

*City of*

# CIRCLE PINES

200 Civic Heights Circle  
Circle Pines, MN 55014  
Office: (763) 784-5898  
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[www.circle-pines.mn.us](http://www.circle-pines.mn.us)

March 9, 2021

Eric Wojchik, AICP, Sector Representative  
390 Robert Street North  
St. Paul, MN 55101-1805

Dear Eric Wojchik,

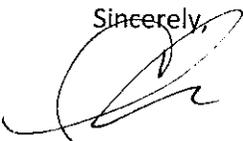
Attached to this letter is the City of Circle Pines Resolution 2021-01 Approving the City's 2040 Comprehensive Plan as well as the Plan itself.

Per Angela R. Torres letter to the City regarding the Metropolitan Council approval and recommendations to the city of Circle Pines 2040 Comprehensive Plan, the city made the following changes or actions related to the plan.

1. Staff revised the City's forecasts to mirror the Metropolitan Council forecasts.
2. Staff revised affordable housing need allocation to 12 units.
3. Staff included Low Income Housing Tax Credit as a housing tool in the housing section.
4. The Water Plan is completed and was approved by the DNR.
5. The Sewer Comprehensive Plan was approved through Resolution 2021-01.

If you have any questions, please let me know.

Sincerely,



Chandra Peterson

Assistant City Administrator for Public Services

**RESOLUTION 2021-01**

**STATE OF MINNESOTA  
COUNTY OF ANOKA  
CITY OF CIRCLE PINES**

**A RESOLUTION ADOPTING THE 2040 CITY OF CIRCLE PINES COMPREHENSIVE PLAN UPDATE, A COMPILATION OF POLICY STATEMENTS, GOALS, STANDARDS, AND MAPS FOR GUIDING THE OVERALL DEVELOPMENT AND REDEVELOPMENT OF THE LOCAL GOVERNMENTAL UNIT**

**WHEREAS**, Minnesota Statutes section 473.864 requires each local governmental unit to review and, if necessary, amend its entire comprehensive plan and its fiscal devices and official controls at least once every ten years to ensure its comprehensive plan conforms to metropolitan system plans and ensure its fiscal devices and official controls do not conflict with the comprehensive plan or permit activities that conflict with metropolitan system plans; and

**WHEREAS**, Minnesota Statutes sections 473.858 and 473.864 require local governmental units to complete their "decennial" reviews by December 31, 2018; and

**WHEREAS**, the City of Circle Pines authorized the review and update of its Comprehensive Plan; and

**WHEREAS**, the proposed City of Circle Pines 2040 Comprehensive Plan is a planning tool intended to guide the future growth and development of City of Circle Pines in a manner that conforms with metropolitan system plans and complies with the Metropolitan Land Planning Act and other applicable planning statutes; and

**WHEREAS**, pursuant to Minnesota Statutes section 473.858, the proposed 2040 Comprehensive Plan was submitted to adjacent governmental units and affected special districts and school districts for review and comment on June 20, 2019 and the statutory six-month review and comment period has elapsed; and

**WHEREAS**, the Planning Commission has considered the proposed 2040 Comprehensive Plan and all public comments, and thereafter submitted its recommendations to the City of Circle Pines; and

**WHEREAS**, on December 10, 2019 the City of Circle Pines conducted a public hearing(s) on the proposed 2040 Comprehensive Plan; and

**WHEREAS**, the City of Circle Pines approved Resolution 2019-22 authorizing the proposed 2040 Comprehensive Plan, including the Comprehensive Sewer Plan, to be submitted to the Metropolitan Council for review; and

**WHEREAS**, at its regular meeting on December 23, 2020 the Metropolitan Council completed its review of the proposed 2040 Comprehensive Plan and the Comprehensive Sewer Plan and found that the Plan meets the requirements of the Metropolitan Land Planning Act; conforms to the metropolitan system plans for transportation (including aviation), water resources, and parks; is consistent with *Thrive MSP 2040*; and is compatible with the plans of adjacent jurisdictions and affected special districts and school districts; and

**WHEREAS**, the 2040 proposed Comprehensive Plan includes all revisions made during the review process and responds to additional advisory comments that are part of the Metropolitan Council's actions authorizing the City of Circle Pines to place its proposed 2040 Comprehensive Plan into effect.

**WHEREAS**, the 2040 proposed Comprehensive Plan includes all revisions made during the review process and responds to additional advisory comments that are part of the Metropolitan Council's actions authorizing the City of Circle Pines to place its proposed 2040 Comprehensive Plan into effect; and

**WHEREAS**, the Metropolitan Council approves the City of Circle Pines Comprehensive Sewer Plan.

**NOW THERE, BE IT RESOLVED BY THE CITY OF CIRCLE PINES, MINNESOTA**, that the City of Circle Pines 2040 Comprehensive Plan is adopted and is effective as of the date of this resolution.

**BE IT FURTHER RESOLVED** that, pursuant to sections 473.864 and 473.865 of the Metropolitan Land Planning Act, the City of Circle Pines will: (1) review its fiscal devices and official controls; (2) if necessary, amend its fiscal devices and official controls to ensure they do not conflict with the 2040 Comprehensive Plan or permit activity in conflict with metropolitan system plans; and (3) submit amendments to fiscal devices or official controls to the Metropolitan Council for "information purposes."

The motion of the adoption of the foregoing resolution was duly made by Member McChesney, and duly seconded by Member Goldberg. Upon vote being taken thereon, the following voted in favor: McChesney, Rauner, Goldberg, Percy and Bartholomay.

And no members voted against the same.

Whereupon this resolution is duly adopted on February 23, 2021

  
Dave Bartholomay, Mayor

Attest:

  
\_\_\_\_\_  
Patrick Antonen, City Administrator



**Comprehensive Plan  
2020-2040**

**December 2019**



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Fax: (763) 785-2859  
[www.circle-pines.mn.us](http://www.circle-pines.mn.us)

TO: Planning Commission Members

FROM: Chandra Peterson *CP*

DATE: May 3, 2019

RE: Comprehensive Plan: Chapter 2 Land Use, Chapter 4 Water Resources-Sewer, Chapter 7 Economic Competitiveness, Chapter 9 Implementation

Attached to this memo are the final four chapters of the 2040 Comprehensive Plan to review.

## Chapter 2 Land Use

Metropolitan Council has identified Circle Pines as a Suburban designation. Suburban communities experienced continued growth and expansion during the 1980s and early 1990s, and typically have automobile-oriented development patterns at significantly lower densities than in previous eras. Suburban communities are expected to plan for forecasted population and household growth at average densities of at least 5 units per acre for new developments and redevelopments. Staff has identified roughly 10 areas for possible development/redevelopment which amounts to 15.2 acres of land.

In utilizing the Residential Redevelopment Staging by Decade table and using the minimum amount of units, it comes out to be 88 total residential units. This gives Circle Pines an overall density of 5.78 per acre which is more than the required 5 units per acre expected for suburban communities. While the city has identified areas and lots for redevelopment, additional sites could be added as market conditions change. **Identification as a redevelopment site only indicated potential for development and does not indicate the existence of a proposed development.** The end of the chapter does outline goals and strategies as developers are looking to develop or redevelop in the city.

## Chapter 4 Water Resources-Sewer

This chapter states that Circle Pines is a fully built community and the impacts of any development or redevelopment would not have a significant impact on the sewer system itself. Also, the city will continue to work on I/I which is Infiltration and Inflow of clean water intruding into the sewer system through cracks in the sewer pipe or residents discharging sump pump water through the sewer



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system instead of outside onto their lawns. The city has been replacing sewer mains through street reconstruction projects and the city will begin to see a decline in the metered amounts which will cost the city less money.

## **Chapter 7 Economic Competitiveness**

This chapter outlines the economic growth opportunities, goals and tools used to maintain and cultivate Circle Pines as a vibrant business community.

## **Chapter 9 Implementation**

This chapter outlines the official controls and capital improvement program that will be used to schedule financial projections of major projects.

**CITY OF CIRCLE PINES, MINNESOTA  
PLANNING COMMISSION MEETING**

**April 15, 2019  
7:00 p.m.**

**1. CALL TO ORDER**

Chair Kula called the meeting to order at 7:00 p.m.

