capacity at the low points. To offset the increased rates to Crocker's Creek due to larger pipes, enhance an existing basin adjacent to the Faribault Chamber of Commerce to provide stormwater management to an untreated portion of the watershed. Confirm and establish appropriate emergency overflows out of the low points.

4.1.5 Area 5 – Homes in Floodplain

Issue: Residential properties reside in the FEMA floodplain adjacent to the Cannon River.

Corrective Action: Options include floodproofing the homes, constructing a levee, and purchasing the residential properties to convert the area to open space.

4.1.6 Area 6 – Division Street

Issue: XPSWMM modeling indicates flooding potential on Division Street and adjacent streets due to undersized storm sewer along 3rd Street SW.

Corrective Action: Upsize the storm sewer along 3rd Street SW through to the outfall at Crocker's Creek to provide adequate capacity to convey the 10-year event. Provide adequate inlet capacity on 3rd Street. To offset increased runoff rates to Crocker's Creek due to the increased storm sewer size, locate stormwater treatment infrastructure within the watershed. Ensure that adequate freeboard is provided between the overland flow elevations from the low points and adjacent home low opening elevations.

4.1.7 Area 7 – Former Lockerby Property

Issue: Approximately 87 acres drain to the Straight River without adequate stormwater treatment via the storm sewer outfall adjacent to the former Lockerby property.

Corrective Action: With the potential for future development on the former Lockerby property, construct a series of NURP basins on the former Lockerby property and within a drainage and utility easement to the south of the property to provide stormwater management for the post development impervious area within the watershed.

4.1.8 Area 8 – Mattson Street

Issue: The culvert under Mattson Street is undersized for its contributing watershed and has nearly blown out in the past. Erosion is present upstream of the culvert.

Corrective Action: Construct a basin upstream of Mattson Street, install an outlet control structure, replace the pipe under Mattson Street, and construct ditch checks as grade control in the ditches upstream of the pond.

4.2 Future Modifications

The Citywide XPSWMM model may be used for stormwater analysis of existing conditions. As time and budget allows, the model may be updated for accuracy and consistency with as-built and survey data in the areas called out on **Figure 3,** as attached, **– Assumptions Map**. As future developments occur, the model may be updated accordingly to reflect new drainage patterns, storm sewer, and ponding areas.

5. References

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APPENDIX A

FIGURES

Figure 2 - 10-year Event Storm Sewer Capacity Map

017566-000 Citywide XPSWMM Model
City of Faribault, MN

N

0 1,100 Feet
1 inch = 1,100 feet

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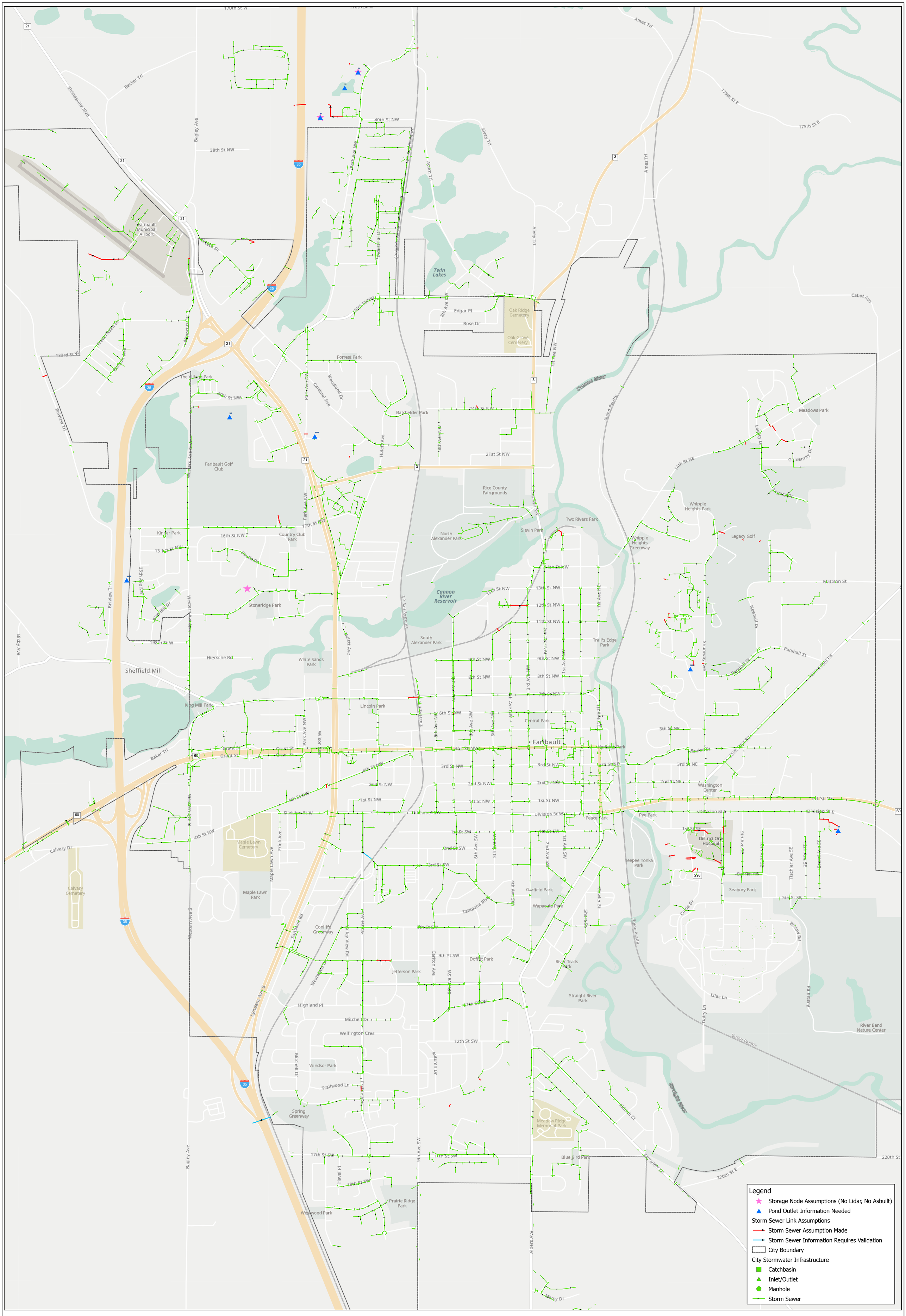

Figure 3 - Assumptions Map

017566-000 Citywide XPSWMM Model
City of Faribault, MN

N

0 950 Feet
1 inch = 950 feet

wsb

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APPENDIX B

TECHNICAL MODELING

Appendix Ba.

Conduit Factors

Table 1. Entrance Loss Coefficients[1]

Type of Culvert and Inlet Design	RCP Coefficient, Ke	CMP Coefficient, Ke	Box RCP (Assume no wingwalls) Coefficient, Ke
Projecting from fill, socket end (groove-end)	0.2		
Projecting from fill, sq. cut end	0.5	0.9	
Groove-End Headwall	0.2		
Square-Edge Headwall	0.5	0.5	0.5
Rounded	0.2		0.2
Mitered to conform to fill slope	0.7	0.7	
End section conforming to fill slope	0.5	0.5	
Beveled Edges	0.2	0.2	
Side or slope tapered inlet	0.2	0.2	

[1] Source: Environmental Protection Agency (2015). *Storm Water Management Model User's Manual Version 5.1*. Page 189.

Exit Losses: Modeling Culverts, Chapter 6, Page 27,
http://jon.sdsu.edu/protected18/cive530_HECRAS_RM_06.pdf

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
1038	957.01	961.544	7.567	970.004	10.701	970.967	6.603
1148	1068.12	1069.503	6.399	1075.533	14.897	1076.415	35.316
1249	1078.36	1079.367	4.074	1080.282	9.941	1086.165	17.424
1503	973	974.948	-0.935	977.084	-1.299	977.468	-1.06
1667	989.04	989.58	1.535	994.67	15.038	994.919	11.467
1676	988.578	988.85	0.392	994.38	6.967	994.899	30.95
1693	1055.5	1058.953	57.015	1061.559	99.314	1065.102	287.075
1706	1034.01	1035.131	5.443	1036.355	15.046	1039.332	42.013
1866	1045.665	1046.997	8.774	1050.586	26.445	1055.782	43.741
1907	1050.42	1053.102	18.745	1054.341	43.943	1058.538	102.934
1914	1053.209	1053.995	3.359	1054.639	8.539	1059.007	26.123
2575	1143.34	1143.586	1.798	1143.789	5.62	1147.823	16.699
3001	1058.97	1062.463	2.784	1063.499	7.332	1063.987	18.388
3172	990.56	990.903	1.493	992.296	7.423	998.007	17.811
3207	995.2	1006.345	11.435	1008.955	39.089	1010.603	47.127
3279	1044.93	1051.354	7.779	1051.874	27.603	1052.122	64.919
3316	970.22	970.411	0.846	971.145	2.638	972.615	7.765
3437	1015.1	1015.352	0.698	1016.116	2.92	1018.783	10.409
3505	1054.36	1055.264	3.461	1057.898	8.316	1059.431	39.95
3516	1059.01	1061.109	11.498	1064.829	32.317	1065.586	79.064
3535	1018.4	1019.864	6.686	1021.289	12.715	1024.038	23.751
3542	1024.6	1024.964	3.461	1026.534	6.645	1028.548	10.972
3547	1036.51	1037.21	1.705	1037.852	4.184	1040.999	9.759
3567	1063.39	1064.09	1.603	1064.808	4.941	1067.531	11.085
3570	1025.2	1025.45	1.187	1026.18	2.206	1027.14	4.499
3729	993.29	995.39	14.332	1002.26	35.208	1003.238	52.014
3787	985.04	985.411	0.322	986.433	3.841	990.7	10.126
3800	1003.51	1006.68	36.779	1007.302	47.365	1008.273	111.329
3822	1009.6	1010.1	1.94	1011.626	5.897	1014.662	24.415
3828	1005.57	1010.592	3.599	1014.894	7.592	1016.41	13.991
3852	991.18	992.922	20.87	997.689	49.139	1000.558	61.853

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
3869	1000.78	1001.114	0.842	1009.606	36.423	1010.875	186.638
3873	1003.97	1012.1	25.846	1013.513	54.274	1013.95	89.351
3976	969.4	969.827	-0.571	971.703	1.565	980.167	23.831
4051	991.65	992.842	3.273	998.14	11.614	998.934	257.14
4063	994.46	994.959	1.108	1000.749	-0.664	1002.468	149.424
4078	995.64	996.435	2.436	1002.409	9.777	1002.897	22.938
4353	980.63	982.704	16.053	984.19	31.346	988.86	66.307
4378	976.69	977.845	4.237	980.273	11.518	981.738	55.853
5017	1058	1059.258	2.997	1061.528	4.973	1063.95	5.559
5088	971.26	972.398	4.844	976.656	15.109	976.896	45.426
5126	1038.12	1039.012	3.372	1043.179	10.278	1045.577	13.633
5138	1067.54	1067.811	1.595	1068.704	3.663	1070.384	8.838
6023	990.69	991.176	1.111	994.433	-3.864	995.643	4.02
6068	1128.54	1129.667	3.301	1130.973	6.591	1133.283	9.474
6127	971.06	972.052	3.366	975.232	7.574	975.783	18.697
6514	1091.349	1095.209	6.137	1096.936	20.157	1097.46	30.294
1081	964.945	965.872	1.451	972.622	7.01	973.98	22.088
1283	961.468	963.783	5.105	968.089	14.269	968.37	42.883
1347	964.7	966.859	3.633	968.282	-16.292	969.998	-71.039
1359	965.936	969.041	6.964	969.356	18.655	969.999	36.698
1382	966.213	966.515	1.081	967.532	5.066	969.314	-84.25
1403	966.406	966.88	0.653	973.259	-8.058	974.982	28.52
1620	982.725	985.293	7.073	993.31	19.772	993.624	58.136
1959	963.79	964.487	1.665	969.612	4.345	970.02	11.927
1976	1007.03	1012.198	11.937	1012.735	38.391	1013.335	96.721
2009	1011.6	1012.53	3.661	1013.666	10.939	1015.598	32.357
2025	1005.96	1010.117	17.789	1010.762	31.822	1011.071	107.281
2089	1007.69	1008.67	3.385	1009.406	7.174	1012.331	15.835
2091	1009	1009.541	1.131	1009.895	2.4	1013.961	6.94
2134	1035.325	1036.37	3.694	1036.838	6.099	1037.848	10.472
2231	1011.836	1017.644	5.913	1018.428	11.08	1019.005	32.061

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
2274	1023.71	1024.017	0.808	1025.096	4.338	1029.189	16.121
2281	1047.29	1047.724	2.27	1048.632	6.178	1050.398	16.83
2344	1001.89	1003.984	20.589	1005.233	34.702	1006.921	45.291
2420	1006.23	1009.348	4.462	1012.744	12.127	1013.726	37.135
2433	1002.8	1003.136	1.837	1004.233	5.728	1007.491	17.062
2631	997.25	1000.811	17.068	1003.839	42.158	1004.932	125.954
2639	999.57	1005.676	14.491	1006.6	38.049	1006.946	91.259
2655	1021.264	1021.86	2.673	1022.347	5.175	1025.984	10.85
2657	1019.05	1019.54	3.871	1020.474	7.797	1025.892	18.553
2743	1047.353	1047.606	0.954	1048.267	3.073	1049.446	9.321
2750	1056.71	1057.526	3.355	1058.149	7.843	1059.523	19.166
3323	973.05	974.922	0.797	975.44	4.091	977.647	18.804
3342	973.7	974.121	0.387	975.228	3.202	976.883	16.966
3934	1006.8	1008.555	4.084	1009.965	9.386	1010.911	45.159
5193	972.14	973.906	0.393	974.777	2.84	975.322	44.63
5680	1040.54	1042.248	8.511	1044.456	14.04	1045.419	26.119
5939	995.4	996.584	4.073	997.64	7.056	999.533	12.56
6572	967	967.049	0	967.22	0	969.606	-44.327
7295	984.54	986.96	36.357	991.324	86.661	995.248	364.299
1818	1039.499	1042.425	3.296	1043.709	7.11	1045.069	-7.41
3284	1044.99	1051.355	10.888	1051.874	20.395	1052.122	42.557
206	978.5	982.473	8.462	982.77	42.61	984.324	89.574
207	979	983.077	1.691	983.208	2.78	984.324	-26.73
208	979.22	983.282	11.01	983.653	62.004	984.032	182.2
209	1070	1083.223	1.859	1083.695	14.522	1084.751	81.894
72	1040.45	1043.711	0	1045.002	0	1046.617	0.028
210	1068	1070.417	45.856	1072.472	107.856	1077.907	310.121
211	971.34	971.792	0.441	973.052	2.37	973.809	3.084
212	977.21	977.964	4.287	978.353	5.497	979.505	11.995
213	981	983.481	25.261	983.745	55.448	984.364	126.621
64	1008.5	1009.344	1.695	1009.735	3.221	1010.539	6.602

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
31	1015	1016.769	20.268	1017.9	39.056	1020.348	79.898
47	1057.5	1057.5	0	1057.508	0.007	1057.531	0.056
214	1012	1019.195	38.281	1027.498	59.368	1040.937	80.886
215	984	987.295	38.701	988.823	59.901	991.285	81.728
1	1072.8	1075.304	22.379	1075.861	57.136	1076.79	171.333
2	1084.28	1085.493	2.826	1086.66	4.949	1087.45	24.231
3	1072	1073.388	17.006	1074.753	47.513	1077.396	89.445
4	1084	1085.497	7.095	1086.746	21.297	1089.896	38.927
5	1053.699	1054.223	3.408	1054.92	6.354	1056.275	17.446
6	1006	1008.544	11.153	1009.939	12.31	1010.96	13.622
7	976	976.423	-0.754	977.332	2.44	980.416	5.385
8	1048	1051.238	14.8	1053.807	35.807	1054.957	126.838
9	1007.15	1007.77	17.411	1008.748	17.411	1010.192	27.01
10	1001	1001.985	21.558	1002.298	37.911	1002.553	54.381
11	997	997.942	8.26	999.301	15.179	999.703	33.819
12	997.5	998.492	6.054	999.293	12.083	999.65	25.511
13	962.3	962.913	15.516	963.852	15.516	967.613	25.373
15	1010.96	1012.826	6.184	1014.328	9.057	1014.741	29.346
16	1007.98	1009.66	1.887	1010.382	2.463	1011.776	3.382
18	1066	1066.853	6.37	1068.198	11.553	1069.552	51.888
19	1018	1018.38	0.882	1018.82	2.554	1019.813	7.63
20	1019.78	1024.353	42.789	1028.672	73.471	1034.714	101.936
22	1050	1051.4	7.488	1052.835	8.245	1055.28	35.109
23	1028	1028.822	0	1029.133	2.182	1029.376	17.07
24	1033.7	1033.871	8.884	1034.163	8.884	1035.087	8.884
25	1028.5	1028.887	5.287	1029.435	5.287	1030.936	7.588
26	1013.5	1013.801	1.143	1014.236	1.837	1015.022	4.663
27	970.08	970.724	1.178	971.585	2.608	976.154	3.302
28	1068	1070.875	-0.463	1071.526	2.987	1073.284	11.099
32	1003.15	1004.406	2.984	1005.184	7.255	1005.844	49.587
33	999	1000.205	-15.006	1001.35	-20.879	1004.051	-24.766