**2. ROLL CALL**

Also present were Commissioners Thompson, Petska, Poppinga and McChesney and Assistant City Administrator for Public Services Peterson.

**3. APPROVAL OF MINUTES**

**MOTION:**

McChesney moved, seconded by Petska, to approve the March 18, 2019 minutes as presented. **Motion carried 5-0.**

**4. PUBLIC COMMENTS**

There were no public comments.

**5. COUNCIL REPORT**

Assistant City Administrator for Public Services Peterson reported that the Council, at its March 26 meeting, reviewed the 2040 Comprehensive Plan chapters from the March 18, 2019 Planning Commission meeting. She said those chapters were then moved forward in the process.

**6. COMMISSION BUSINESS**

**a. 2040 Comprehensive Plan**

Assistant City Administrator for Public Services Peterson noted the two sections of Chapter 4 included tonight are Surface Water and Water Supply, and the Sewer section will be reviewed at the next meeting.

Peterson noted Chapter 5, Parks and Trails, is also included for review tonight.

Chapter 4 Water Resources – Surface Water and Water Supply

Peterson explained that surface water is basically storm water, or any water that falls from the sky and flows through the city's system. She said the plan was previously approved by the City Council, and the city holds a storm water permit granted by the State of Minnesota who reviews and approves the plan.

Peterson commented that the city utilizes the plan most days using the best management practices and communicates the plan through newsletters. She said the city also follows everyday practices such as street sweeping and making sure inputs and outputs are clear. It was noted this chapter is put together by the city engineer.

Chair Kula mentioned the former city administrator's name is on the notification list in Appendix A and that will need to be changed. Peterson said that is in the Water Supply Plan and will be corrected. She added that the Water Supply Plan is put together by staff and is submitted to the DNR and Met Council for comment.

Kula asked what impact, if any, will the Arden Hills project have on communities such as ours as that project will have a great deal of impervious surface. Peterson said she does not know about possible impact, but that project is downstream from Circle Pines.

Commissioner McChesney asked if the demand for water is expected to decrease, according to the report. Peterson said yes, it may decrease. McChesney asked if the water conservation efforts by the city are done electively. Peterson said they are, in addition to the tiered water consumption.

Chapter 4, page 22 of Water Resources references a "volume debit" with Rice Creek Watershed District. Kula asked if that refers to the city not using as much water. Peterson said that formula relates to surface water area when a city builds and the formula that has since changed is currently in flux.

Commissioner Thompson asked if there are plans to reuse the surface water runoff. Peterson reported the city has a reuse system in Baldwin Park and uses it to water the ball fields. She noted there is another reuse system off Stardust Boulevard and the iron-enhanced sand filter project off Lake Drive is a way to take phosphorus out of water before it goes into Golden Lake.

Kula commented the city does a good job of notifying citizens of the need to keep lawn debris out of city streets. Peterson mentioned there is a Boy Scout group that will be doing a project to stencil the storm water inlets to also help with awareness.

Kula asked if there are any known sites in the city that are a threat to the water table. Peterson responded none that the city is aware of. She said anything that has been buried in the past has been documented and contained.

It was noted there is one private well and two private septic systems in the city, both on County Road J.

Kula asked if the unknown funding sources for future plans could come from State Aid or is it the city's General Fund. Peterson said generally, the city applies for grants or partnerships.

Kula noted the Wellhead Protection and Sourcewater Protection Plans on page 51 are identified as "in process" and asked if staff or engineers are working on those.

Peterson said a city engineer was working on the Wellhead Protection Plan that is now completed as is the Sourcewater Protection Plan.

Kula asked if the ongoing restriction every year is the odd/even sprinkling ban. Peterson said it is. Kula asked if there is much violation. Peterson said there is not a lot of violation, just more that residents need to be informed of their set time to water.

### Chapter 5 Parks and Trails

Assistant City Administrator for Public Services Peterson gave an overview of the chapter. She mentioned the plan basically identifies what is currently in the system, including trails, condition of parks and structures and projected needs over 10 to 20 years. She said there is also a capital improvement plan related to playgrounds and trails.

Commissioner McChesney asked if the playground equipment fund is different than the General Fund. Peterson replied the General Fund contributes around \$20,000 per year toward the playground equipment fund so the money for equipment is there when needed.

Commissioner Poppinga asked if the canoe launch at the end of East Golden Lake Road is bundled with Golden Lake Park. Peterson responded that it is a separate piece.

Kula asked if the parks are all designed to remain in existence and remain improved as the plan is identifying or is the plan a wish list. Peterson said it's a wish list, or a guide for the city into the future.

Kula complimented the Park Board and city staff for their efforts on presenting this chapter.

Commissioner Thompson asked if the piece of land between Stardust Boulevard and the back of Carl Eck Park will remain free of development. Peterson said there is a reuse system underground at that location that takes water out of the system, treats it, and puts it back into the creek. She added that previous Park Board discussions determined the area was not large enough for park expansion.

## 7. ADJOURNMENT

**MOTION:** Poppinga moved, seconded by Petska, to adjourn the meeting. **Motion carried 5-0.**

The meeting was adjourned at 7:30 p.m.

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**Chair**

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**Clerk**



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Fax: (763) 785-2859  
[www.circle-pines.mn.us](http://www.circle-pines.mn.us)

TO: City Council Members  
FROM: Chandra Peterson   
DATE: November 20, 2019  
RE: 2020-2040 Comprehensive Plan

If you would like to review the 2020-2040 Comprehensive Plan, it is on the city website located under the Government tab. Enclosed with this memo you will find comments received from surrounding communities and entities. All comments were considered and have been documented.

Changes were made in Chapter 4-Water Supply p. 33 D. An additional paragraph was added to take into consideration the County's suggestion to add information regarding the City's involvement in the Wellhead Protection Group.

The Planning Commission reviewed the plan and has recommended to the City Council preliminary approval of the 2020-2040 Comprehensive Plan subject to Metropolitan Council review.

The Plan is due on December 31, 2019. Once the Metropolitan Council receives the plan, they will have 120 days to review for comments. During this time they may ask the city for more clarification or more information. Once the Metropolitan Council is satisfied with the plan, the City Council will then take action to approve the Comprehensive Plan.

Recommendation is for the City Council to preliminarily approve the 2020-2040 Comprehensive Plan subject to Metropolitan Council review.

**CITY OF CIRCLE PINES, MINNESOTA  
REGULAR CITY COUNCIL MEETING**

**Tuesday, November 26, 2019  
7:00 p.m.**

**1. CALL TO ORDER**

Mayor Bartholomay called the meeting to order at 7:02 p.m.

**2. ROLL CALL**

Also present were Council Members Goldberg, Rauner, Schweigert and Percy and City Administrator Antonen.

**3. SETTING OF AGENDA**

There were no changes to the agenda.

**4. COMMENTS**

**a. Taxpayer Comments**

Five students from Centennial High School introduced themselves and announced plans for college.

**b. Council Member Comments**

Council Member Goldberg mentioned he and the city administrator attended the League of Minnesota Cities Regional meeting November 14. He said he attended presentations on employment and economic development, affordable housing needs, and city support for first responders.

**c. Mayor Comments**

Mayor Bartholomay commented on the following:

- Census Man on the John Oliver Show
- Meeting with library director
- Happy Thanksgiving
- Snowplowing in the city

**5. COMMITTEE REPORTS**

**a. Utilities Commission**

Mayor Bartholomay reported the commission met November 18 and business included authorization of a call for outstanding bonds, bid award for the 2020 gas replacement project, and a work session to discuss the 2020 budget.

**b. Cable Commission**

City Administrator Antonen reported the commission met November 20. He said the North Metro TV streaming app is now available on Roku and Apple TV. He added that third quarter PEG and franchise fees continue to grow. Antonen noted an audit was conducted on franchise fees and the FCC order is currently in the Court of Appeals.

**c. Park Board**

City Administrator Antonen reported the board met November 12 and received the 2019 Parks Report listing statistics from parks activities. He said Parks Superintendent Pat Stapleton also provided an update on damage and maintenance issues at the parks as well as planned improvements to parks and trails.