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
34	1002	1002.494	0	1003.648	-110.74	1004.866	-77.996
35	1092	1092.437	0	1092.996	0	1094.296	0
36	1099.5	1099.83	5.06	1100.009	11.664	1100.364	30.236
37	1077	1078.347	5.156	1079.276	16.665	1079.62	42.908
38	1109	1110.027	10.826	1111.168	23.489	1111.795	78.839
42	996	996.92	3.761	997.619	3.761	999.116	3.761
46	1058.27	1064.018	0.026	1064.291	1.635	1064.72	8.014
48	1053.4	1053.541	0.314	1053.639	0.764	1056.025	2.412
50	980.5	980.661	5.323	981.261	5.323	981.738	9.372
51	1052.09	1052.541	13.951	1053.216	13.951	1055.008	17.722
52	1012	1013.571	0.136	1013.79	2.592	1017.092	10.62
54	1014.199	1016.352	18.5	1017.401	40.401	1018.286	117.492
57	1090.85	1091.746	13.558	1092.736	13.558	1094.967	29.369
58	1039.92	1040.993	4.221	1041.484	7.109	1042.456	10.658
59	1044.23	1044.865	1.527	1045.07	2.683	1045.457	5.821
60	1047.86	1048.149	0.865	1048.271	2.062	1048.455	4.669
61	1043.41	1044.375	3.939	1044.68	8.322	1045.168	17.184
62	1079.7	1080.689	2.384	1082.913	6.387	1083.757	30.007
63	1011.5	1012.106	1.359	1012.488	3.406	1013.345	6.166
65	1008.5	1009.319	1.979	1009.709	3.748	1010.508	8.148
66	974.16	975.602	4.316	982.229	11.625	982.858	28.07
67	1004	1004.539	0	1004.982	0	1005.904	0
68	1001	1001.882	13.981	1003.979	47.881	1004.866	39.181
70	1005	1005.137	0.933	1005.232	2.337	1005.401	6.29
73	1094.9	1096.517	2.051	1097.584	13.33	1098.441	57.062
74	1023	1025.3	5.061	1026.83	7.023	1027.363	27.91
76	1008.1	1010.374	2.685	1010.949	3.007	1011.448	7.335
83	1172	1172.803	1.62	1173.301	3.141	1174.432	3.925
85	1060	1060.467	4.011	1061.091	8.601	1061.218	16.434
97	1060	1060.736	1.426	1062.135	2.759	1064.288	3.21
103	1028.39	1029.113	2.102	1029.442	3.672	1030.055	6.835

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
104	1006.5	1008.101	9.013	1009.054	14.281	1010.799	20.629
107	977.59	978.026	0.705	978.324	1.443	978.938	3.267
109	1045	1045.363	0.333	1046.101	0.702	1047.035	3.9
110	1044.25	1044.8	0.613	1045.786	1.167	1046.98	5.537
121	998.06	998.255	0.377	998.326	0.681	999.511	2.028
124	1028.75	1029.285	1.613	1029.963	2.769	1031.805	5.984
125	969	969.076	0.084	969.538	1.966	971.799	9.864
126	970	970.095	0.094	970.62	2.585	972.907	15.942
127	996.1	997.306	4.575	998.295	5.928	999.243	12.797
201	1041	1041.252	1.979	1041.422	4.95	1041.717	13.251
202	1027	1027.323	2.468	1027.565	6.77	1027.988	19.17
203	976	979.358	0	981.972	0	983.334	2.536
204	1027	1027.679	1.939	1028.138	2.65	1028.886	4.403
205	1014	1014.519	0	1015.112	0	1016.228	0
49	1071.62	1071.62	271.936	1071.62	271.911	1071.62	271.419
20000	1030	1030.785	0	1031.869	0	1033.387	7.514
20001	993.16	993.421	0.369	993.721	0.963	994.461	3.081
20002	1008.94	1010.006	5.085	1010.881	11.835	1011.838	35.417
20003	996.5	1005.282	6.109	1005.64	24.954	1006.135	68.996
20004	993.45	994.099	-1.205	994.225	-2.179	997.246	6.804
20005	1007.2	1009.326	23.558	1010.428	49.68	1012.421	126.812
20006	1042	1043.267	3.866	1043.709	5.097	1044.44	6.231
20007	973.06	973.25	1.062	973.996	3.503	976.951	13.901
20008	978	978.548	2.151	979.312	6.872	981.738	16.571
20009	976.44	976.732	1.027	977.528	3.217	979.015	7.208
20010	978	978	0	978.358	0	979.306	1.764
20011	1008	1009.278	0	1010.511	0.035	1010.754	17.195
20012	1000.55	1000.729	0.332	1004.808	-7.516	1006.74	167.781
20014	1141.72	1145.291	31.336	1145.708	64.588	1146.289	142.278
20017	1057.5	1058.831	48.222	1062.565	128.846	1073.246	349.17
20018	1071.93	1073.232	6.083	1074.711	15.467	1077.524	30.518

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
20019	1003.51	1008.25	122.806	1012.444	260.336	1017.092	626.107
20020	1046.1	1048.406	45.446	1049.771	110.282	1052.33	278.262
20021	1032.95	1034.042	3.242	1035.129	7.141	1036.099	36.603
20022	1061.58	1064.965	55.288	1068.09	99.885	1069.74	214.55
20023	1076.959	1079.928	5.143	1081.081	6.48	1082.245	57.663
20024	1054.68	1056.594	21.322	1059.251	67.075	1060.994	224.66
20025	1049.52	1051.336	23.891	1052.622	72.173	1055.253	231.955
20207	1022	1025.221	0	1027.42	0	1029.282	5.841
20026	1004	1004.813	0	1005.707	-1.518	1010.603	-154.871
20027	996.5	996.885	0.747	997.243	2.573	997.753	7.912
20028	970.5	971.814	-1.257	973.731	2.473	974.91	3.262
20029	1019.78	1023.065	43.305	1024.917	74.769	1027.608	103.615
20035	972	972.538	0	973.599	0	975.602	0
20036	994.77	995.031	0.33	995.433	2.077	996.524	-18.658
20037	999.74	1000.676	0.956	1001.077	5.342	1002.352	22.323
20038	999.57	999.981	1.071	1000.591	5.983	1001.929	24.361
20039	992.1	992.447	0.833	992.921	3.37	993.834	10.136
20040	991.28	991.476	0.946	991.693	3.791	993.148	11.633
20041	988.67	988.775	0.18	988.89	0.83	989.085	2.919
20042	984.53	984.606	0.076	984.726	0.541	984.975	2.369
20043	983.43	983.575	0.559	983.725	2.19	984.46	7.278
20044	980.84	982.226	1.719	982.905	4.34	984.17	10.893
20045	981.8	982.18	1.937	982.813	4.804	983.746	11.984
20051	1032	1032	14.745	1032	14.745	1032	14.745
20052	1004	1004.52	0	1005.114	0	1006.766	0
20053	1038	1042.307	0	1044.725	0	1045.748	17.017
20054	1014	1016.055	10.579	1016.631	24.743	1017.427	56.223
20055	1045.48	1045.951	0.543	1046.362	2.135	1047.141	7.068
20056	1038	1043.324	2.201	1044.115	2.368	1044.791	13.537
20057	1049	1050.214	6.056	1050.766	10.367	1051.648	24.092
20058	1054.55	1055.341	1.839	1055.723	3.109	1056.363	4.112

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
20059	1044.66	1044.696	0.015	1044.876	0.574	1046.004	5.208
20060	1041.729	1041.793	0.023	1043.253	1.564	1046.107	4.844
20061	1044.35	1045.779	7.776	1046.578	13.716	1047.639	21.985
20063	1035.3	1035.829	1.806	1036.623	4.078	1038.25	7.302
20064	1030	1030.516	10.075	1030.745	19.335	1030.962	31.156
20065	1042.59	1043.56	3.143	1044.118	4.802	1044.978	2.509
20066	1013.54	1016.522	5.258	1017.652	17.936	1018.111	26.126
20067	1010	1011.562	16.958	1012.6	36.925	1015.996	101.154
20068	1003	1004.686	0	1006.249	0	1009.237	2.013
20069	1006.97	1009.432	13.366	1010.321	17.617	1013.731	-167.945
20070	1006.37	1007.093	1.555	1007.763	3.086	1010.192	3.752
20075	989.99	993.158	64.449	994.55	108.201	998.156	200.952
20076	989.9	992.814	65.571	993.996	110.216	996.258	203.092
20077	1002.5	1004.602	2.215	1005.975	6.432	1007.984	13.844
20078	1002	1004.593	2.856	1005.899	8.177	1007.656	17.342
20079	998.16	1001.537	39.703	1002.67	56.37	1005.126	79.142
20080	1004.86	1005.525	1.248	1006.036	2.582	1007.074	4.337
20081	997.26	999.125	2.028	999.239	5.215	999.607	24.061
20082	1006	1006	2.182	1006.169	2.662	1006.607	3.825
20083	985.67	985.725	0.036	985.874	0.373	986.351	1.932
20084	1009.05	1012.108	-2.467	1012.742	3.443	1013.28	58.192
20085	1060	1065.352	26.118	1065.656	75.855	1066.186	217.972
20086	994	995.701	10.272	996.846	19.679	1001.355	38.8
20087	1079.65	1081.838	28.653	1082.32	61.581	1083.053	142.102
20088	1052.09	1055.158	48.845	1057.424	103.204	1063.459	185.998
20089	1040	1043.051	50.369	1045.405	106.175	1051.334	186.54
20092	1002	1004.589	38.2	1010.827	117.855	1027.871	242.142
20097	1028	1028.337	1.915	1028.654	5.855	1029.277	18.829
20098	966	966.123	0.755	968.543	-4.668	970.642	4.271
20099	1002	1003.129	3.374	1005.57	8.694	1009.391	19.361
20100	1000	1001.503	0	1003.545	0	1006.826	0

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
20103	996	996	32.925	996	32.925	996	32.925
20102	977	977.262	1.887	977.546	4.689	978.753	10.49
20101	994	994.596	1.561	995.064	3.734	996.328	7.72
20104	1011.5	1011.714	1.137	1012.037	2.172	1012.603	2.616
20106	994	994.032	4.21	995.009	5.921	996.107	24.145
20107	995.28	995.6	0.185	995.92	0.806	996.589	2.331
20108	998	998.518	0.755	998.84	1.405	999.495	5.054
20149	1019	1021.756	52.703	1023.181	95.689	1025.876	184.222
20154	991.06	995.127	45.525	997.32	62.024	999.958	78.729
20161	977.28	979.25	19.084	980.323	57.616	981.855	244.594
20162	990	993.703	12.047	994.067	25.874	995.624	152.3
20163	975.98	977.923	19.032	978.906	57.693	980.397	242.639
20164	971.73	973.86	19.472	975.397	60.871	976.821	250.332
20186	1079.24	1082.9	44.67	1086.253	79.587	1091.392	136.011
20198	999	1001.398	10.502	1003.53	22.927	1005.223	138.867
20200	966	966.463	3.277	966.935	8.528	967.768	21.077
20201	967	969.013	4.598	969.617	5.523	970.227	6.378
20208	979	979.934	0	980.58	0.167	981.036	5.274
20071	1005	1006.901	11.525	1010.367	64.472	1013.755	166.637
20182	961.7	964.264	50.214	965.935	121.974	970.119	290.745
20013	1094.66	1099.744	38.925	1103.426	89.414	1104.395	170.257
1826	1038.42	1040.326	11.532	1043.741	46.091	1045.081	191.413
2971	1123.57	1126.027	3.138	1126.236	6.087	1127.676	12.604
3189	988.19	991.545	35.754	992.891	49.929	996.522	40.472
3816	1003.33	1008.528	19.282	1009.925	26.452	1011.235	39.531
3979	970.8	972.68	17.682	974.001	36.777	981.296	59.099
5127	1039.189	1039.344	0.023	1043.197	1.713	1045.577	-1.52
20203	1004	1006.166	11.489	1010.367	23.725	1013.755	36.716
20030	989.211	991.504	211.733	994.842	574.643	998.477	1768.412
56711	969.2	970.155	0	971.096	-1.935	973.291	-6.418
35751	972	972	0	972.475	0	973.346	0

Basin/Low Point ID	Modeled NWL	2-year Event		10-year Event		100-year Event	
		Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge	Modeled HWL	Peak Discharge
	ft	ft	cfs	ft	cfs	ft	cfs
54401	972.34	973.25	2.488	976.592	4.946	977.251	11.634
20218	984	985.704	0	987.424	0	990.616	0
20217	988	988.761	0	989.949	0	992.126	0
20219	996	996.605	1.956	997.282	6.26	997.609	20.014
20220	990	991.601	1.8	993.467	2.695	997.487	4.077
20221	997	997.557	0.968	997.94	2.015	998.632	3.88
20223	972	974.217	0.128	974.262	1.221	974.299	2.749

APPENDIX C

CIP MEMOS

Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 1 – Industrial Park
WSB Project No. 017566-000

Background

A portion of the stormwater runoff from the existing Airtech Industrial Park in the northeast corner of State Highway 21 and Interstate 35 discharges to existing basins (#54 and #103) that are undersized for the contributing watersheds. To provide adequate stormwater management for the existing and post development impervious area within the industrial park, the City of Faribault would like to install a regional best management practice.

Risk Assessment

The undersized Airtech Industrial Park ponds contribute to minor localized flooding and provide insufficient stormwater treatment for the total 32.7-acre tributary area in existing conditions.

Existing pond #54 has a 100-year high water level of 1,018.3 and existing pond #103 has a 100-year high water level of 1,030.1 according to the Citywide XPSWMM model. The 100-year inundation boundaries minorly impact the adjacent parking lots.

Ponds #54 and #103 do not provide any volume reduction via an infiltration mechanism, failing to meet volume control standards outlined in the current National Pollutant Discharge Elimination System (NPDES) permit. Although the existing development within the watershed occurred prior to the current NPDES requirements, the water quality volume to treat the entire tributary area plus the portion of the industrial park that can be routed to the pond in post development is shown in **Table 1,** as attached. Post development runoff rates from the site may not exceed existing rates according to **Table 2,** as attached.

Table 1. *Water Quality Volume Required*

Approximate Post Development Impervious Area (ac)	Required Treatment Volume (ac-feet)
46.8	3.9

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Table 2. *Rate Control*[1]

Storm Event	Southeast Runoff Rate (cfs)	Northeast Runoff Rate (cfs)
2-year	20.6	24.1
10-year	44.1	45.3
100-year	124.1	84.3

[1]Approximate existing conditions runoff rates from the Citywide XPSWMM model. May be refined at the time of final design.

The total post development impervious area was determined by adding an assumed 80 percent of the existing undeveloped parcels slated for commercial or industrial development within the industrial park direct drainage area to the existing impervious area. The required post development treatment volume was calculated by multiplying the total post development impervious area by 1-inch.

Site constraints including the presence of hydrologic group D soils as well as a high vulnerability DWSMA preclude the use of infiltration to meet volume control requirements. Thus, treatment of the required water quality volume shall be provided to the maximum extent possible focusing on BMPs that provide pollutant removal from the watershed.

Recommended Risk Reduction Options

To mitigate existing flooding and provide post development regional stormwater quality and quantity management, several options may be pursued. Both are illustrated on **Figure 1,** as attached.