Mayor Bartholomay noted there are currently materials in the parking lot of Golden Lake Park that will be used to by the Minnesota Department of Natural Resources to reconstruct the fishing pier next spring. Council Member Goldberg suggested highlighting in newsletters the plans for improving parks and trails in 2020.

**d. Police Governing Board**

Mayor Bartholomay reported the board met November 18 where a swearing-in ceremony was conducted as well as a presentation of awards that included a civilian service award, three lifesaving awards and a stork award. He said an annual audit proposal was also approved, followed by a closed session to discuss contract negotiations.

**6. COUNCIL BUSINESS**

**a. Consent Agenda**

Items included:

1. Minutes: 11/12/19 Regular Council Meeting
2. General Fund Disbursements
3. Police Disbursements
4. Fire Disbursements

## 5. Licenses

**MOTION:** Rauner moved, seconded by Goldberg, to approve the Consent Agenda as presented. **Motion carried 5-0.**

### **b. Anoka County Regional Economic Development Presentation**

Jacqueline Hajder, Economic Development Specialist with Anoka County Regional Economic Development Authority, spoke about the goals and priorities of economic development, employment trends, marketing tools and events as well as local partnerships and projects.

Council Member Percy asked if the Anoka County Airport is a big driver of business for the community. Hajder said the airport's economic specialist recently reported on the use of the airport by area business owners and how that is a tool for companies considering locating in the region. She added that commercial shipment of goods is not a function of the airport, only use by company executives.

Hajder mentioned there is a technology initiative for raw land development in the region. She said there is interest in locating a site in Connexus' territory for a data center for technology development.

Council Member Schweigert asked if there is evidence of a data center company renovating an existing building rather than building a new one. Hajder said she knows of no examples in Minnesota, except for a couple small data centers for specific companies.

### **c. Preliminary Approval 2020-2040 Comprehensive Plan**

Mayor Bartholomay thanked Assistant City Administrator for Public Services Chandra Peterson and also City Administrator Antonen for efforts on the 2040 Comprehensive Plan. He said it is the future focus for the city.

Antonen reminded the council that the 2040 Preliminary Comprehensive Plan was approved last May and was sent for review to neighboring communities and government entities. He said comments were received and the main changes are in Chapter 4 where wellhead protection information was added. He said the plan is due to be submitted to the Metropolitan Council by December 31, 2019, they will have 120 days to review it and suggest changes. Antonen said the recommendation tonight is for the council to give preliminary approval of the plan for Met Council review.

Council Member Rauner asked if there is room in the plan to address the comments from the Department of Natural Resources. Antonen said the

groundwater management part is incorporated in the wellhead protection information.

Mayor Bartholomay commented on the benefits of having a plan that outlines continuous improvements for the city.

**MOTION:** Schweigert moved, seconded by Goldberg, to give preliminary approval of Circle Pines 2040 Comprehensive Plan subject to Metropolitan Council review. **Motion carried 5-0.**

## **7. ADJOURN TO WORK SESSION**

It was noted the purpose of the work session is to discuss labor negotiations and the 2020 budget.

**MOTION:** Percy moved, seconded by Schweigert, to adjourn to work session at 8:00 p.m. **Motion carried 5-0.**

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**Mayor**

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**Clerk**

**RESOLUTION NO. 2019-22**

**STATE OF MINNESOTA  
COUNTY OF ANOKA  
CITY OF CIRCLE PINES, MINNESOTA**

**RESOLUTION SUBMITTING THE CITY OF CIRCLE PINES  
2040 COMPREHENSIVE PLAN TO THE METROPOLITAN COUNCIL FOR REVIEW**

**WHEREAS**, Minnesota Statutes (Minn. Stat. §473.175) require that cities review and revise their comprehensive plans for consistency with Metropolitan Council policy plans; and

**WHEREAS**, the Metropolitan Council has amended its policy plans and has provided system statements outlining Council policy relative to the City; and

**WHEREAS**, the Circle Pines Planning Commission recommended submittal of the Comprehensive plan to the Circle Pines City Council; and

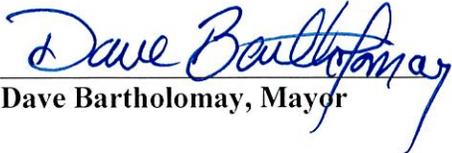
**WHEREAS**, the Circle Pines City Council reviewed staff recommendations, and the recommendations of the Circle Pines Planning Commission for the Comprehensive Plan;

**WHEREAS**, the Circle Pines City Council authorized six-month comment review of the Comprehensive Plan to adjoining jurisdictions; and

**WHEREAS**, the Circle Pines City Council reviewed comments received by adjoining jurisdictions; and

**NOW THEREFORE, BE IT RESOLVED** that the City of Circle Pines City Council hereby authorizes the 2040 Comprehensive Plan be submitted to the Metropolitan Council for review.

Adopted by the City Council this 10th day of December, 2019.

  
Dave Bartholomay, Mayor

(SEAL)

ATTEST:



Patrick Antonen, City Administrator

## Chapter 1: Comprehensive Plan Overview

### Metropolitan Council

The Metropolitan Council adopted Thrive MSP 2040 as the new regional development guide on May 28, 2014. Thrive identifies five outcomes that set the policy direction for the region’s system and policy plans. Building on our region’s history of effective stewardship of our resources, Thrive envisions a prosperous, equitable, and livable region that is sustainable for today and generations to come. The Council is directing its operations, plans, policies, programs, and resources toward achieving this shared long term vision.

Three principles define the approach to implementing regional policy: integration, collaboration, and accountability. The principles define the Council’s approach to policy implementation and set expectations for how the Council interacts with local governments.

The land use policies in Thrive establish a series of commitments from the Council for local governments and uses community designations to shape development policies for communities. Community designations group jurisdictions based on Urban or Rural character for the application of regional policies. Together, the land use policies and community designations help implement the region’s vision by setting expectations for development density and the character of development throughout the region.

*Source: Metropolitan Council*

### Local Comprehensive Plans

Minnesota Statute requires certain topic areas to be included in local comprehensive plans. The Local Planning Handbook is organized around Plan Elements and provides guidance on how to meet requirements within these planning areas. These Plan Elements in the Local Planning Handbook are:



- Land Use
- Transportation
- Water Resources (Wastewater, Surface Water, Water Supply)
- Park & Trails
- Housing
- Plan Implementation

Other Plan Elements are identified as issues of regional importance and are reflective of Thrive MSP 2040's policies. These Plan Elements are:

- Resilience
- Economic Competitiveness

*Source: Metropolitan Council*

### **Circle Pines Comprehensive Plan Objective and Policies**

The City of Circle Pines Comprehensive Plan is a plan that was developed to provide direction for the future decisions of the city. Policies, standards and programs are contained in the plan to guide the future focus of the community. The city's focus will be on protecting natural resources and ensuring public infrastructure. The city will utilize the Capital Improvement Program to implement the focus of the community.

### **Community Background**

Circle Pines is located in the southeast part of Anoka County where residents enjoy the scenic and restful surroundings of a residential community located 15 miles north of the Twin Cities.

The people who settled in Circle Pines in the late 1940's desired a "cooperative lifestyle". A cooperative is a group of people joined together to provide for their own needs rather than buying what is needed from private enterprise.

The idea was that people who lived in Circle Pines, would have a stake in the businesses that served the community.

The symbol for cooperatives was a pine tree with a circle around it. Thus, the name Circle Pines was born. After only three years, the cooperative lifestyle was abandoned, in part because of problems in securing financing and rifts among the leaders.

On April 8, 1950, the area, former territory in Blaine and Centerville townships, was incorporated as a village. In 1974, Circle Pines received city status.

### **General Environmental Features**

The city's environmental features include two major resources, Golden Lake and the Rice Creek corridor. Golden Lake shoreline is completely developed and provides an important resource to the City. The Rice Creek Corridor is a vast area of open space; 230

acres of the corridor is within the City. Rice Creek runs out of Baldwin Lake, on the east side, into Circle Pines and out into Blaine on the southwestern side of the city. The open space is a very beautiful and important environmental factor of the city. Other important environmental features are the many parks and open spaces within the city, which provide citizens with a sense of country while still being in the suburbs.