Option 1: Expansion and Enhancement of Existing Wet Basins

Two wet basins (#54 and #103) exist along the southeast side of the Airtech Industrial Park. Expand each wet pond to meet Nationwide Urban Runoff Program (NURP) standards (dead storage volume to treat 2.5 inches over the entire watershed draining to the pond).

Enhance the two existing basins with a filter bench sized to treat all tributary post development impervious area and meet the 48-hour drawdown requirement per the Minnesota Stormwater Manual.

Install outlet control structures from basin #54 and basin #103 that allow the site to meet rate control per **Table 2,** as attached.

Route runoff from the north portion of the drainage area to basin #54 by extending the storm sewer within Airtech Court and removing two outfalls on the north and northeast side of the industrial park.

The existing building adjacent to the two basins has a finished floor elevation (FFE) and low opening of approximately 1,026 feet (LiDAR). The low floor elevation will be a minimum of 1 foot above the normal water level of the adjacent basins and the low opening elevation will be a minimum of 2 feet above the high-water level for the 100-year event. The low opening must also be 1 foot above the emergency overflow elevation. To reduce the chance of parking lot flooding, the 100-year high water level shall be 1 foot below the edge of shoulder.

The approximate design components and quantities are outlined in **Table 3,** as attached.

Table 3. *Option 1 Preliminary Design Outline*

Name	Design Component	Quantity	Unit
Trunkline Storm Sewer[1]	36-inch Pipe	2,700	feet
Basin 54	Drainage Area	73.4	acres
	Normal Water Level	1,011	feet
	Maximum HWL	1,018	feet
	Approximate Proposed HWL	1,017.3	feet
	Maximum EOF Elevation	1,019	feet
	Proposed EOF Elevation	1,019	feet
	Filter Bench Surface Area	1.13	acres
	Water Quality Depth	1.5	feet
	Water Quality Volume	3.5	acre-feet
	NURP Pond Surface Area	1.1	acres
	NURP Pond Average Depth	9	feet
	Outlet Control Structure Orifice	21	inches
Basin 103	Drainage Area	10.0	acres
	Normal Water Level	1,020	feet
	Maximum HWL	1,024	feet
	Approximate Proposed HWL	1,023.9	feet
	Maximum EOF Elevation	1,025	feet
	Proposed EOF Elevation	1,025	feet
	Filter Bench Surface Area	0.25	acres
	Water Quality Depth	1.3	feet
	Water Quality Volume	0.68	acre-feet
	NURP Pond Surface Area	0.25	acres
	NURP Pond Average Depth	7	feet
	Outlet Pipe	27	inches

[1]Does not include storm sewer necessary for new development.

Volume control will not be met to NPDES standards because infiltration is limited due to site conditions. However, NURP basins with filtration benches may remove up to 90 percent of the total phosphorus and 90 percent of the total suspended solids (BMP standard removals, Carver County Water Resource Management Ordinance and BMP Guidelines, 2016). The water quality volume provided by the filter benches is greater than the required water quality volume, as outlined in **Table 4,** as attached.

Table 4. *Water Quality Volume Provided*

Approximate Post Development Impervious Area (ac)	Required Treatment Volume (ac-feet)	Provided Treatment Volume (ac-feet)
46.8	3.9	4.2

Preliminary XPSWMM modeling of the existing and post development conditions indicates that rate control can be met for the site according to **Table 5,** as attached.

Table 5. *Proposed Rate Control*

Storm Event	Existing Southeast (cfs)	Existing Northeast (cfs)	Proposed Southeast (cfs)	Existing Southeast (cfs)
2-year	20.6	24.1	9.8	0
10-year	44.1	45.3	28.7	19.3
100-year	124.1	84.3	37.4	62.0

Localized flooding shall be mitigated. The proposed HWLs for basin #54 and #103 are 1017.3 and 1023.9, not impacting the adjacent parking lots and meeting freeboard requirements.

The exact routing of the collection and conveyance system shall be determined at the time of final design.

Option 2: Expansion and Enhancement of Existing Wet Basins and Future Development Onsite Treatment

To reduce the trunkline storm sewer and surface area needed for regional basin #54, the future development in the northwest corner of the industrial park may provide onsite treatment via basin #20063 and #20064. The developer would be responsible for meeting volume and rate control requirements for their parcel.

Differences from Option 1 include storm sewer routing and basin size. Install storm sewer to connect basin #20063 to #20064 which would then outlet to the wetland to the north via an existing outfall. The runoff from the parking lot on the north side of the industrial park would still be required to be collected and conveyed via storm sewer along Airtech Court to basin #54.

Approximate public design components and quantities are outlined in **Table 6,** as attached.

Table 6. *Option 2 Preliminary Design Outline*

Name	Design Component	Quantity	Unit
Trunkline Storm Sewer[1]	24-inch Pipe	2,120	feet
Basin 54	Drainage Area	42.8	acres
	Normal Water Level	1,011	feet
	Maximum HWL	1,018	feet
	Approximate Proposed HWL	1,018	feet
	Maximum EOF Elevation	1,019	feet
	Proposed EOF Elevation	1,019	feet
	Filter Bench Surface Area	0.9	acres
	Water Quality Depth	1.5	feet
	Water Quality Volume	2.7	acre-feet
	NURP Pond Surface Area	0.9	acres
	NURP Pond Average Depth	8	feet
	Outlet Control Structure Orifice	21	inches
Basin 103	Drainage Area	10.0	acres
	Normal Water Level	1,020	feet
	Maximum HWL	1,024	feet
	Approximate Proposed HWL	1,023.9	feet
	Maximum EOF Elevation	1,025	feet
	Proposed EOF Elevation	1,025	feet
	Filter Bench Surface Area	0.25	acres

	Water Quality Depth	1.3	feet
	Water Quality Volume	0.68	acre-feet
	NURP Pond Surface Area	0.25	acres
	NURP Pond Average Depth	7	feet
	Outlet Pipe	27	inches

[1]Does not include storm sewer necessary for new development.

Preliminary Cost Estimate

The expansion and enhancement of two regional NURP basins with filter benches according to Option 1 has an estimated capital cost of $1.99 million. By following Option 2, a $414,000 savings to the City is approximated. See the detailed cost estimates below.

Preliminary Opinion of Probable Cost				
Option 1: Expansion and Enhancement of Existing Wet Basins				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 66,000	$ 66,000
Clearing and Grubbing	AC	2.2	$ 7,500	$ 16,500
Excavation/Grading	CY	46420	$ 8	$ 371,360
Underdrain with pea gravel and geotextile	LF	1350	$ 35	$ 47,250
Extend/Replace Inlet Structure	Each	2	$ 3,000	$ 6,000
Engineered Filter Media	CY	3340	$ 150	$ 501,000
Outlet Control Structure	Each	2	$ 5,000	$ 10,000
Trunkline Storm Sewer (36")	LF	2700	$ 125	$ 337,500
Erosion Control	LS	1	$ 16,000	$ 16,000
Site Restoration	LS	1	$ 10,000	$ 10,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 1,381,610**
20% CONTINGENCIES				**$ 276,322**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 1,657,932**
20% ENGR., FISCAL & ADMIN				**$ 331,586**
TOTAL ESTIMATED PROJECT COSTS				**$ 1,989,518**

Preliminary Opinion of Probable Cost				
Option 2: Expansion and Enhancement of Existing Wet Basins				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 52,110	$ 52,110
Clearing and Grubbing	AC	1.8	$ 7,500	$ 13,500
Excavation/Grading	CY	36380	$ 8	$ 291,040
Underdrain with pea gravel and geotextile	LF	1300	$ 35	$ 45,500
Extend/Replace Inlet Structure	Each	2	$ 3,000	$ 6,000
Engineered Filter Media	CY	2780	$ 150	$ 417,000
Outlet Control Structure	Each	2	$ 5,000	$ 10,000
Trunkline Storm Sewer (24")	LF	2120	$ 110	$ 233,200
Erosion Control	LS	1	$ 16,000	$ 16,000
Site Restoration	LS	1	$ 10,000	$ 10,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 1,094,350**
20% CONTINGENCIES				**$ 218,870**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 1,313,220**
20% ENGR., FISCAL & ADMIN				**$ 262,644**
TOTAL ESTIMATED PROJECT COSTS				**$ 1,575,864**

Existing Issues:
- The Airtech pond (Basin 54) is undersized for the existing tributary area and does not provide adequate stormwater management.
- The 100-year high water levels of Basin 54 and Basin 103 contributes to flooding within the adjacent parking lots.

Recommendation:
- Option 1:
  > Expand and enhance Basins 54 and 103 to treat the existing and post development impervious area within the industrial park. Filter benches and outlet control structures shall be installed to control discharge volumes and rates. Collect and convey stormwater runoff from the industrial park to the expanded basins.
- Option 2:
  > In addition to the improvements outlined in Option 1, developments in the northwest corner of the industrial park shall provide onsite treatment to reduce the surface area needed for Basin 54.

Legend

- Basin ID
- Option 1 Drainage Area
- Option 2 Drainage Area
- Recommended BMP Expansion and Enhancement
- Optional BMP to Decrease Size of Recommended BMPs
- Option 1 Recommended Storm Sewer
- Option 2 Recommended Storm Sewer
- Recommended Storm Structure
  - Manhole
  - Outlet Control Structure
- Future Land Use
  - Commercial/Industrial Mixed Use
  - Developable Area
  - Existing Storm Sewer
- Existing Stormwater Pond
- Existing 100-year HWL
- DNR Public Waters
- National Wetland Inventory
- Parcels
- City Boundary

City of Faribault

Figure 1 - Area 1, Industrial Park

CIP Risk Analysis and Proposed Improvements
City of Faribault, MN

N

0 350 Feet
1 inch = 350 feet

wsb

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Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 2 – Twin Lakes
WSB Project No. 017566-000

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Background

The City of Faribault has identified the need for a secondary outlet from basin 20220, the final waterbody in the Twin Lakes chain. The basin currently outlets via a submerged pipe to a channel which flows to the Cannon River. In addition, the drain tile outlet from basin 20219 has degraded over time and is no longer functioning as intended. Twin Lakes are MnDNR Public Waters and five lakes within the chain are identified in the National Wetland Inventory. **Figure 2,** as attached**,** outlines the existing conditions and a future improvement schematic.

Risk Assessment

Without a functioning outlet, basin 20219 outlets by overtopping a natural overflow at 997-feet. Water must then travel over a 3.2 percent slope to reach the downstream waterbody (basin 20220), increasing the risk of channel erosion between basin 20219 and basin 20220.

The natural overflow elevation from basin 20220 is at 999-feet. In a major flooding event, the water must build up in basin 20220 and basin 20219 to the overflow elevation before basin 20220 can discharge. This causes overtopping of Alvey Trail, a rural roadway, and the water level coming within several feet of Acorn Trail.

From the existing conditions XPSWMM analysis, there does not appear to be any primary structures impacted by the 100-year high water levels adjacent to the five lakes. However, basins 20220, 20080, and 20081 have a modeled 100-year high water level that comes within a foot of the adjacent roadways, Alvey Trail and Acorn Trail.

Survey along Acorn Trail is recommended prior to pursuing a risk reduction option to accurately determine the roadway shoulder elevation, culvert sizes, culvert invert elevations, and current normal water level of all five basins.

Proposed Risk Reduction Option

Option 1: Install New Outlet Infrastructure from Basins 20220 and 20219

The City indicated that outlet structure updates to basins 20220 and 20219 are a high priority. To minimize risk, it is recommended to install outlet control structures that will allow for 1-foot of

freeboard from the roadway shoulders to the 100-year high water level, consistent with the MnDOT Drainage Manual.

Install an outlet control structure with an inlet pipe, outlet pipe, and grate overflow to control discharge from basin 20219 to basin 20220. Lower the normal water level of basin 20219 to allow for adequate freeboard from the 100-year high water level to the emergency overflow elevation to reduce erosion potential by avoiding consistent use of the emergency overflow. The design components are listed below.

- Install an outlet control structure with a 5-foot diameter, a grate at 996.9-feet, a 24-inch RCP into the structure at 994.5-feet to set the normal water level, and a 24-inch RCP primary outlet that is 230-feet long with a 0.7 percent slope.
- The overland emergency overflow from basin 20219 to basin 20220 shall be built up to 997.6-feet to allow for 1-foot of freeboard between the 100-year high water level and the overflow.

In addition to the existing submerged outlet pipe, install a secondary outlet from basin 20220, which outfalls into the downstream channel, to lower the high-water level of basin 20220. An outlet control structure with a weir and orifice is recommended to control the outflow rates and the 100-year high water level, as listed below.

- Install an outlet control structure with a 5-foot diameter, a weir wall at 996-feet, an 8-inch orifice in the weir wall at 992-feet, and a 24-inch RCP primary outlet that is approximately 145-feet long with a 1.4 percent slope.

With the recommended outlet configuration, the peak discharge rates will be slightly increased at the ultimate discharge point (i.e., the channel which flows to the Cannon River), but the 100-year high water level will be reduced in basins 20219 and 20220. See **Table 1** and **Table 2,** as attached. It is important to note that without modifying the outlets from the upstream lakes in the chain, the 100-year high water levels of basins 20080 and 20081 are still within 1-foot of Acorn Trail's shoulder, failing to meet freeboard requirements.

Table 1. *Discharge Rates from Basin 20220 to Channel*

Storm Event	Existing Discharge Rate (cfs)	Option 1 Recommended Condition Discharge Rate (cfs)
2-year	1.8	1.8
10-year	2.7	4.2
100-year	4.1	8.0

Table 2. *Option 1 Basin 100-year High Water Levels*

Basin	Existing HWL (ft)	Option 1 Recommended Condition HWL (ft)	Allowable HWL (Provides 1-foot of Freeboard to Roadway) (ft)
20220	997.5	995.3	997.0
20219	997.6	996.6	997.5
20221	998.6	998.6	999.0
20082	1006.6	1006.6	1007.0
20080	1007.1	1007.1	1007.0
20081	999.6	999.6	997.5
20154	1000.0	1000.0	1001.0

To account for the slightly increased rates out of basin 20220, streambank stabilization measures are recommended downstream in areas susceptible to erosion.

Option 2: Upsize Outlets on Five Lakes

To meet the MnDOT freeboard requirement of 1-foot from the 100-year HWL to the shoulder of the adjacent roadway for all 5 basins as shown in **Table 3,** as attached**,** install outlets from the basins according to Option 1 and the sizes listed below.

- Upsize the driveway culvert outlets from basin 20080 to basin 20081 from a 12-inch CMP to a 24-inch RCP.
- Lower and upsize the driveway culvert outlet from basin 20081 to basin 20154 from an 8-inch CMP to a 42-inch RCP with an upstream invert at 994-feet.
- Upsize the culvert under Acorn Trail from basin 20154 to basin 20220 from a 36-inch CMP to a 42-inch RCP.

Table 3. *Option 2 Basin 100-year High Water Levels*

Basin	Option 2 Recommended Condition 100-year HWL (ft)	Allowable HWL (Provides 1-foot of Freeboard to Roadway) (ft)
20220	996.0	997.0
20219	996.1	997.5
20221	998.6	999.0
20082	1006.6	1007.0
20080	1006.8	1007.0
20081	997.3	997.5
20154	997.2	1001.0

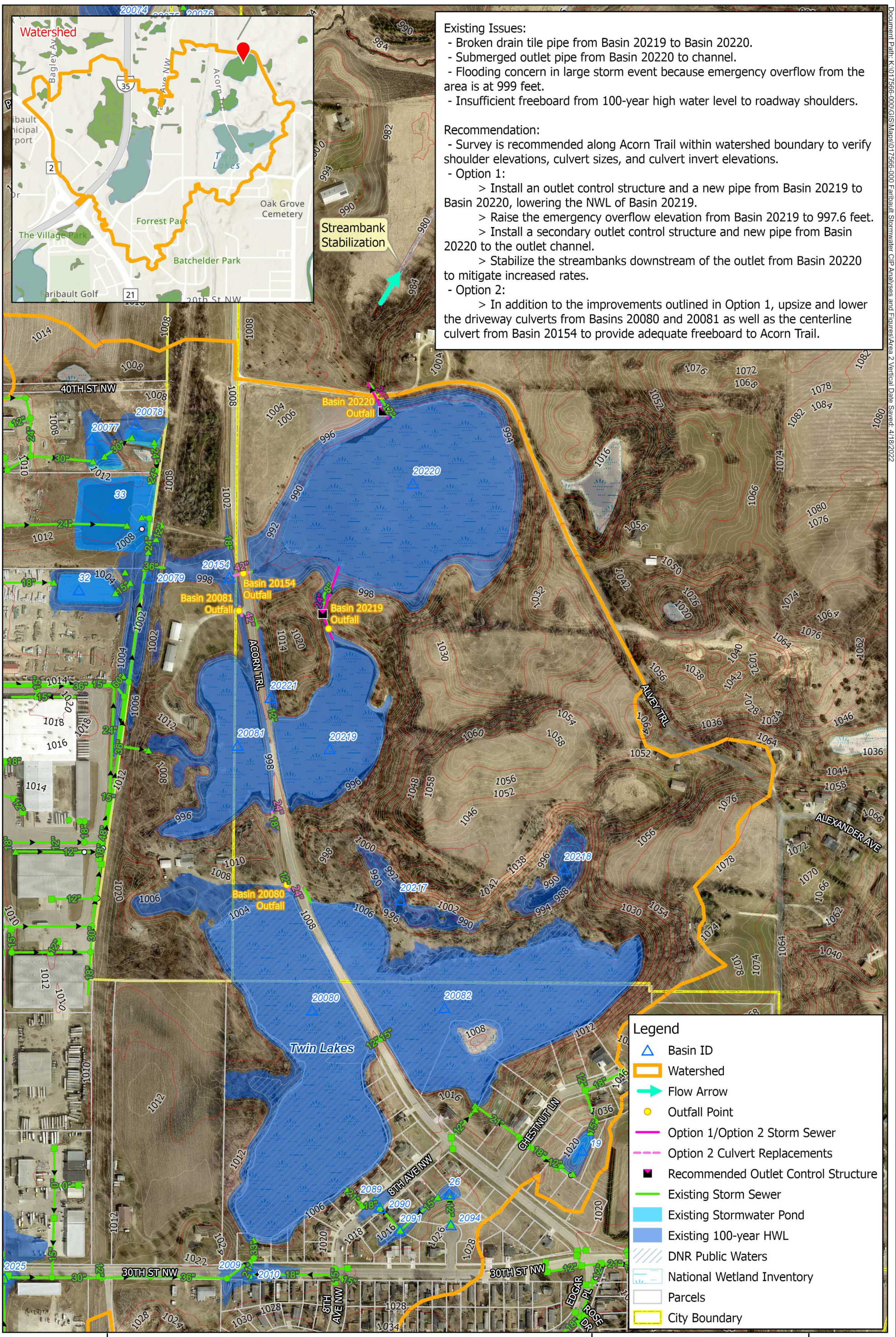
Preliminary Cost Estimate

Option 1 is anticipated to cost $341,000, including contingencies and indirect costs. Option 2 is estimated to cost $571,000, including contingencies and indirect costs. Detailed cost estimates are included below.

Preliminary Opinion of Probable Cost				
Option 1: Twin Lakes Outlet Modifications				
City of Faribault				
Description	Unit	Qty	Unit Price	Extension
Mobilization	LS	1	$ 11,000	$ 11,000
Access Road	LF	550	$ 6	$ 3,300
Clearing and Grubbing	AC	0.1	$ 7,500	$ 750
Removal and Disposal of Tile Line	LF	350	$ 5	$ 1,750
24" RCP Storm Sewer	LF	540	$ 110	$ 59,400
Outlet Control Structure 1	EACH	1	$ 8,000	$ 8,000
Outlet Control Structure 2	EACH	1	$ 12,000	$ 12,000
Demolition of Roadway	SY	200	$ 20	$ 4,000
Rural Roadway Reconstruction	LF	150	$ 150	$ 22,500

Streambank Stabilization	LS	1	$	100,000	$	100,000
Site Restoration	LS	1	$	9,000	$	9,000
Erosion Control	LS	1	$	5,000	$	5,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**236,700**
20% CONTINGENCIES					**$**	**47,340**
TOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**284,040**
20% ENGR., FISCAL & ADMIN					**$**	**56,808**
TOTAL ESTIMATED PROJECT COSTS					**$**	**340,848**

Preliminary Opinion of Probable Cost						
Option 2: Twin Lakes Outlet Modifications						
City of Faribault						
Description	**Unit**	**Qty**	**Unit Price**		**Extension**	
Mobilization	LS	1	$	19,000	$	19,000
Access Road	LF	550	$	6	$	3,300
Clearing and Grubbing	AC	0.3	$	7,500	$	2,250
Removal and Disposal of Tile Line	LF	350	$	5	$	1,750
Removal and Disposal of Culverts	LF	120	$	10	$	1,200
24" RCP Storm Sewer	LF	590	$	110	$	64,900
42" RCP Culvert	LF	135	$	175	$	23,625
Outlet Control Structure 1	EACH	1	$	8,000	$	8,000
Outlet Control Structure 2	EACH	1	$	12,000	$	12,000
Demolition of Roadway	SY	600	$	20	$	12,000
Rural Roadway Reconstruction	LF	150	$	150	$	22,500
Driveway Reconstruction	LF	640	$	90	$	57,600
Roadway Reconstruction	LF	130	$	350	$	45,500
Streambank Stabilization	LS	1	$	100,000	$	100,000
Site Restoration	LS	1	$	16,000	$	16,000
Erosion Control	LS	1	$	7,000	$	7,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**396,625**
20% CONTINGENCIES					**$**	**79,325**
TOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**475,950**
20% ENGR., FISCAL & ADMIN					**$**	**95,190**
TOTAL ESTIMATED PROJECT COSTS					**$**	**571,140**



City of Faribault

Figure 2 - Area 2, Twin Lakes

CIP Risk Analysis and Proposed Improvements
City of Faribault, MN

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Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 3 – 18th Ave Outfall
WSB Project No. 017566-000

Background

The existing 18th Avenue and Paulis Drive storm sewer discharges directly to a wetland area between 18th Avenue and Lyndale Avenue (State Highway 21). The City of Faribault has reported that erosion is present at the outfall. In addition, localized flooding is present on Paulis Drive and 18th Avenue. As future development is anticipated in the area, the City desires a regional pond to provide stormwater management for the post development impervious area. **Figure 3,** as attached, outlines the existing conditions and a future improvement schematic.

Risk Assessment

The 18th Avenue and Paulis Drive storm sewer outfall discharges into a ravine approximately 15 vertical feet above the downstream wetland. The point source flow passes over a slope which has resulted in erosion, carrying sediment downstream.

XPSWMM modeling shows localized flooding at 18th Avenue and Paulis Drive, potentially impacting several primary structures in the area. The flooding is a result of undersized storm sewer that is unable to convey the full 10-year event and insufficient inlet capacity to capture all runoff. In addition, per LiDAR elevations, basin 20000 and low point 3934 utilize emergency overflow paths in the 100-year event, adding additional water to the undersized storm sewer system.

The total watershed area to the low point downstream of the 18th Avenue and Paulis Drive storm sewer outfall is 283.8 acres. 70.2 acres of the total watershed area has inadequate stormwater treatment and contributes 18 acres of existing untreated impervious area to Cannon River, which is listed as impaired for aquatic life and aquatic recreation. Future commercial and residential development is planned in the area, which will increase the total impervious area within the watershed.

For development and redevelopment, the National Pollutant Discharge Elimination System (NPDES) permit requires permanent stormwater management. Although the development in the watershed occurred prior to the current NPDES requirements, the water quality volume to treat the post development area is shown in **Table 1,** as attached. Proposed runoff rates may not exceed the existing runoff rates tabulated in **Table 2,** as attached.

Table 1. *Water Quality Volume*

Post Development Impervious Area (ac)	Required Treatment Volume[1] (ac-feet)
30	2.5

[1]1 inch of runoff from post development impervious area

Table 2. *Rate Control*

Storm Event	Runoff Rate (cfs)
2-year	29.1
10-year	68.0
100-year	278.1

The post development impervious area within the drainage area to be treated is estimated to be 30 acres (assuming 68 percent impervious for commercial and residential mixed use future development area).

Site constraints including the presence of a high vulnerability DWSMA preclude the use of infiltration to meet volume control requirements. Thus, treatment of the required water quality volume shall be provided to the maximum extent possible focusing on BMPs that provide pollutant removal from the watershed.

Proposed Risk Reduction Option

Regional Basin

Construct a regional Nationwide Urban Runoff Program (NURP) basin with a filter bench to treat the drainage area that currently discharges untreated to the Cannon River.

The future regional basin should be sized to contain the 100-year storm event from the entire contributing watershed (283.8 acres) to provide flood control.

A NURP basin with a filter bench is recommended to provide adequate pretreatment, treatment of the water quality volume, storage, and drawdown requirements. Site the basin adjacent to the existing wetland. The exact location shall be determined during site design considering the developable area and depth to groundwater.

The existing building to the north of the recommended basin location has a low opening and low floor elevation of approximately 990-feet (LiDAR). The low floor elevation will be a minimum of 1 foot above the normal water level of the adjacent basins and the low opening will be a minimum of 2-feet above the high-water level for the 100-year event. The low opening must also be 1 foot above the emergency overflow elevation.

Basin preliminary design components are listed in **Table 3,** as attached.

Table 3. *Regional Basin Preliminary Design Outline*

Design Component	Quantity	Unit
Drainage Area	283.8	acres
Normal Water Level	978	feet
Maximum HWL	988	feet
Approximate Proposed HWL	987.6	feet
Maximum EOF Elevation	989	feet
Proposed EOF Elevation	989	feet
Filtration Surface Area at NWL	0.8	acres

Water Quality Depth	0.9	feet
Water Quality Volume	2.5	acre-feet
NURP Pond Surface Area at NWL	2.1	acres
NURP Pond Average Depth	4	feet
Outlet Control Structure Orifice	36	inch
Outlet Control Structure Orifice Elevation	978.9	feet

The peak flow rates out of the regional basin will allow the area to meet rate control requirements as shown in **Table 4,** as attached.

Table 4. *Proposed Rate Control*

Storm Event	Existing Runoff Rate (cfs)	Proposed Runoff Rate (cfs)
2-year	29.1	7.8
10-year	68.0	25.0
100-year	278.1	91.7

Erosion Mitigation

To mitigate the erosion concern, it is recommended to pipe the storm sewer outfall from 18th Avenue to the proposed regional basin. Fix any existing erosion with fill and stabilize with vegetation.

Storm Sewer and Street Flooding at Low Points

Upsize the trunkline storm sewer from the intersection of Paulis Drive and 19th Avenue through to the outfall to the regional basin as outlined below.

- 36-inch pipes with 0.5 percent slopes along Paulis Drive and 1 percent slopes along 18th Avenue to the outfall are needed to convey the stormwater in the 10-year event.
- The storm sewer will need to be lowered to the outfall to provide adequate cover.
- To mitigate inlet capacity issues and meet MnDOT State Aid spread requirements for an assumed ADT of 1,500 and a design speed less than 40 mph, add:
    - Three additional catch basins upstream of the low point on the south/west side of Paulis Drive.
    - One additional catch basin at the low point on the south/west side of Paulis Drive for a total of two catch basins at the low point.
    - Three additional catch basins upstream of the low point on the north/east side of Paulis Drive.
    - One additional catch basin at the low point on the north/east side of Paulis Drive for a total of two catch basins at the low point.
    - One catch basin south of the low point on the west side of 18th Avenue.
    - Two additional catch basins at the low point on the west side of 18th Avenue for a total of three catch basins at the low point.

Upsizing the storm sewer will allow for adequate conveyance for the 10-year, 24-hour storm event within the pipes, reducing the frequency of street flooding. XPSWMM modeling of the 100-year event shows that the storm sewer upsizing will reduce high water levels at low points on Paulis Drive and 18th Avenue according to **Table 5**, as attached. When reconstructing storm sewer in Paulis Drive and 18th Avenue, ensure that the overland flow routes out of the low points have 2-feet of freeboard to the nearby structures to reduce flood potential in large storm events.

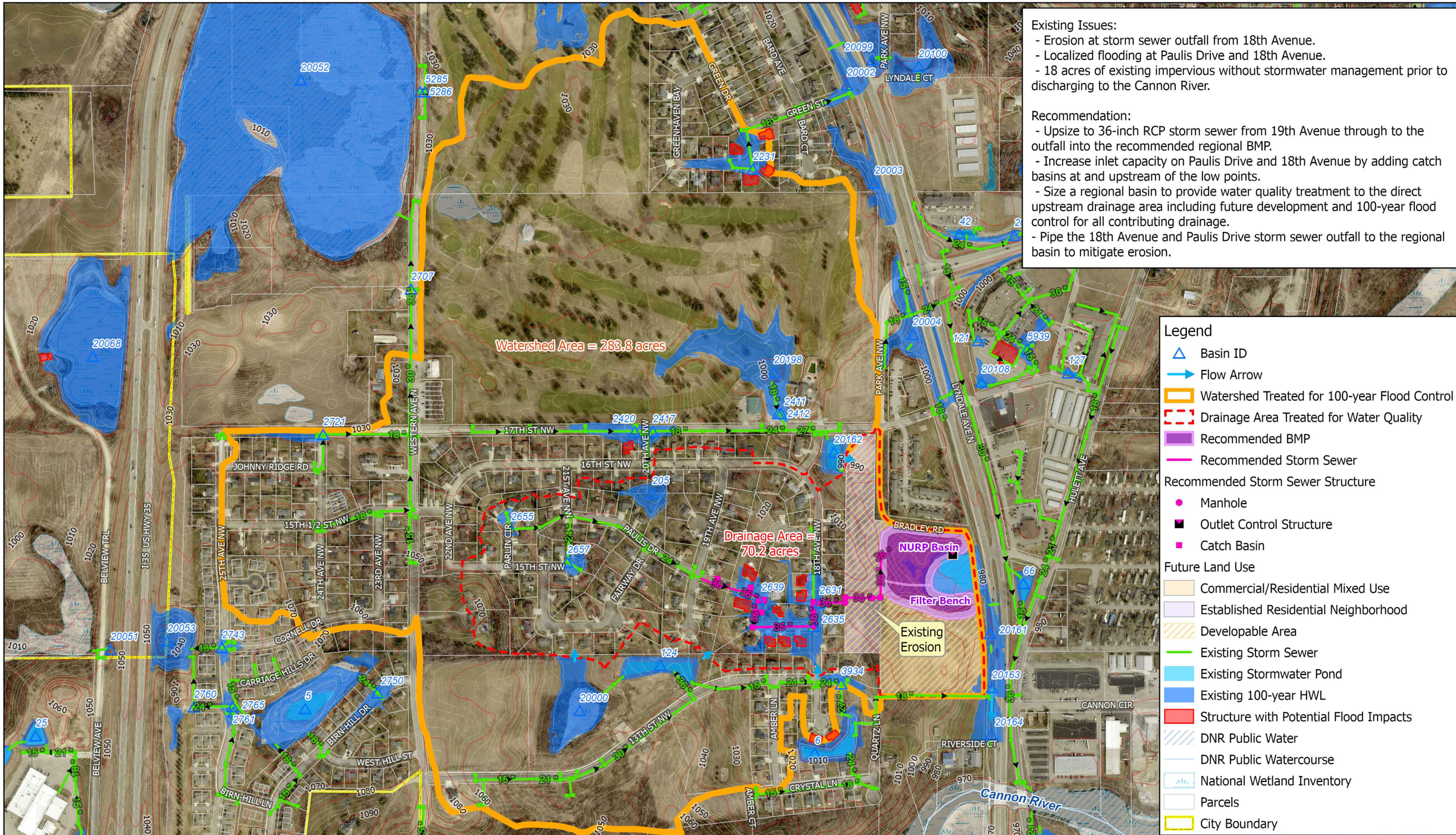
Table 5. *18th Avenue and Paulis Drive 100-year HWLs*

XPSWMM Node	Existing HWL (ft)	Proposed HWL (ft)	Reduction (ft)
2631	1004.9	1004.6	-0.3
2639	1006.9	1006.8	-0.1

Preliminary Cost Estimate

The proposed improvements are anticipated to cost $1.925 million, outlined in the cost estimate below.