### **Community Image**

The City of Circle Pines shares borders with Lexington, Blaine, Lino Lakes and Shoreview. Circle Pines shares many services with its neighbors to create efficiency and a community sense within the Centennial area. The city shares Police Services with Lexington and Centerville, Fire and Rescue services with Centerville. Having the ability to share services gives the whole northern suburb area a sense of community.

### **Housing**

86% of the housing in Circle Pines was built before 1990. This means Circle Pines has reached an age where ongoing maintenance and improvements is important to its continued viability. Because Circle Pines only has a few undeveloped lots, the city concentrates its efforts redevelopment and renovation. The community needs to utilize specific programs to promote redevelopment and stability for commercial and housing stock.

### **Schools**

Circle Pines has one elementary school within its borders, Golden Lake Elementary, which serves grades K-5. Golden Lake Elementary School is located in a residential area near Golden Lake. Across the street from Circle Pines in Blaine are Centennial Elementary (grades K-5) and Centennial Senior High (grades 10-12). Centennial Middle School is located in Lino Lakes (grades 6-8)

### **Public Services and Centennial Utilities**

The city, through its utility operation (Centennial Utilities), provides natural gas, water, sewer and storm sewer to its residents and customers. A five-member public utilities commission administers the utilities. The municipal gas system provides natural gas distribution and service to the residents of Circle Pines and portions of Lino Lakes and Blaine. Circle Pines Utilities buys gas in the producing regions of the United States and Canada. The sewer, water, and street maintenance are provided to residents throughout the city. Sewage treatment is handled through Metropolitan Council Wastewater Services. Water and street maintenance are also provided by the city.

### **Vision Statement:**

Circle Pines is a vibrant community, treasuring our parks and open spaces. The city is dedicated to livability and safety through quality services.

### **Plan Objective**

The City of Circle Pines is a fully developed community and utilizes the vision statement that Circle Pines uses for priorities for future action and investment is: "Circle Pines is a

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vibrant community treasuring our parks and open spaces. The city is dedicated to livability and safety through quality services.

The City's future focus is to keep up with the growing trends in the metro area through renovation in all areas of city services and to be consistent with Metropolitan Council policies and systems plans as well as be compatible with plans of affected jurisdictions.

## Chapter 2: Land Use

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### Introduction

Circle Pines' future land use plan identifies the location and intensity of future development within the city and establishes a framework in which future development will occur. This plan is intended to guide future development and growth to achieve the community's objectives for balanced, compatible and efficient growth. A key purpose of a Comprehensive Plan is to incorporate forecasted population growth, housing needs, and development opportunities into future land use decisions. The Future Land Use Map is the primary way to do that.

Circle Pines has a unique pattern of development, with large portions of the city covered by wetlands and parklands. Large-scale development of the community began in the 1950s, with the majority of the city developed by the 1990s. The city has undergone some redevelopment since 2000. As a fully developed community, Circle Pines will focus on small infill development and redevelopment opportunities.



The city has prepared a Future Land Use Plan that guides the use and phasing of development in a manner that allows for flexibility to respond to market conditions and provides for types of development desired in the future, such as a variety of housing densities and mixed-use developments. The Future Land Use Plan utilizes the Metropolitan Council forecasts for potential development and provide methods through land use and density to meet the Metropolitan Council's guidance to develop at a minimum density of 5 units per net acre. As a regional planning organization, the Metropolitan Council's role is to ensure regional infrastructure can accommodate Circle Pines' potential growth and growth within the region. Meeting this minimum density requirement ensures that regional infrastructure is used in a cost-effective and efficient manner.

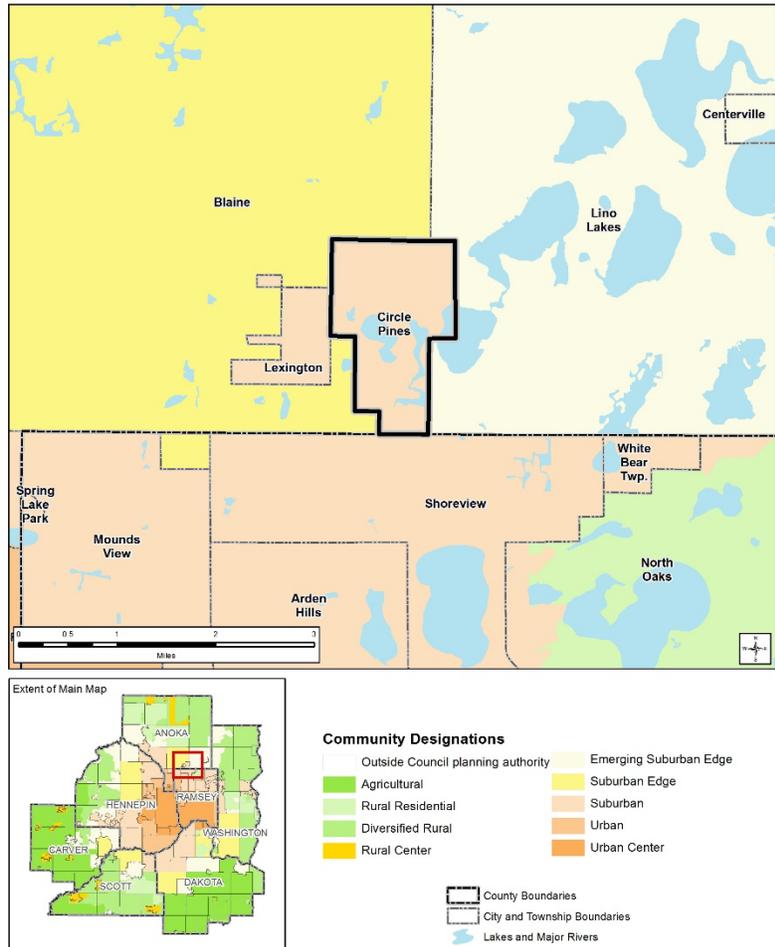
The purpose of the land use inventory is to identify existing development in the city. From this inventory, and the other background information that is compiled, areas of potential development or redevelopment can be analyzed. The inventory can also help classify areas, revealing development patterns, densities, and trends that can provide direction for future development and redevelopment.

### Metropolitan Council Community Designation

The City of Circle Pines acknowledges the Metropolitan Council’s community designation for Circle Pines as Suburban. Suburban communities experienced continued growth and expansion during the 1980s and early 1990s and have automobile-oriented development patterns at significantly lower densities than in previous eras. The Community Designation Map graphically indicates the designation.

Suburban communities are expected to plan for forecasted population and household growth at average densities of at least 5 units per acre for new development and redevelopment.

Community Designations  
City of Circle Pines, Anoka County

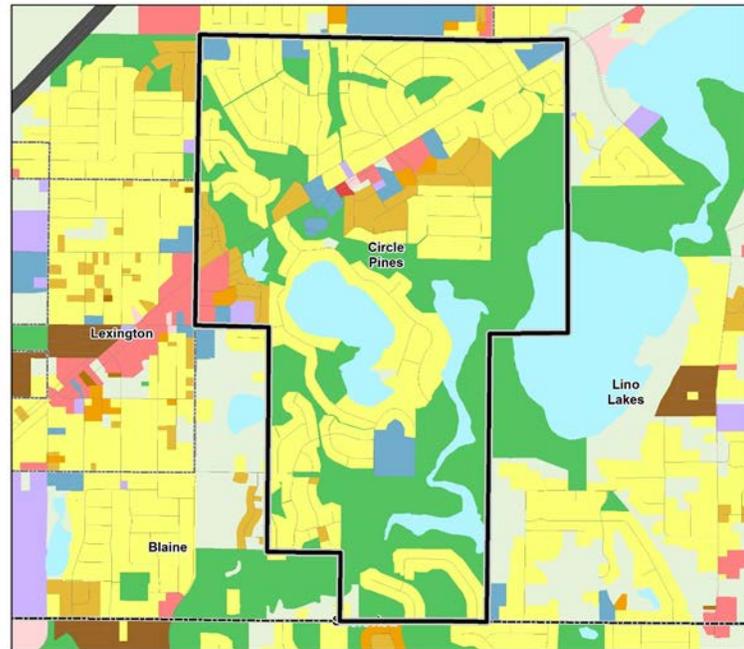


## Existing Land Use

The Existing Land Use Map graphically indicates the location, intensity and type of development in the city. As shown in the map the City of Circle Pines is a fully developed community. The Existing Land Uses and Acreage Table below illustrates that one-third of Circle Pines consists of open space or park space and that much of Eastern Circle Pines is occupied by open space, Anoka County Rice Creek-North Regional Park Lands. Currently the City has commercial areas located South of Lake Drive along Lexington Avenue. There is also a cluster of businesses in the heart of the city along Lake Drive at Pine Drive. The rest of Circle Pines consists of residential dwellings.

2016 Generalized Land Use

City of Circle Pines, Anoka County



2016 Generalized Land Use



## Generalized Existing Land Uses and the Acreage

Land Use Category	Acres	Percent of Total
Industrial and Utility	6	0%
Institutional	49	4%
Mixed Use Commercial and Other	1	0%
Mixed Use Residential	0	0%
Multifamily	7	1%
Office	1	0%
Open Water	139	11%
Park, Recreation or Preserve	405	33%
Retail and Other Commercial	21	2%
Single Family Attached	68	5%
Single Family Detached	537	43%
Undeveloped	8	1%

## Future Land Use

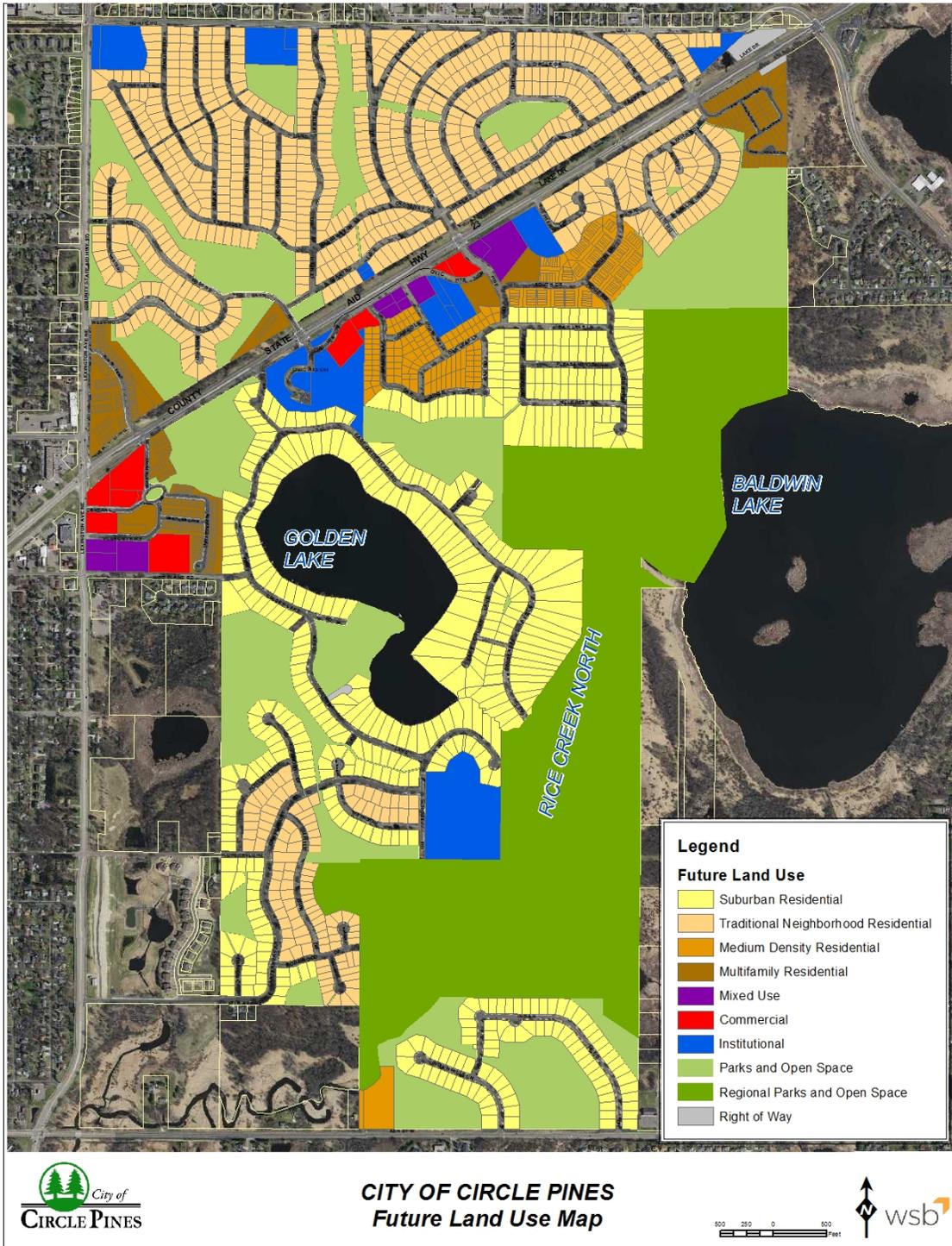
The city has updated its future land use map to accommodate and encourage scattered redevelopment, to be a more accurate reflection of existing and future uses, and to provide additional guidance to elected and appointed officials, city staff, property owners, the development community, and the general public.

### 2040 Land Use Categories

Land Use District	Description	Density
Suburban Residential	Low-density single family detached housing on larger lots	2-3 units / acre
Traditional Neighborhood Residential	Low-density single family detached housing	3-6 units / acre
Medium Density Residential	Single family detached housing	8-10 units / acre
Multifamily Residential	Single family attached housing, multifamily housing	10-30 units / acre
Commercial	Businesses, service establishments, retail and industrial uses	NA
Mixed Use	Multifamily residential and commercial uses in vertical or horizontal mixed development	10-30 units / acre 50% residential 25% retail 25% office
Water	Open water including lakes and creeks	NA
Parks and Open Space	City and county park and open space	NA
Institutional	Government facilities, schools, and places of worship	NA
Regional Parks and Open Space	Regional parks and open space	NA
Right of Way	Transportation and public right of way	NA

### 2040 Future Land Uses and the Acreage

Land Use	Acreage	Percent of Total
Suburban Residential	198.12	15.9%
Traditional Neighborhood Residential	226.46	18.2%
Medium Density Residential	31.37	2.5%
Multifamily Residential	36.46	2.9%
Commercial	13.13	1.1%
Mixed Use	10.22	0.8%
Parks and Open Space	182.05	14.7%
Institutional	42.37	3.4%
Regional Parks and Open Space	246.91	19.9%
Right of Way	255.13	20.5%
<b>Total</b>	<b>1,242.22</b>	<b>100%</b>