Preliminary Opinion of Probable Cost				
Regional Basin and Storm Sewer Improvements				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 64,000	$ 64,000
REGIONAL BASIN				
Clearing and Grubbing	AC	3	$ 7,500	$ 22,500
Excavation/Grading	CY	50660	$ 8	$ 405,280
Underdrain with pea gravel and geotextile	LF	500	$ 150	$ 75,000
Engineered Filter Media	CY	1940	$ 10	$ 19,400
Outlet Control Structure	Each	1	$ 8,000	$ 8,000
PAULIS DRIVE AND 18TH AVENUE STORM SEWER				
Catch Basin	Each	15	$ 2,000	$ 30,000
Manhole	Each	7	$ 3,000	$ 21,000
15" RCP Storm Sewer	LF	120	$ 50	$ 6,000
36" RCP Storm Sewer	LF	1750	$ 125	$ 218,750
Demolition of Roadway	SY	5500	$ 10	$ 55,000
Roadway Reconstruction	LF	1000	$ 380	$ 380,000
TOTAL PROJECT				
Erosion Stabilization	LS	1	$ 8,000	$ 8,000
Erosion Control	LS	1	$ 9,000	$ 9,000
Site Restoration	LS	1	$ 15,000	$ 15,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 1,336,930**
20% CONTINGENCIES				**$ 267,386**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 1,604,316**
20% ENGR., FISCAL & ADMIN				**$ 320,863**
TOTAL ESTIMATED PROJECT COSTS				**$ 1,925,179**



City of Faribault

Figure 3 - Area 3, 18th Avenue Outfall

CIP Risk Analysis and Proposed Improvements
City of Faribault, MN

N

0 520 Feet
1 inch = 520 feet

wsb

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Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 4 – Park Avenue
WSB Project No. 017566-000

Background

There is known localized flooding on 5th Street, 6th Street, and 7th Street. Segments of storm sewer have been upsized in this area in conjunction with past street improvement projects to reduce flooding issues. **Figure 4,** as attached**,** illustrates the existing conditions and recommended improvements.

Risk Assessment

The XPSWMM model and storm sewer calculations show that the storm sewer trunkline from 5th Street to the outfall at Crocker's Creek is undersized to adequately convey the 10-year event. The area is very flat and much of the trunkline storm sewer is installed with minimal slope. As such, localized flooding is present on 5th Street, 6th Street, and 7th Street.

The Cannon River 10-year FEMA flood elevation, used to set the downstream boundary condition for the 100-year storm event, will fill the storm sewer pipes on 7th Street and Park Avenue. The ability for the storm sewer pipes to convey the water out of the area in the 100-year event will be compromised by the Cannon River floodwaters.

The 39 acre drainage area contributes 22 acres of impervious to Crocker's Creek and the downstream Cannon River without stormwater management. The Cannon River is listed as impaired for aquatic life and aquatic recreation. A TMDL has been approved for E. coli. The waterbody was delisted in 2014 for turbidity.

Existing runoff rates from the area are summarized in **Table 1,** as attached.

Table 1. *Existing Runoff Rates*

Storm Event	Rate (cfs)
2-year	9.3
10-year	20.5
100-year	49.1

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Proposed Risk Reduction Option

To adequately convey the 10-year event stormwater, it is recommended to upsize the trunkline storm sewer from 5th Street through to the Crocker's Creek outfall to 30-inch ARCH pipes and 30-inch RCPs. It is necessary to lower the trunkline storm sewer up to 1-foot up to the structure upstream of the outfall, removing the existing drop at that structure, to provide adequate cover for the upsized pipes while maintaining the existing outfall invert. Maintain the existing pipe lengths and slopes. In total, 870 feet of 30-inch ARCH pipes and 1,000 feet of 30-inch RCP will be needed.

Hydraulic analysis shows that there are inlet capacity issues along 5th and 6th Street. To meet MnDOT State Aid allowable spread requirements for an assumed ADT of 1,500 and a design speed less than 40 mph, add a third catch basin on either side of 5th Street at the low point or extend storm sewer to the west to add inlets upstream of the low point. Add two additional catch basins on the south side of 6th Street at the low point (3 total). Although 5th and 6th Streets are not State Aid routes, providing adequate inlet capacity will decrease flooding issues in the area in smaller storm events.

In addition to upsizing the storm sewer, provide stormwater management for 3.4 acres of impervious area (4.0 total acres) by upsizing the Faribault Chamber of Commerce BMP to a larger filtration basin with an outlet control structure. The basin is in the FEMA floodplain and will require further riverine analysis. The basin is also located within a high vulnerability drinking water supply management area (DWSMA), precluding the use of infiltration. If a different ponding location is desired, there is potential for a basin to be installed in the southwest corner of 7th Street and Wilson Avenue, but the location would require land acquisition and removal of mature trees.

Add catch basins and storm sewer along Wilson Avenue to route stormwater to the expanded basin. Connect the expanded basin outlet pipe to the storm sewer on 7th Avenue.

The existing building adjacent to the basin has a finished floor elevation and low opening of approximately 978.5 (LiDAR). The low floor will be a minimum of 1-foot above the normal water level of the adjacent basin and the low opening elevation will be a minimum of 2-feet above the high-water level of the 100-year event.

Preliminary basin details are outlined in **Table 3,** as attached.

Table 3. *Basin Preliminary Design Outline*

Design Component	Quantity	Unit
Drainage Area	4.0	acres
Normal Water Level	970	feet
Maximum HWL	976.5	feet
Approximate Proposed HWL[1]	976.2	feet
EOF Elevation	976	feet
Filter Media Surface Area	0.04	acres
Water Quality Depth	2	feet
Water Quality Volume	0.1	acre-feet
Outlet Pipe	18	inches

[1]Determined from XPSWMM. Influenced by Crocker's Creek 100-year HWL.

By expanding the existing basin for stormwater management, 0.1 acre-feet of water quality volume will be provided, 35 percent of what is needed for the 4-acre drainage area. Although rates will increase from existing to proposed conditions in the 10- and 100-year events as shown in **Table 4**, as attached, the addition of stormwater management to treat a portion of the runoff will benefit the downstream impaired waterbody.

Table 4. *Existing and Recommended Condition Runoff Rates*

Storm Event	Existing (cfs)	Option 2 Recommended Condition (cfs)
2-year	9.3	9.3
10-year	20.5	24.2
100-year[1]	49.1	57.0

[1]100-year runoff rates impacted by Cannon River Backwater

Additional Considerations

The feasibility of sending stormwater to the west along 7th Street was investigated. The existing storm sewer invert elevations do not facilitate positive drainage from east to west, as labeled on **Figure 4,** as attached.

Because the storm sewer will be inundated with backwater from the Cannon River in the 100-year event, modifications to the storm sewer reduce 100-year flooding concerns in the area by only 0.2 feet. As such, when reconstructing the streets to upsize the storm sewer, ensure all overland flow paths out of the low points have 2-feet of freeboard to adjacent primary structures which may require adjustment of the roadway profiles.

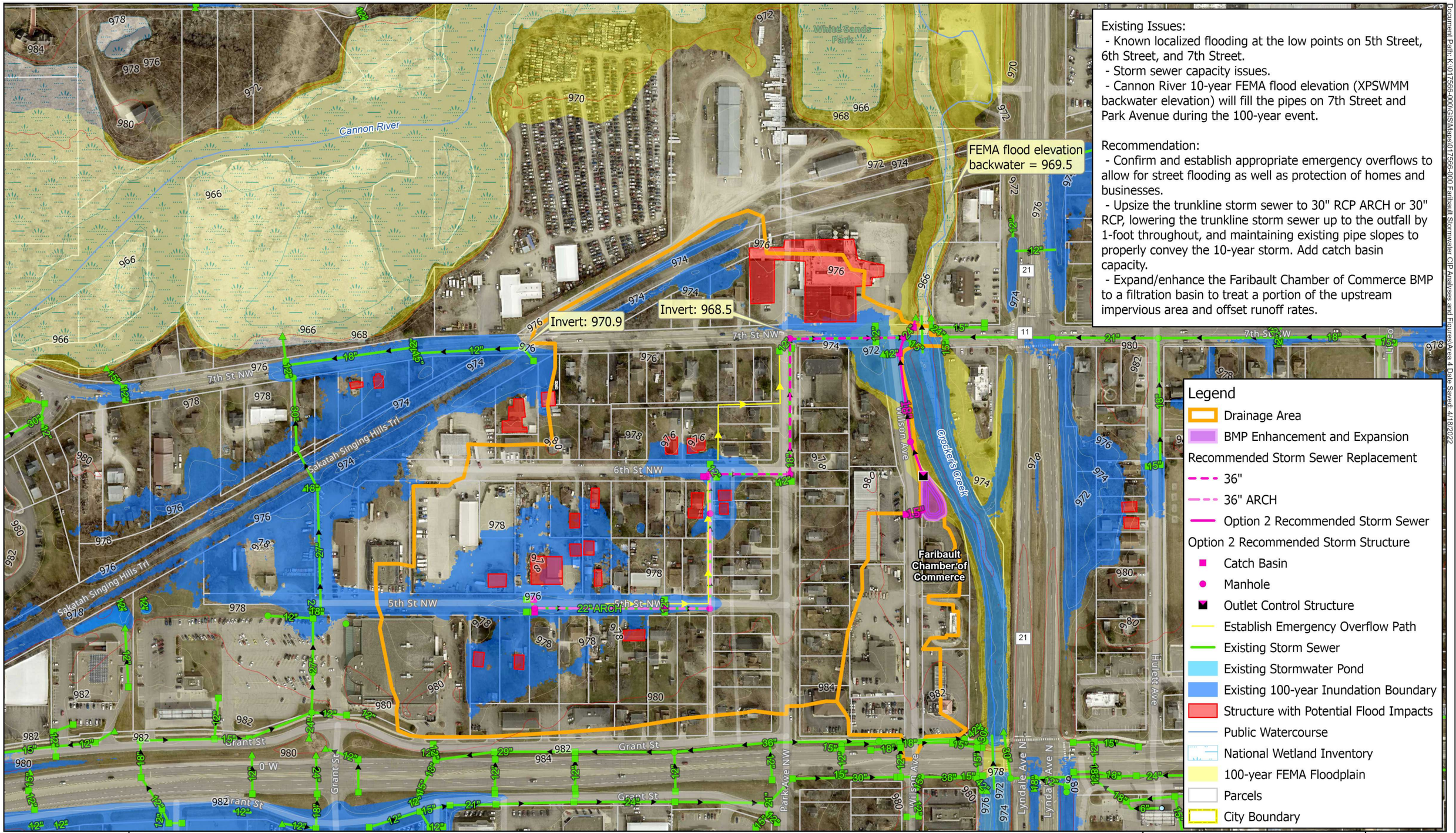
Preliminary Cost Estimate

Improvements are anticipated to cost $1.24 million. See the detailed cost estimate below.

Preliminary Opinion of Probable Cost				
Upsize the Trunkline Storm Sewer and Expand Existing Basin				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 40,980	$ 40,980
Clearing and Grubbing	AC	0.2	$ 7,500	$ 1,500
Excavation/Grading	CY	1340	$ 10	$ 13,400
Underdrain with pea gravel and geotextile	LF	200	$ 35	$ 7,000
Engineered Filter Media	CY	85	$ 150	$ 12,702
Outlet Control Structure	Each	1	$ 5,000	$ 5,000
30" RCP ARCH Storm Sewer	LF	870	$ 150	$ 130,500
30" RCP Storm Sewer	LF	1000	$ 120	$ 120,000
15" RCP Storm Sewer	LF	50	$ 80	$ 4,000
18" RCP Storm Sewer	LF	360	$ 90	$ 32,400
Catch Basin	Each	8	$ 2,000	$ 16,000

Manhole	Each	9	$	3,000	$	27,000
Demolition of Roadway	SY	4810	$	10	$	48,100
Roadway Reconstruction[1]	LF	1920	$	200	$	384,000
Erosion Control	LS	1	$	8,000	$	8,000
Site Restoration	LS	1	$	10,000	$	10,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**860,582**
20% CONTINGENCIES					**$**	**172,116**
TOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**1,032,699**
20% ENGR., FISCAL & ADMIN					**$**	**206,540**
TOTAL ESTIMATED PROJECT COSTS					**$**	**1,239,239**

[1]Cost variable depending on extent of reconstruction.



City of Faribault

Figure 4 - Area 4, Park Avenue

CIP Risk Analysis and Proposed Improvements
City of Faribault, MN

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0 250 Feet
1 inch = 250 feet

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Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 5 – Homes in FEMA Floodplain
WSB Project No. 017566-000

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Background

Residential properties reside in the FEMA floodplain adjacent to the Cannon River Reservoir. See the attached FIRM for the specific location and **Figure 5,** as attached, for existing conditions and a proposed solution schematic.

Risk Assessment

Issues associated with homes within the floodplain include high flood insurance costs, increased potential for structural damage from floodwaters, and reduced home resale value. The 25 properties, 15 primary structures, 8 secondary structures, and 1,000 linear feet of City roadway (13th St NW and 14th St NW) and associated infrastructure within the floodplain have an estimated value of $3.32 million.

Proposed Risk Reduction Options

Option 1: Floodproof Homes

The homes within the floodplain may be equipped with flood mitigation measures such as flood openings, elevating the lowest building floor above the base flood elevation, elevating utilities, and utilizing flood damage resistant materials. To floodproof all the primary structures within the floodplain, it is estimated to cost between $2 million and $3 million. The estimated cost of floodproofing approaches the total value of the infrastructure.

Option 2: Construct Levee

There is approximately $400,000 to $500,000 of City infrastructure (roadways, utilities, lighting, vegetation, etc.) in addition to the residential properties within the floodplain. To protect the private properties and public infrastructure, a barrier method such as a levee could be installed. A levee is a long-term solution to reduce flood risk in the area. Because the work would be undertaken within a mapped floodplain, a hydraulic analysis would need to be completed to evaluate impacts to the river system. To maintain base flood levels within accepted limits, cut/fill balance may be required within the Cannon River Reservoir to manage flood storage on the river side of the levee. Approvals would be required from federal, state, and local agencies. A 1,330-foot levee would be needed to span the area and meet freeboard requirements, totaling approximately $3.8 million, including the engineering cost, but not land acquisition. A levee will also have an annual cost of maintenance, estimated to be around $15,000 per year (Aerts 2018).

The cost of a levee is estimated to exceed the cost of the infrastructure protected, although the costs are fairly close.

Option 3: Purchase the Residential Properties and Stabilize Site

The City may choose to purchase the properties and create a public space or other use. It is estimated to cost $5.9 million to purchase all properties within the floodplain, demolish the structures, and restore the site. The total cost exceeds the infrastructure value, but Option 3 reduces the majority of flood damage potential to infrastructure in the area.

Preliminary Cost Estimate

Detailed cost estimates for each option are included below.

Preliminary Opinion of Probable Cost				
Option 1: Floodproof Homes				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Floodproof Home[1]	SF	37500	$ 60	$ 2,250,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 2,250,000**
20% CONTINGENCIES				**$ 450,000**
TOTAL ESTIMATED PROJECT COSTS				**$ 2,700,000**

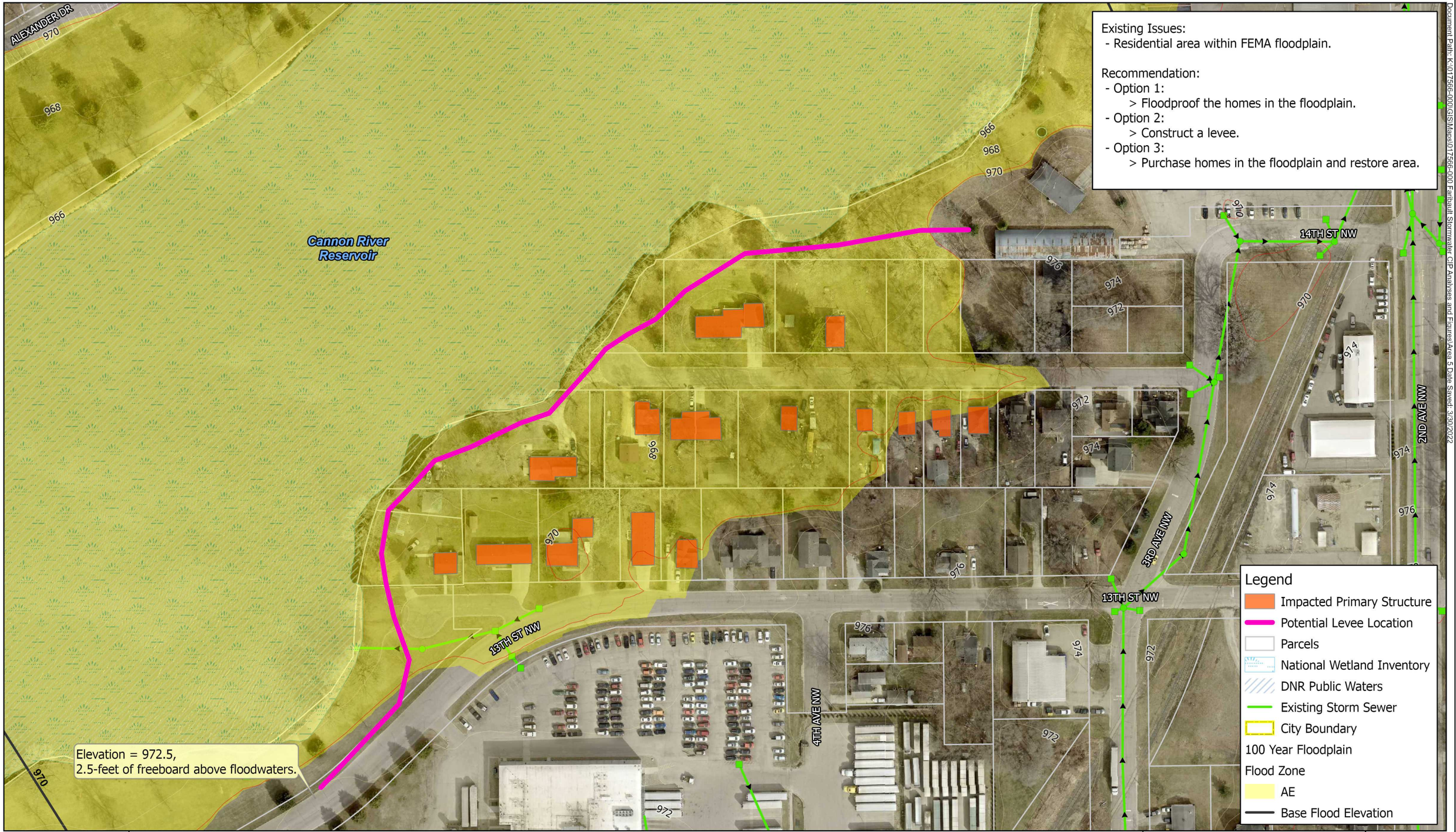
[1]Assumed typical home size of 2,500 square feet.

Preliminary Opinion of Probable Cost				
Option 2: Construct Levee				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 126,284	$ 126,284
Levee	LF	1330	$ 1,000	$ 1,330,000
Dredging for Flood Storage	CY	3448	$ 6	$ 20,689
Storm Sewer	LF	500	$ 100	$ 50,000
Lift Station	LS	1	$ 1,000,000	$ 1,000,000
Control Gates	LS	1	$ 50,000	$ 50,000
Erosion Control	LS	1	$ 25,000	$ 25,000
Site Restoration	LS	1	$ 50,000	$ 50,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 2,651,973**
20% CONTINGENCIES				**$ 530,395**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 3,182,368**
20% ENGR., FISCAL & ADMIN				**$ 636,474**
TOTAL ESTIMATED PROJECT COSTS[1]				**$ 3,818,842**

[1]Cost does not include land acquisition.

Preliminary Opinion of Probable Cost				
Option 3: Purchase Residential Properties and Stabilize Site				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 194,000	$ 194,000
Purchase Residential Properties[1]	LS	1	$ 3,155,900	$ 3,155,900
Demolition	Each	15	$ 25,000	$ 375,000
Grading	LS	1	$ 100,000	$ 100,000
Site Restoration	LS	1	$ 250,000	$ 250,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 4,074,900**
20% CONTINGENCIES				**$ 814,980**
TOTAL ESTIMATED PROJECT COSTS				**$ 4,889,880**
20% ENGR., FISCAL & ADMIN				**$ 977,976**
TOTAL ESTIMATED PROJECT COSTS				**$ 5,867,856**

[1]Value obtained from the Rice County tax index database plus 10 percent.



Document Path: K:\017566-000\GIS\Maps\017566-000 Faribault Stormwater CIP Analyses and Figures\Area 5 Date Saved: 3/30/2022

City Of Faribault

Figure 5 - Area 5, Residential Area in Cannon River Reservoir Floodplain

CIP Risk Analysis and Proposed Improvements
City of Faribault, MN

N

0 120 Feet
1 inch = 120 feet

wsb

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base Map information shown on this FIRM was provided for Rice County by Pictometry International, dated 2009 and captured at a resolution of one foot for Rice County and at six inches for the cities of Northfield, Faribault, and Lonsdale.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary

0.2% Annual Chance Floodplain Boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - - - 23	Transect line
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
$^{4}88^{000}$N	1000-meter Universal Transverse Mercator grid values, zone 15
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
April 3, 2012

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0267D

FIRM

FLOOD INSURANCE RATE MAP

RICE COUNTY, MINNESOTA AND INCORPORATED AREAS

PANEL 267 OF 450
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FARIBAULT, CITY OF	270404	0267	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
27131C0267D

EFFECTIVE DATE
APRIL 3, 2012

Federal Emergency Management Agency

Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 6 – Division Street
WSB Project No. 017566-000

Background

XPSWMM modeling shows the potential for flooding and structure impacts near the intersections of 3rd Street SW and 9th Avenue, 2nd Street SW and 8th Avenue, Division Street and 8th Avenue, 1st Street NW and 8th Avenue, 2nd Street NW and 7th Avenue, and in backyards adjacent to 7th Avenue. To the City's knowledge, the area has not experienced drastic flooding in the past. **Figure 6,** as attached, outlines the existing flooding extents determined from XPSWMM, potentially impacted structures, and a future improvement schematic.

Risk Assessment

An XPSWMM analysis of the existing system shows that the storm sewer along 3rd Street SW is undersized to adequately convey the 10-year event, sending 37.4 cfs in the 10-year event and 181.8 cfs in the 100-year event overland to the storm sewer on 7th Avenue. That water enters the Division Street system from the south and contributes to localized flooding. Because LiDAR was used to establish the overflow routes used in the XPSWMM model, +/- 0.5-feet of error can be expected. Rational calculations show that the Division Street storm sewer is adequately sized for the 10-year event for runoff within the direct watershed.

277.4 acres with approximately 129.9 impervious acres discharges to Crocker's Creek and the downstream Cannon River via the storm sewer on Division Street without stormwater management. The Cannon River is listed as impaired for aquatic life and aquatic recreation. A TMDL has been approved for E. coli. The waterbody was delisted in 2014 for turbidity.

Proposed Risk Reduction Option

Option 1: Upsize Storm Sewer

To mitigate the flooding issues on Division Street, upsize the storm sewer along 3rd Street SW through to the outfall on Division Street to Crocker's Creek and provide additional inlet capacity.

Upsize the pipe along 3rd Street SW, under the railroad, and along Prairie Avenue from 8th Avenue to Division Street to a 48-inch RCP. Upsize the pipe along Division Street from Prairie Avenue to the outfall to a 60-inch RCP. By upsizing the trunkline storm sewer, the system will have adequate capacity to convey the 10-year storm event and the 100-year high water levels at

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the low points will decrease according to **Table 1,** as attached. Note that increasing the storm sewer capacity under the railroad will require coordination with the railroad company.

Table 1. *100-year HWL*

Location	Low Point ID	Existing 100-year HWL (ft)	Proposed 100-year HWL (ft)	HWL Reduction (ft)
Division Street and 8th Avenue	3729	1003.2	1003.1	-0.1
1st Street NW and 8th Avenue	4078	1002.9	1002.8	-0.1
Backyards Adjacent to 7th Avenue	20012	1006.7	1006.4	-0.3
2nd Street SW and 8th Avenue	3869	1010.9	1010.3	-0.6
3rd Street SW and 9th Avenue	3873	1013.8	1013.4	-0.4
2nd Street NW and 7th Avenue	4063	1002.5	1002.2	-0.3

Increase the inlet capacity on 3rd Street SW to allow the capture of the 10-year event at the low point. Initial calculations indicate that one additional catch basin is needed at the low point on the north side of 3rd Street SW for a total of 3 inlets. Add 7 additional inlets within the drainage area to the low point on the south side of 3rd Street SW. A preliminary layout is shown on **Figure 6,** as attached.

Option 1 will result in a rate increase in the 2-, 10-, and 100-year storm events to Crocker's Creek according to **Table 2,** as attached**,** and does not provide any stormwater treatment to the area. With the rate increase to the Creek, the high-water level of Crocker's Creek may be impacted.

Table 2. *Runoff Rates to Crocker's Creek*

Storm Event	Existing Runoff Rate (cfs)	Proposed Runoff Rate (cfs)
2-year	64.0	73.2
10-year	117.5	145.3
100-year	168.1	199.2

Option 2: Upsize Storm Sewer and Provide Storage

In addition to the storm sewer upsizing presented in Option 1, install a storage chamber to mitigate runoff rates and provide water quality treatment.

Because of the density of the residential area and the lack of City owned parcels within the watershed, no regional ponding locations could be identified. However, a potential underground chamber system located beneath the Faribault High School parking lot was modeled in XPSWMM to review the benefits (labeled as 1 on **Figure 6,** as attached). The storage chamber details are outlined in **Table 3,** as attached. Note that infiltration is limited due to the location of a high vulnerability drinking water supply management area (DWSMA).

Table 3. *Underground Chamber System at High School Preliminary Design Outline*

Design Component	Quantity	Unit
Drainage Area	112.7	acres
Normal Water Level	1001.8	feet
Approximate Proposed HWL	1011.3	feet
Filtration Surface Area	0.46	acres
Water Quality Depth	1.7	feet
Water Quality Volume	0.72	acre-feet
Outlet Pipe	48	inch

The installation of an underground chamber along with the Option 1 storm sewer will decrease the 100-year high water levels at the low points according to **Table 4,** as attached.

Table 4. *100-year HWL*

Location	Low Point ID	Existing 100-year HWL (ft)	Proposed 100-year HWL (ft)	HWL Reduction (ft)
Division Street and 8th Avenue	3729	1003.2	1003.0	-0.2
1st Street NW and 8th Avenue	4078	1002.9	1002.8	-0.1
Backyards Adjacent to 7th Avenue	20012	1006.7	1006.3	-0.4
2nd Street SW and 8th Avenue	3869	1010.9	1010.3	-0.6
3rd Street SW and 9th Avenue	3873	1013.8	1013.4	-0.4
2nd Street NW and 7th Avenue	4063	1002.5	1002.2	-0.3

There will be a rate increase to Crocker's Creek, but to less of an extent than Option 1, shown in **Table 5,** as attached.

Table 5. *Runoff Rates to Crocker's Creek*

Storm Event	Existing Runoff Rate (cfs)	Proposed Runoff Rate (cfs)
2-year	64.0	62.3
10-year	117.5	139.0
100-year	168.1	197.9

The construction of an underground chamber system under the parking lot of the high school is optimal for treatment of a large drainage area. Other locations may be feasible for the installation of a smaller best management practice, as indicated on **Figure 6,** as attached, and summarized below.

- Install an underground pipe gallery within the easement along the 18-inch pipe between Carlton Avenue and 3rd Street SW (Number 2 on **Figure 6,** as attached).
- Obtain an easement over the backyard low point near 7th Avenue, between 1st Street SW and 2nd Street SW to install a filtration basin. By implementing a BMP in the existing low point, upstream street runoff would be captured and treated and the potential for backyard flooding would be reduced (Number 3 on **Figure 6,** as attached).
- Work with the railroad to obtain an easement and install an underground filtration gallery in the northwest corner of Division Street and 9th Avenue. Install a weir in the manhole at the Division Street and 9th Avenue intersection to route the trunkline storm sewer through the chamber system and allow large storm events to bypass (Number 4 on **Figure 6,** as attached).
- Work with the railroad to obtain an easement and install an underground filtration gallery in the triangle parcel east of the railroad, south of Division Street, and west of 9th Avenue. Like Number 4, install a diversion structure in the trunkline storm sewer to allow for the treatment of smaller storm events and bypass of larger storm events (Number 5 on **Figure 6,** as attached).

Survey overland flow routes from the low points to ensure 2-feet of freeboard to primary structures. If necessary, construct an overflow route at a sufficient elevation to provide freeboard by either lowering the roadway or grading rear yards.

Preliminary Cost Estimate

Upsizing the storm sewer is anticipated to cost $2.55 million. Upsizing the storm sewer and adding an underground chamber within the watershed is anticipated to cost $3.19 million. Detailed cost estimates are included below.

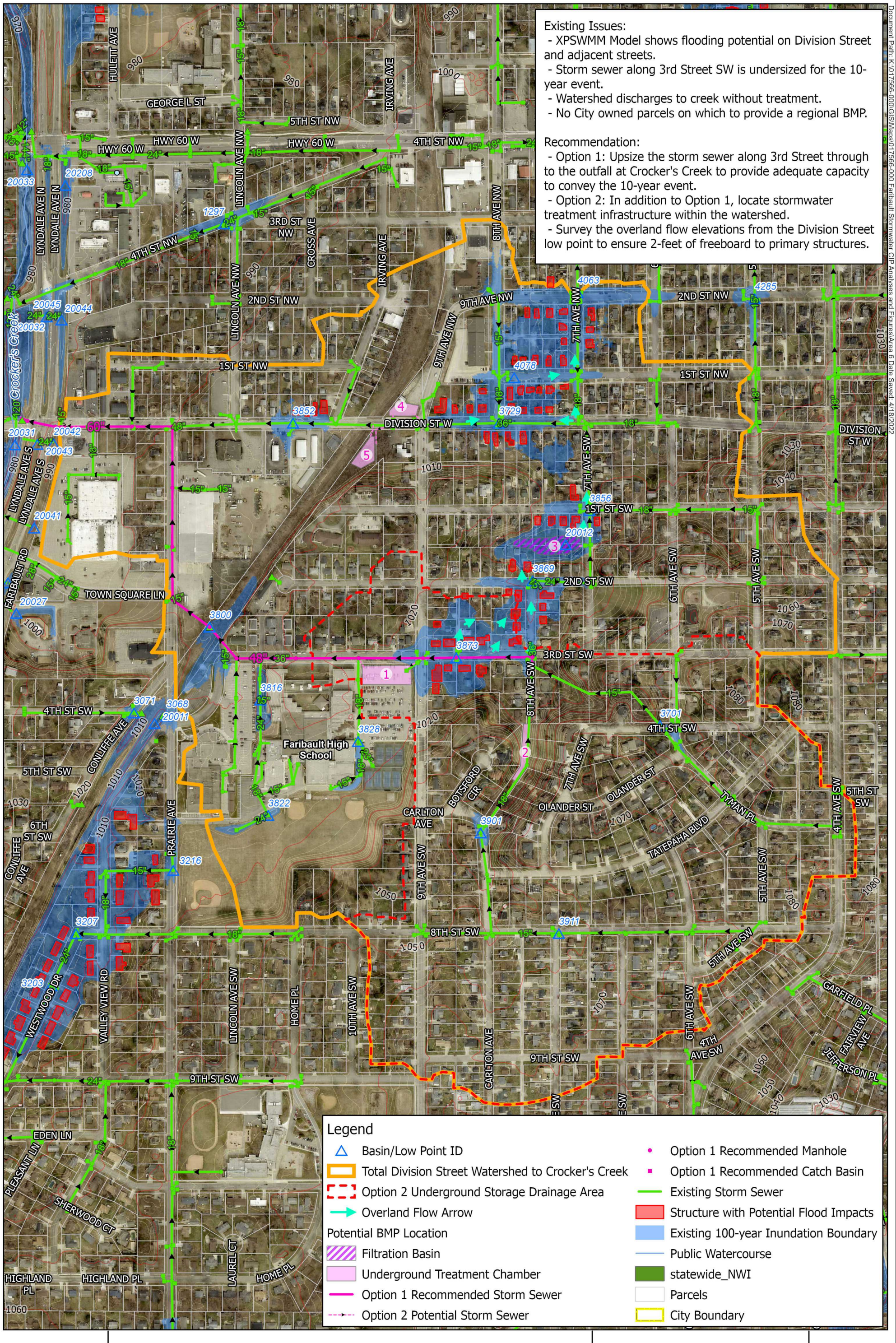
Preliminary Opinion of Probable Cost				
Option 1: Upsize Storm Sewer				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 84,330	$ 84,330
48" RCP Storm Sewer	LF	2940	$ 180	$ 529,200
60" RCP Storm Sewer	LF	790	$ 215	$ 169,850
Catch Basin	Each	8	$ 2,000	$ 16,000
Manhole	Each	20	$ 5,000	$ 100,000
Demolition of Roadway	SY	17120	$ 10	$ 171,200
Roadway Reconstruction[1]	LF	3422	$ 200	$ 684,400
Erosion Control	LS	1	$ 7,000	$ 7,000
Site Restoration	LS	1	$ 9,000	$ 9,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 1,770,980**
20% CONTINGENCIES				**$ 354,196**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 2,125,176**
20% ENGR., FISCAL & ADMIN				**$ 425,035**
TOTAL ESTIMATED PROJECT COSTS				**$ 2,550,211**

[1]Cost variable depending on the extent of reconstruction.