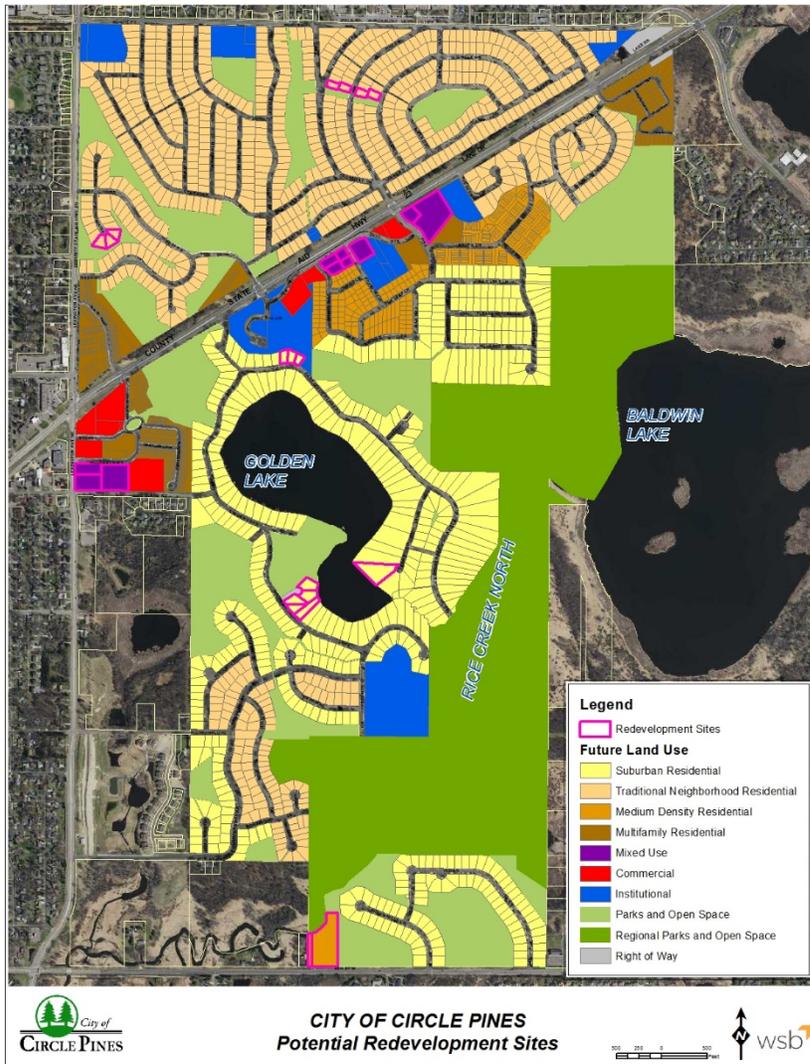


**Land Use Designation Changes**

The 2040 Comprehensive Plan renames a number of land use categories to better reflect existing characteristics and provide more flexibility. Additionally, a number of parcels have been reguided to better reflect existing and future land uses. Changes include:

- 2-3 Housing Units/Acre renamed Suburban Residential

- 4 Housing Units/Acre renamed Traditional Neighborhood Residential
- 4-8 Housing Units/Acre renamed Medium Density Residential
- 10+ Housing Units/Acre renamed Multifamily Residential
- Schools, Churches, and Nonpark renamed Institutional
- City and County Parks renamed Parks and Open Space
- Regional Open Space renamed Regional Parks and Open Space
- Mixed Use district added
- A number of parcels reguided from Commercial to Mixed Use
- A number of parcels reguided from City and County Parks to Suburban Residential and Traditional Neighborhood Residential
- A number of parcels reguided from Schools, Churches, and Nonpark and 4-8 Housing Units/Acre to City and County Parks



### Redevelopment

The city has identified several potential redevelopment sites throughout the community. While the city intends to allow the private market to drive redevelopment, the city would consider providing assistance and resources to projects on a case-by-case basis and for those projects that meet the goals of this plan. While these sites have been identified for redevelopment additional sites could be added as market conditions change. Identification as a redevelopment site only indicates the potential for redevelopment and does not indicate the existence of a proposed redevelopment.

**Expected Growth and Population Forecasts**

Future land use planning begins with incorporating forecasts of community growth and anticipating the needs that will arise because of this growth and change. The Metropolitan Council has developed growth forecasts for Circle Pines by decade, addressing the projected population, number of households, and number of jobs. Meeting expected growth projections requires intentional land use planning. Metropolitan Council forecasts indicate that Circle will experience a slow rate of growth, supported through scattered site redevelopment efforts.

**Forecasted Population, Households and Employment**

	<b>2016</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>
<b>Population</b>	5,023	5,000	5,200	5,300
<b>Household</b>	2,035	2,100	2,160	2,200
<b>Employment</b>	727	900	950	1,000

The tables below outline anticipated growth of 63 households during the 2021-2030 decade and 92 households during the 2031-2040 decade. This meets the forecasted growth models put forth by the Metropolitan Council.



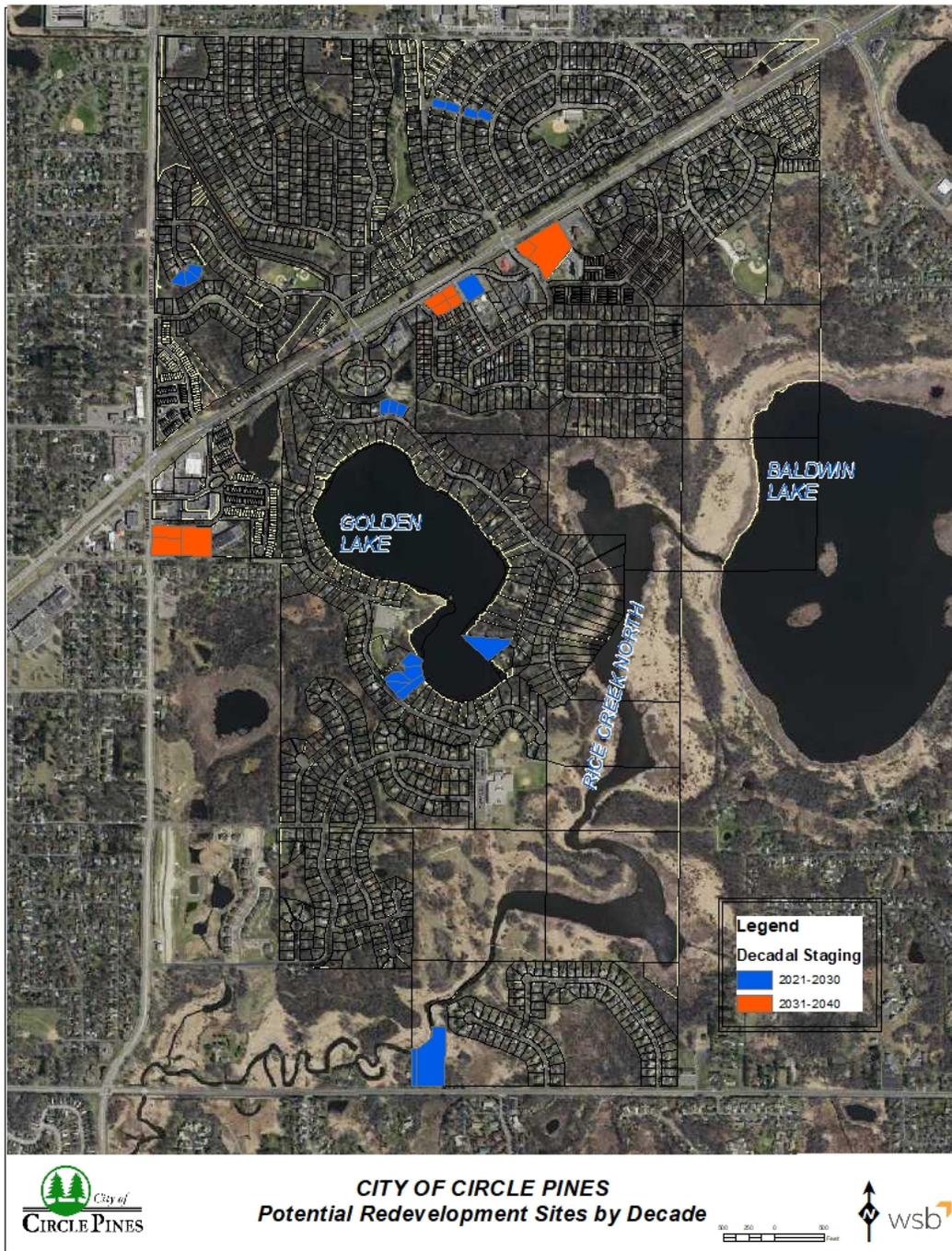
**Residential Redevelopment Staging by Decade**