Preliminary Opinion of Probable Cost				
Option 2: Upsize Storm Sewer and Provide Storage				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 105,580	$ 105,580
Excavation/Grading	CY	9400	$ 10	$ 94,000
Underdrain with pea gravel and geotextile	LF	1000	$ 35	$ 35,000
Engineered Filter Media	CY	1111	$ 100	$ 111,111
Underground Chamber System	LS	1	$ 100,000	$ 100,000
Outlet Control Structure	Each	1	$ 5,000	$ 5,000
48" RCP Storm Sewer	LF	2940	$ 180	$ 529,200
60" RCP Storm Sewer	LF	790	$ 215	$ 169,850
Catch Basin	Each	8	$ 2,000	$ 16,000

Manhole	Each	20	$	5,000	$	100,000
Demolition of Parking Lot	SY	2222	$	8	$	17,778
Parking Lot Reconstruction	SF	20000	$	3	$	60,000
Demolition of Roadway	SY	17120	$	10	$	171,200
Roadway Reconstruction[1]	LF	3422	$	200	$	684,400
Erosion Control	LS	1	$	8,000	$	8,000
Site Restoration	LS	1	$	10,000	$	10,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**2,217,119**
20% CONTINGENCIES					**$**	**443,424**
TOTAL ESTIMATED CONSTRUCTION COSTS					**$**	**2,660,543**
20% ENGR., FISCAL & ADMIN					**$**	**532,109**
TOTAL ESTIMATED PROJECT COSTS					**$**	**3,192,651**

[1]Cost variable depending on the extent of reconstruction.



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City of Faribault

Figure 6 - Area 6, Division Street

CIP Risk Analysis and Proposed Improvements
City of Faribault, MN

N

0 450 Feet
1 inch = 450 feet

wsb

Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 7 – Former Lockerby Property
WSB Project No. 017566-000

Background

The former Lockerby property is slated for future residential development. The City would like to include a basin in the area that would treat the future development as well as the existing upstream drainage. The property is approximately 60 percent covered by the 100-year floodplain, as shown in the attached FIRM. **Figure 7,** as attached, outlines the site location and a future improvement schematic.

Risk Assessment

Approximately 87 acres drain to the Straight River without treatment via the outfall adjacent to the former Lockerby property. With the addition of a proposed development on the former Lockerby property, the total post development impervious area within the watershed is approximately 50 acres. As a result, the developed watershed produces stormwater runoff that flows to the Straight River, carrying pollutants directly into the waterbody because a mitigation measure is not provided. Negative impacts include degraded water quality, habitat reduction, and potential safety issues. The Straight River is impaired for aquatic life and aquatic recreation with TMDLs approved for fecal coliform, benthic macroinvertebrate bioassessments, and turbidity.

For development and redevelopment, the National Pollutant Discharge Elimination System (NPDES) permit requires permanent stormwater management. Although the previous development in the watershed occurred prior to the current NPDES requirements, the water quality volume to treat the entire tributary area to the former Lockerby property is shown in **Table 1,** as attached. The NPDES permit mandates the volume reduction practices be considered first for permanent stormwater management. Additionally, post development runoff rates to the Straight River may not be increased from existing runoff rates per **Table 2,** as attached.

Table 1. *Water Quality Volume*

Approximate Post Development Impervious Area (ac)	Required Treatment Volume[1] (ac-feet)
50	4.2

[1]1-inch of runoff from post development impervious area

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Table 2. *Runoff Rates to Straight River*

Storm Event	Runoff Rate via Outfall Adjacent to Lockerby Property (cfs)	Runoff Rate out of Basin #27 (cfs)	Total Runoff to Straight River (cfs)
2-year	28.3	1.2	29.5
10-year	62.8	2.6	65.4
100-year	120.7	11.8	132.5

Site constraints including the presence of a high vulnerability DWSMA preclude the use of infiltration to meet volume control requirements. Thus, treatment of the required water quality volume shall be provided to the maximum extent possible focusing on BMPs that provide pollutant removal from the watershed.

The former Lockerby property resides within the 100-year floodplain of the Straight River. An additional riverine analysis must be completed during final design to determine floodplain impacts of basin construction.

Proposed Risk Reduction Option

To provide post development stormwater quality and quantity management for the entire tributary area, it is recommended to construct regional Nationwide Urban Runoff Program (NURP) basins on the former Lockerby property as well as south of the property on an existing drainage and utility easement (NURP basins provide dead storage volume to treat 2.5 inches over the entire watershed draining to the pond). Reroute storm sewer on 1st Street to the first NURP basin in the series. Provide a storm sewer outlet from the first basin to the second NURP basin, to be designed as an enhancement to existing pond #27. Upsize the existing 24-inch outlet from pond #27 to sufficiently convey flows and maintain a 100-year bounce within the proposed basin footprints. Additionally, maintain the existing 12-inch outlet pipe from the second NURP basin.

Approximate design components and quantities are outlined in **Table 3,** as attached.

Table 3. *Preliminary Design Outline*

Name	Design Component	Quantity	Unit
Trunkline Storm Sewer	42-inch Pipe	815	feet
NURP Basin 1	Drainage Area	89.5	acres
	Normal Water Level	969.5	feet
	Approximate HWL[1]	976.1	feet
	Proposed EOF	977.1	feet
	Surface Area at NWL	1.3	acres
	Average Depth of Dead Storage	4.5	feet
	Outlet Size	3 – 36” RCP	-
NURP Basin 2	Drainage Area	23.8	acres
	Normal Water Level	969.3	feet
	Approximate HWL[1]	975.9	feet
	Proposed EOF	977	feet
	Surface Area at NWL	1.3	acres
	Average Depth of Dead Storage	4.5	feet
	Outlet Size	48” RCP and 12” PVC	-

[1]Determined via XPSWMM not considering FEMA floodplain. FEMA 100-year base flood elevation is at 982.

Volume control will not achieve NPDES standards because infiltration is limited due to site constraints. However, the NURP basins will provide water quality treatment by removing 86.5 percent and 56.5 percent of the tributary area total suspended solids (TSS) and total phosphorus (TP) concentrations annually as shown in **Table 4,** as attached.

Table 4. *Pollutant Loads to Straight River from Tributary Area*

Pollutant	Existing (lbs/yr)	Proposed (lbs/yr)	% Reduction
TSS	29,164	3,953	86.5
TP	103	45	56.5

Preliminary XPSWMM modeling of the existing and post development conditions indicates that rate control can be met for the watershed to the Straight River according to **Table 5,** as attached.

Table 5. *Proposed Rate Control*

Storm	Existing Runoff Rates (cfs)	Proposed Runoff Rates (cfs)
2-year	29.5	11.8
10-year	65.4	30.0
100-year	132.5	50.6

The exact routing of the conveyance system shall be determined at the time of final design.

Preliminary Cost Estimate

The construction of two NURP basins to treat the tributary area is estimated to cost $1.017 million, including contingencies and indirect costs. A detailed cost estimate can be found below.

Preliminary Opinion of Probable Cost				
Regional NURP Basins Former Lockerby Property				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 33,640	$ 33,640
Clearing and Grubbing	AC	3.7	$ 7,500	$ 27,750
Excavation/Grading	CY	50930	$ 8	$ 407,440
Outlet Control Structure	Each	1	$ 8,000	$ 8,000
36" RCP	LF	375	$ 125	$ 46,875
42" RCP	LF	815	$ 175	$ 142,625
48" RCP	LF	80	$ 190	$ 15,200
Erosion Control	LS	1	$ 9,000	$ 9,000
Site Restoration	LS	1	$ 16,000	$ 16,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 706,530**
20% CONTINGENCIES				**$ 141,306**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 847,836**
20% ENGR., FISCAL & ADMIN				**$ 169,567**
TOTAL ESTIMATED PROJECT COSTS				**$ 1,017,403**

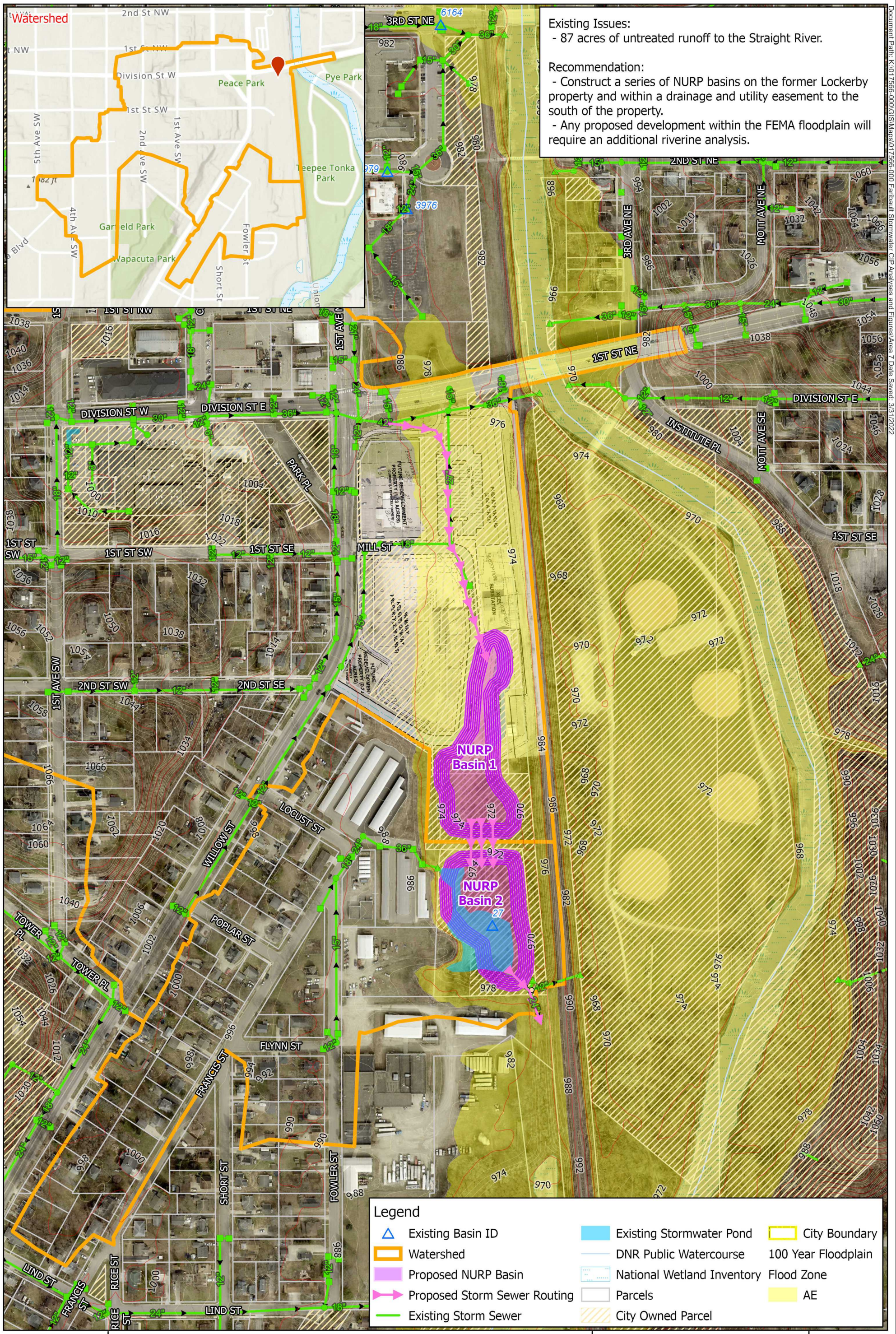

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Figure 7 - Area 7, Former Lockerby Property

CIP Risk Analysis and Proposed Improvements
City of Faribault, MN

N

0 250 Feet
1 inch = 250 feet

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base Map information shown on this FIRM was provided for Rice County by Pictometry International, dated 2009 and captured at a resolution of one foot for Rice County and at six inches for the cities of Northfield, Faribault, and Lonsdale.

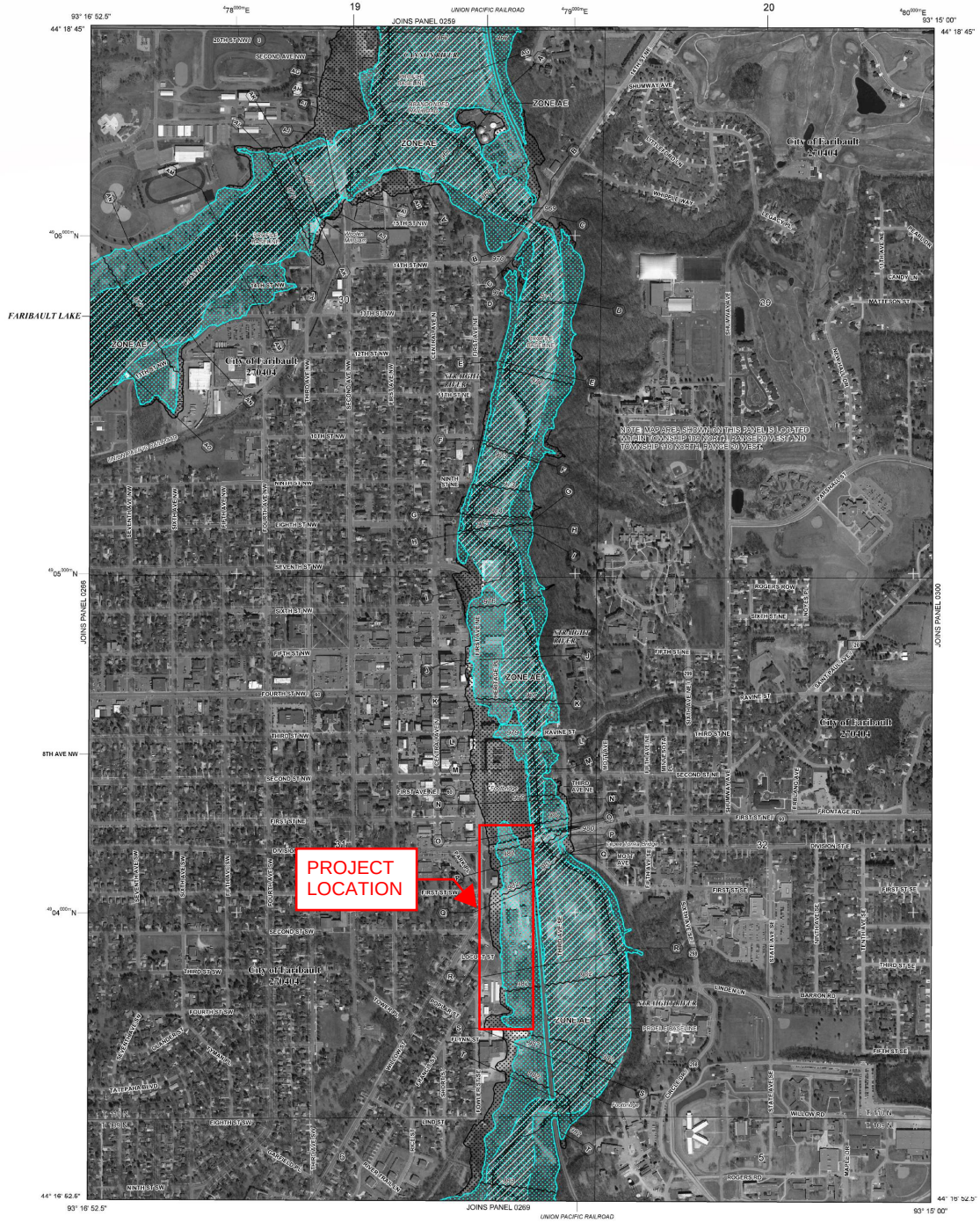
The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary

0.2% Annual Chance Floodplain Boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - - - 23	Transect line
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
$^{4}88^{000}$N	1000-meter Universal Transverse Mercator grid values, zone 15
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
April 3, 2012

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0267D

FIRM

FLOOD INSURANCE RATE MAP

RICE COUNTY, MINNESOTA AND INCORPORATED AREAS

PANEL 267 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FARIBAULT, CITY OF	270404	0267	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
27131C0267D

EFFECTIVE DATE
APRIL 3, 2012

Federal Emergency Management Agency

Memorandum

To: City of Faribault

From: Jake Newhall, PE
Laura Pietila, EIT

Date: April 22, 2022

Re: Stormwater Capital Improvement Project Risk Assessment and Proposed Solutions
Area 8 – Mattson Street
WSB Project No. 017566-000

Background

The culvert under Mattson Street, approximately 1,800 feet west of Saint Paul Avenue, has nearly blown out in past storm events as a result of large flows. The City of Faribault has also reported erosion upstream of the culvert crossing. **Figures 8a**, **8b**, and **8c,** as attached**,** outline the location of existing issues and future improvement schematics.