Land Use Type	Total Dev. Acres	Acres 2019-2020	Acres 2021-2030	Acres 2031-2040	Density Range			Yield %	Min 2019-2020	Min 2021-2030	Min 2031-2040	Total Min Units	Midpoint 2019-2020	Midpoint 2021-2030	Midpoint 2031-2040	Total Midpoint Units
					Min	Mid	Max									
<b>Suburban Residential</b>	4.50	0	4.50	0	2	2.5	3	100%	0	9	0	9	0	11	0	11
<b>Traditional Neighborhood Residential</b>	1.90	0	1.90	0	3	4.5	6	100%	0	6	0	6	0	9	0	9
<b>Medium Density Residential</b>	3.70	0	3.70	0	8	9	10	100%	0	30	0	30	0	33	0	33
<b>Mixed Use</b>	10.20	0	1.00	9.22	10	20	30	50%	0	5	46	51	0	10	92	102
<b>Guided Total</b>	<b>15.20</b>	<b>0</b>	<b>11.10</b>	<b>9.22</b>					<b>0</b>	<b>49</b>	<b>46</b>	<b>88</b>	<b>0</b>	<b>63</b>	<b>92</b>	<b>155</b>

**Affordable Housing by Decade**

Affordability Band	Density Minimum	Minimum Units		Midpoint Units	
		2021--2030	2031-2040	2021-2030	2031-2040
51-80% AMI	8 units/acre	30	0	33	0
50% AMI and Below	10 units/acre	5	46	10	92
<b>Total Units</b>		<b>35</b>	<b>46</b>	<b>43</b>	<b>92</b>

### Redevelopment Potential by Decade



### Overall Density

The lands guided for potential redevelopment exceed the required density for communities designated as Suburban. The Metropolitan Council outlines a density of 5 units per acre.

<b>Community Density Table</b>	
Acres Guided for Redevelopment	15.2
Minimum Expected Residential Units	88
Overall Density	5.78

- **Overall Average Density:** Applying the *minimum* end of the density range to each residential land use category, the overall density is the total number of expected minimum units divided by the total number of acres in the likely redevelopment areas. The overall expected average density of the potential growth areas of Circle Pines is about 6.27 units per acre, which exceeds the minimum of 5 units per acre range expected of Suburban communities.
- **Overall Forecasted Growth:** Applying the *midpoint* of the density range to each residential land use category, the net number of expected units from this calculation is 155 units added by 2040.

It is important to note that it is difficult to provide an accurate forecast at the individual land use category level and individual category growth rates could vary significantly. However, the City will monitor the growth in aggregate to ensure that it remains within forecasted ranges or that the Metropolitan Council is alerted if aggregate growth begins to appear that might significantly vary from what is forecasted.

**Employment Forecast**

The City has identified a number of sites for mixed use redevelopment. Assuming an even split of office and retail uses it is anticipated the city will add approximately 78 jobs through the year 2040. Given the reality of changes to the office and retail markets, automation, online shopping, and remote work, these figures are only to be used for planning purposes.

**Expected Employment Growth**

Land Use	Acres	Square Feet	Yield	Floor Area Ratio	Square Foot Yield	Square Feet/Employee	Employees
Mixed Use - Retail	10.2	444,312	25%	0.28	31,102	1200	26
Mixed Use - Office	10.2	444,312	25%	0.28	31,102	600	52

**MUSA**

The city of Circle Pines is entirely located within the MUSA.

**Airport**

There are currently no existing or planned aviation facilities within Circle Pines. However, the City is responsible for airspace protection in order to reduce hazards to air travel within the region. The closest airport is the Anoka County-Blaine Airport, approximately 3 miles west of Circle Pines.

Due to the distance to the nearest airport, there are no radio beacons or other air navigation aids located in off-airport locations in Circle Pines. The city is not within an area of influence and is therefore not subject to associated land use restrictions.

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Any person or organization who intends to sponsor the construction or alteration of a structure affecting navigable airspace as defined in Federal Regulation Title 14; Part 77 needs to inform the Federal Aviation Agency (FAA) of the project. This notification is accomplished through the completion and submittal to FAA of Form 7460-1, Notice of Proposed Construction or Alteration. In Circle Pines, this requirement applies to any construction or alteration exceeding 200 feet above ground level.

There are currently no heliports in Circle Pines or any known plans to construct one. Additionally, none of the surface waters within the city are identified by MnDOT as an authorized landing site for seaplanes.

## Special Resource Protection

### **Historic Preservation**

Most construction in Circle Pines took place after 1950 and at this time it does not have historical impact. The City Council and Planning Commission will take actions to preserve structures that contribute to the history and heritage of the community.

## Goals, Strategies and Tactics

### **Goal 1: Align Land Use and Development Mechanism with 2040 Comprehensive Plan**

1. Update Development Code for alignment with the goals of 2040 Comprehensive Plan
  - a. Update Zoning Ordinance for alignment with the goals of 2040 Comprehensive Plan in a fashion that is accessible and user-friendly
  - b. Update Subdivision Ordinance for alignment with the goals of 2040 Comprehensive Plan in a fashion that is accessible and user-friendly
2. Institutionalize regular review of Zoning and Subdivision Ordinances and related sections of the city code
  - a. Review code annually and update as needed to reflect new or revised planning studies, new or revised state or federal laws, experiences in the field or with development processes, technological and/or cultural advances, new or emerging land use categories, and/or updates for areas or districts that have become obsolete.
3. Regularly study and address new issues, trends, and technologies related to land use
  - a. Explore regulations and procedures related to short-term rentals
  - b. Explore regulations and procedures related to accessory dwelling units

### **Goal 2: Support maintenance of aging neighborhoods**

1. Support the rehabilitation and revitalization of residential and commercial districts
  - a. Provide information about remodeling and rehabilitation of residential structures on the city's website
  - b. Continue to enforce and address building code issues to improve and protect the overall appearance of the city's neighborhoods and protect property values
2. Simplify and streamline the development review and building permit processes to be customer-oriented
  - a. Review building and planning review policies and practices to identify opportunities to reduce unnecessary regulatory barriers
  - b. Update the city's building and planning information, handouts, and website

### **Goal 3: Grow Strategically**

1. Support the redevelopment of aging and underutilized sites
  - a. Facilitate and support the redevelopment process between property owners, real estate developers, neighbors, and elected and appointed officials
  - b. Support in-fill development of scattered single-family sites
  - c. Study the retrofitting or redevelopment of existing shopping centers and underutilized commercial sites
2. Encourage high quality design for all redevelopment projects

- a. Protect the community's character by adopting development and design standards that require high-quality and unique architectural and site design site.
- b. Encourage efficient use of land and infrastructure through compact development standards

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## Chapter 3: Transportation

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### Introduction

The transportation system in Circle Pines operates well today. The city's multimodal transportation system includes facilities for vehicles, freight, walking, bicycling and transit. Facilities are operated by a number of agencies, including the City of Circle Pines, Anoka County, the Minnesota Department of Transportation (MnDOT), and Metro Transit.

This transportation chapter has been prepared in compliance with State of Minnesota Statutes and applicable Metropolitan Council guidelines. As part of this Plan, the city has reviewed existing and future conditions for each mode and identified safety, operational, and network improvements that will be important to address over the 2040 planning horizon. The city has also developed goals and strategies that match MnDOT and the Metropolitan Council's goals and strategies to preserve and improve the transportation system.

**This transportation plan includes the following information:**

1. Summary of Regional Strategies
2. Existing Roadway System
3. 2040 Traffic Forecasts and Roadway Network Planning
4. Existing and Planned Non-Motorized Transportation Network
5. Freight Network
6. Transit
7. Aviation
8. Goals and Multimodal Strategies
9. Proposed Short and Long Range Roadway Projects
10. Conclusion and Next Steps

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## Transportation Glossary

**CIP:** Capital Improvement Plan – five year plan for capital investments in the transportation system and in other capital assets owned by the city (equipment, buildings, etc.).

**CR:** County Road – county-owned roadway that does not receive State funding.

**Critical Crash Rate:** Statistical indicator of a safety problem at a location. If crash rates at a location are above the critical crash rate, it indicates that the location has a crash rate that is statistically significant compared to similar roadways.

**CSAH:** County State Aid Highway – county-owned roadway that receives State Aid funding.

**MnDOT:** Minnesota Department of Transportation.

**RBTN:** Regional Bicycle Transportation Network – existing and planned regional bicycle network established by the Metropolitan Council.

**TH:** Trunk Highway – State highway owned and operated by MnDOT.

**TPP:** Transportation Policy Plan – Regional transportation plan for the Twin Cities metropolitan region, developed by the Metropolitan Council.