Risk Assessment

Four primary risk factors are associated with the stormwater runoff at Mattson Street: the existing culvert crossing size, downstream culvert capacity, adjacent home elevations, and existing erosion.

The existing 24-inch RCP culvert under Mattson Street has the capacity to convey approximately 58 cfs before overtopping the roadway. The 88.4-acre drainage area contributes the runoff rates outlined in **Table 1,** as attached, to the culvert under Mattson Street. The drainage area consists of impervious, agricultural, and wooded acreage. Hydrologic soils are primarily B, C, and D. As shown in **Table 1,** as attached, the expected flows in the 10 and 100-year events are significantly higher than the capacity of the existing culvert, indicating that the culvert is significantly undersized.

Table 1. *Watershed and Upstream Runoff*

Storm Event	Runoff (cfs)
2-year	35.8
10-year	72.1
100-year	158.0

Approximately 1,700 feet after passing under Mattson Street, dual 27-inch culverts convey channel flow under 11th Avenue, presenting a limiting downstream capacity constraint (approximately 72 cfs). The crossing under 11th Avenue is situated near homes. Flow rates to the culvert under 11th Avenue should not be increased due to adjacent primary structures and potential impacts.

701 XENIA AVENUE S | SUITE 300 | MINNEAPOLIS, MN | 55416 | 763.541.4800 | WSBENG.COM

Erosion is present upstream of Mattson Street due to high runoff velocities traveling down embankments to reach the culvert crossing. Risks include sediment transport downstream and loss of vegetation.

Proposed Risk Reduction Options

There are several short-term and long-term options to mitigate the risks at Mattson Street, including stabilizing the ditches upstream of the culvert, constructing a pond, or upsizing culverts and constructing a regional pond downstream of the site. Future land use (residential development) was not considered in the analysis to limit the size of the stormwater infrastructure needed. All future development should install onsite best management practices to maintain existing runoff rates to the proposed stormwater infrastructure.

Option 1: Mitigate Erosion Concerns

As a short-term solution, reinforce the area immediately upstream of the Mattson Street culvert with erosion mitigation measures including rip rap, step pools to carry water down the slopes to the culvert, and plunge pools at the culvert outfalls.

Option 1 does not address the hydrology concerns and the fact that the culvert crossing under Mattson Street is undersized for the total drainage area. As such, culvert failure and exceedance issues at Mattson Street will not be addressed, and erosion may persist upstream of the mitigation measures in several years. However, it is the least expensive and most immediate action for the area.

Option 2: Construct a Pond and Replace Outlet Pipe under Mattson Street

Construct a pond upstream of Mattson Street in the natural low point to control rates under Mattson Street and improve water quality.

Limits to the pond design include a roadway elevation of approximately 1,145 feet (based on LiDAR). To leave 1-foot of freeboard from the roadway shoulder, the pond's 100-year high water level may not exceed 1,144 feet. From LiDAR, it appears that the channel elevation downstream of Mattson Street is at 1,134 feet, setting the pond's normal water level to 1,135 feet to allow for an outlet pipe. Remove the existing 24-inch culvert and replace it with a 48-inch RCP. Connect the 48-inch RCP to a tiered outlet control structure consisting of a 42-inch orifice at 1,135 feet and a weir wall at 1,143.7 feet to control rates out of the pond, as shown in **Table 2**, as attached. For the existing hydrology, a pond with approximately 0.9 acres of surface area at the normal water level is needed with depth to handle an 8.6-foot pond bounce in the 100-year event. It must be noted that a significant number of trees would need to be removed to facilitate the construction of a pond. Unlike existing conditions, proposed runoff will not overtop Mattson Street.

Table 2. *Option 2 Runoff Rates Over/Under Mattson Street*

Storm Event	Existing (cfs)	Proposed (cfs)
2-year	31.3	26.1
10-year	64.6	54.0
100-year	142.3	98.1

To prevent erosion from propagating upstream, place rock ditch checks in the ditches flowing into the pond to provide grade control.

Option 2 does not address any potential downstream erosion or issues near 11th Avenue. Increasing the pipe under Mattson Street is needed to maintain a smaller pond surface area. If erosion is present downstream, rates may be further reduced at Mattson Street by reducing the outlet pipe size and increasing the pond surface area.

Option 3: Replace Culvert Crossings Under Mattson Street, 11th Avenue, and Field Roads and Construct a Regional Basin near Shumway Avenue

If erosion issues are present downstream of Mattson Street, it may be advantageous to provide additional capacity within the channel from Mattson Street to Shumway Avenue and site a regional basin in the golf course or ravine between Shumway Avenue and 11th Avenue.

To fix the issues at Mattson Street, upsize the culvert to convey the stormwater runoff. As an estimate, an ADT of a nearby roadway of 630 was used to select a 25-year design storm based on the minimum overtopping frequency. A preliminary XPSWMM analysis showed that a 48-inch RCP culvert could sufficiently convey the flow (inverts of 1139-1137.35, 3 percent slope) with adequate cover under the roadway centerline based in LiDAR. Survey is recommended to verify the allowable inverts and cover. All erosion mitigation measures outlined in Option 1 would be needed.

Because of the Mattson Street culvert increase, the capacity of the culvert under 11th Avenue as well as two field crossing culverts must also be increased to convey the additional flow to the proposed regional basin. A preliminary XPSWMM analysis showed that by upsizing one of the existing 27-inch culverts under 11th Avenue to a 48-inch RCP culvert, there will be adequate capacity to pass the 25-year event without overtopping the roadway. The field crossings may be upsized as dual 30-inch RCP culverts to provide similar capacity to the culverts under 11th Street. Survey is recommended to verify the existing culvert inverts, lengths, and resulting slopes.

Construct a regional basin near Shumway Avenue to provide rate control. Initial estimates indicate that a 1.8-acre normal water level with live storage to contain a 7.8-foot bounce is necessary to contain the runoff. It must be noted that a significant number of trees would need to be removed to facilitate the construction of a regional basin. Rates would be reduced out of the regional basin under Shumway Avenue according to **Table 3,** as attached.

Table 3. *Option 3 Runoff Rates Over/Under Shumway Avenue*

Storm Event	Existing (cfs)	Proposed (cfs)
2-year	45.9	44.2
10-year	107.9	90.1
100-year	309.1	211.4

Preliminary Cost Estimate

Options 1, 2, and 3 are anticipated to cost approximately $177,600, $440,800, and $976,200 million respectively. Detailed cost estimates can be found below.

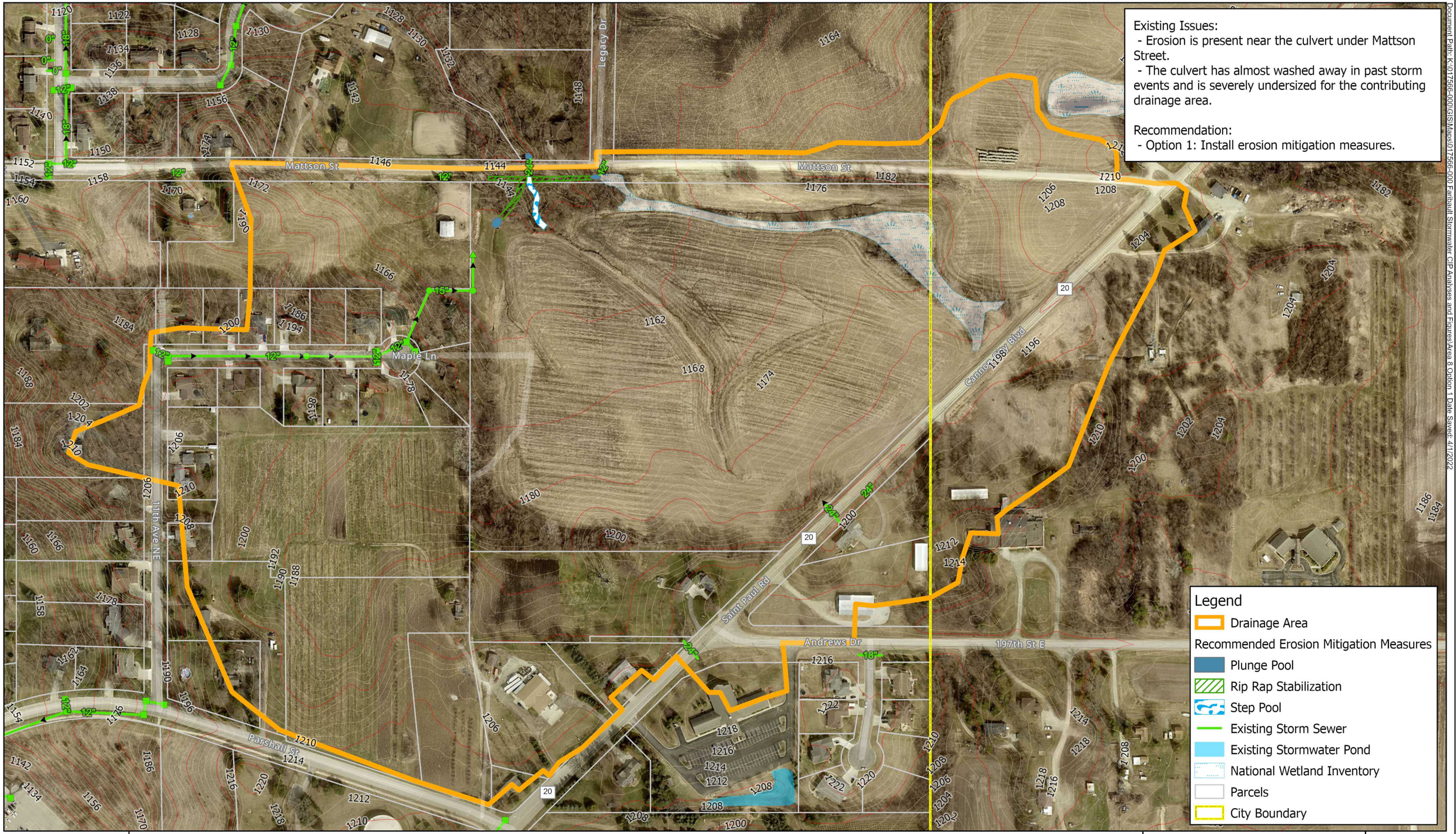
Preliminary Opinion of Probable Cost				
Option 1: Mitigate Erosion Concerns				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 5,870	$ 5,870
Clearing and Grubbing	AC	0.22	$ 7,500	$ 1,650
Excavation/Grading	CY	600	$ 10	$ 6,000
Rip Rap	CY	600	$ 150	$ 90,000
Blanket	SY	600	$ 3	$ 1,800
Erosion Control	LS	1	$ 8,000	$ 8,000
Site Restoration	LS	1	$ 10,000	$ 10,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 123,320**
20% CONTINGENCIES				**$ 24,664**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 147,984**
20% ENGR., FISCAL & ADMIN				**$ 29,597**
TOTAL ESTIMATED PROJECT COSTS				**$ 177,581**

Preliminary Opinion of Probable Cost				
Option 2: Construct a Pond and Replace Outlet Pipe Under Mattson Street				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 14,580	$ 14,580
Clearing and Grubbing	AC	1.7	$ 7,500	$ 12,750
Excavation/Grading	CY	27300	$ 8	$ 218,400
Outlet Control Structure	Each	1	$ 8,000	$ 8,000
48" RCP Storm Sewer	LF	55	$ 180	$ 9,900
Demolition of Roadway	SY	200	$ 10	$ 2,000
Roadway Reconstruction	LF	100	$ 150	$ 15,000
Rip Rap	CY	50	$ 150	$ 7,500
Erosion Control	LS	1	$ 8,000	$ 8,000
Site Restoration	LS	1	$ 10,000	$ 10,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 306,130**
20% CONTINGENCIES				**$ 61,226**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 367,356**
20% ENGR., FISCAL & ADMIN				**$ 73,471**
TOTAL ESTIMATED PROJECT COSTS				**$ 440,827**

[1]Land acquisition excluded from cost estimate.

Preliminary Opinion of Probable Cost				
Option 3: Replace Culverts, Erosion Mitigation, Construct a Regional Basin				
City of Faribault				
Description	**Unit**	**Qty**	**Unit Price**	**Extension**
Mobilization	LS	1	$ 32,280	$ 32,280
Clearing and Grubbing	AC	3.4	$ 7,500	$ 25,500
Excavation/Grading	CY	52390	$ 8	$ 419,122
Outlet Control Structure	Each	1	$ 8,000	$ 8,000
48" RCP Storm Culvert	LF	140	$ 180	$ 25,200
30" RCP Culvert	LF	100	$ 120	$ 12,000
Demolition of Roadway	SY	400	$ 10	$ 4,000
Roadway Reconstruction	LF	200	$ 150	$ 30,000
Rip Rap	CY	600	$ 150	$ 90,000
Blanket	SY	600	$ 3	$ 1,800
Erosion Control	LS	1	$ 10,000	$ 10,000
Site Restoration	LS	1	$ 20,000	$ 20,000
SUBTOTAL ESTIMATED CONSTRUCTION COSTS				**$ 677,902**
20% CONTINGENCIES				**$ 135,580**
TOTAL ESTIMATED CONSTRUCTION COSTS				**$ 813,482**
20% ENGR., FISCAL & ADMIN				**$ 162,696**
TOTAL ESTIMATED PROJECT COSTS				**$ 976,179**

[1]Land acquisition excluded from cost estimate.



City of Faribault

Figure 8a - Area 8, Mattson Street

CIP Risk Analysis and Proposed Improvement Map
City of Faribault, MN

N

0 250 Feet
1 inch = 250 feet

wsb

Existing Issues:
- Erosion is present near the culvert under Mattson Street.
- The culvert has almost washed away in past storm events and is severely undersized for the contributing drainage area.

Recommendation:
- Option 2: Construct a basin, install an outlet control structure and outlet pipe under Mattson Street, and construct ditch checks as grade control in the ditches upstream of the pond.

Legend
- Drainage Area
- Recommended Pond
- Recommended Pond Grading
- Recommended Outlet Control Structure
- Recommended Storm Sewer
- Existing Storm Sewer
- Existing Stormwater Pond
- National Wetland Inventory
- Parcels
- City Boundary

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City of Faribault

Figure 8b - Area 8, Mattson Street

CIP Risk Analysis and Proposed Improvement Map
City of Faribault, MN

N

0 270 Feet
1 inch = 270 feet

wsb

Existing Issues:
- Erosion is present near the culvert under Mattson Street.
- The culvert has almost washed away in past storm events and is severely undersized for the contributing drainage area.

Recommendation:
- Option 3: Upsize the culverts under Mattson Street, 11th Avenue, and the field crossings in the golf course. Construct a regional pond in the natural low point near Shumway Avenue. Install erosion mitigation measures upstream of Mattson Street.

Legend
- Mattson Street Drainage Area
- Proposed Regional Pond Drainage Area
- Recommended Regional Pond
- Recommended Culvert

Recommended Erosion Mitigation Measures
- Plunge Pool
- Rip Rap Stabilization
- Step Pool
- Existing Storm Sewer
- Existing Stormwater Pond
- National Wetland Inventory
- Parcels
- City Boundary

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City Of Faribault

Figure 8c - Area 8, Mattson Street

CIP Risk Analysis and Proposed Improvement Map
City of Faribault, MN

N

0 400 Feet
1 inch = 400 feet

wsb