## 1. Summary of Regional Strategies

This Plan has been prepared to be consistent with the regional transportation strategies outlined in the Metropolitan Council 2040 Transportation Policy Plan (TPP). Similar to this Plan, the TPP evaluates the existing transportation system, identifies transportation challenges to the region, and sets regional goals, objectives, and priorities to meet the transportation needs of current residents while accommodating the region's anticipated growth. The TPP also guides local agencies in coordinating land use and transportation as well as establishes regional performance measures and targets.

### The TPP is guided by the following goals:

- **Transportation system stewardship:** Sustainable investments in the transportation system are protected by strategically preserving, maintaining, and operating system assets.
- **Safety and Security:** The regional transportation system is safe and secure for all users.
- **Access to Destinations:** People and businesses prosper by using a reliable, affordable, and efficient multimodal transportation system that connects them to destinations throughout the region and beyond.
- **Competitive Economy:** The regional transportation system supports the economic competitiveness, vitality, and prosperity of the region and State.
- **Healthy Environment:** The regional transportation system advances equity and contributes to communities' livability and sustainability while protecting the natural, cultural, and developed environments.
- **Leveraging Transportation Investment to Guide Land Use:** The region leverages transportation investments to guide land use and development patterns that advance the regional vision of stewardship, prosperity, livability, equity, and sustainability.

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Funding is a key constraint that is acknowledged in the TPP. Current transportation revenue will not meet the region's transportation needs through 2040. As a result, the TPP includes two long-term investment scenarios: a fiscally-constrained scenario that identifies projects anticipated to be funded based on current revenue projections, and an increased revenue scenario that identifies project priorities should additional transportation funding become available.

Under the current revenue scenario, the TPP is focused on operations and maintenance of the existing transportation system. Investments in highway mobility and access are limited to those projects that address multiple TPP goals and objectives. The increased revenue scenario would allow additional investments in operations and maintenance, as well as regional mobility, access, safety, and bicycle/pedestrian improvements. However, congestion cannot be greatly reduced even under the increased revenue scenario. Under both scenarios, proposed investments are focused on areas of the metro with the greatest existing and future challenges and anticipated growth.

The Metropolitan Council classifies Circle Pines under the Suburban Community Designation. Based on *Thrive MSP 2040*, Suburban areas are expected to plan for forecasted population and household growth at average densities of at least five units per acre for new development and redevelopment. These communities are also expected to target opportunities for more intensive development near regional transit investments.

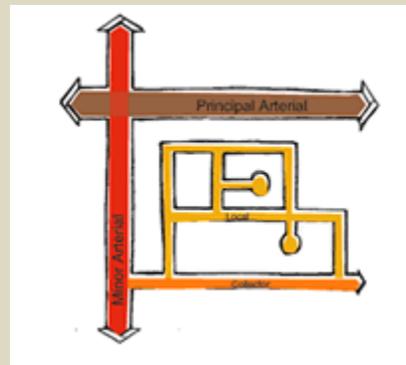
## 2. Existing Roadway System

The sections below provide information about the existing roadway system in Circle Pines, including existing number of lanes, existing roadway jurisdiction, existing functional classification, existing traffic, existing safety, and access management. This chapter also includes summary recommendations from recent plans and corridor studies.

### 2.1. Functional Classification

The functional classification system groups roadways into classes based on roadway function and purpose. Functional classification is based on both transportation and land use characteristics, including roadway speeds, access to adjacent land, connection to important land uses, and the length of trips taken on the roadway.

The **functional classification system** organizes a roadway and street network that distributes traffic from local neighborhood streets to collector roadways, then to minor arterials and ultimately the principal arterial system. Roads are placed into categories based on the degree to which they provide access to adjacent land and mobility for through traffic. Functional classification gives an indication of the relative hierarchy of roadways in the transportation network.



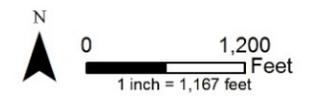
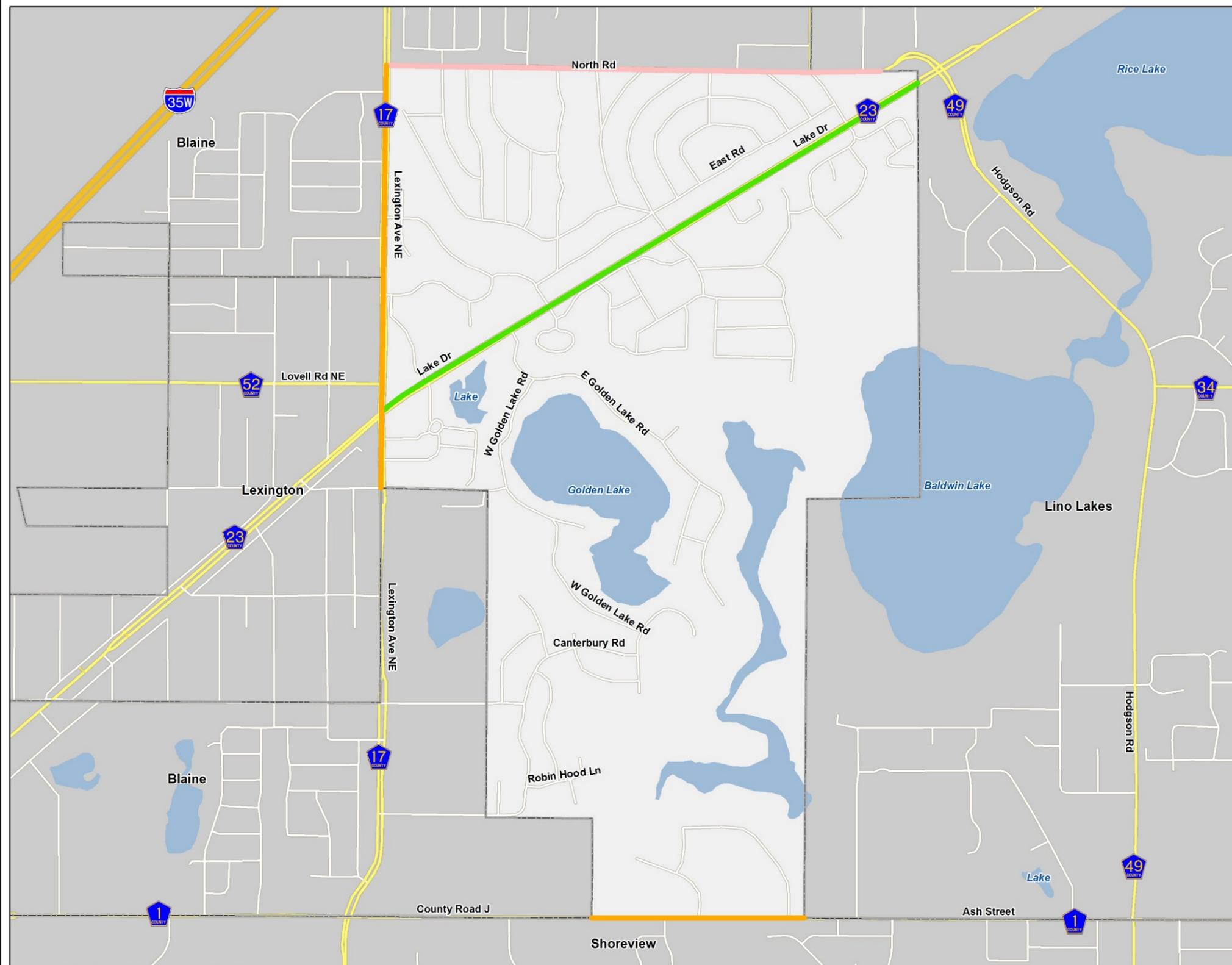
Four classes of roadways are included in the seven-county metropolitan area functional classification system: principal arterials, minor arterials, collector streets, and local streets.

**Figure 1** shows the existing functional classification of each road in the City of Circle Pines and **Figure 2** shows the existing roadway jurisdiction. The following sections describe each functional class in greater detail and indicate which roadways fall into each classification.



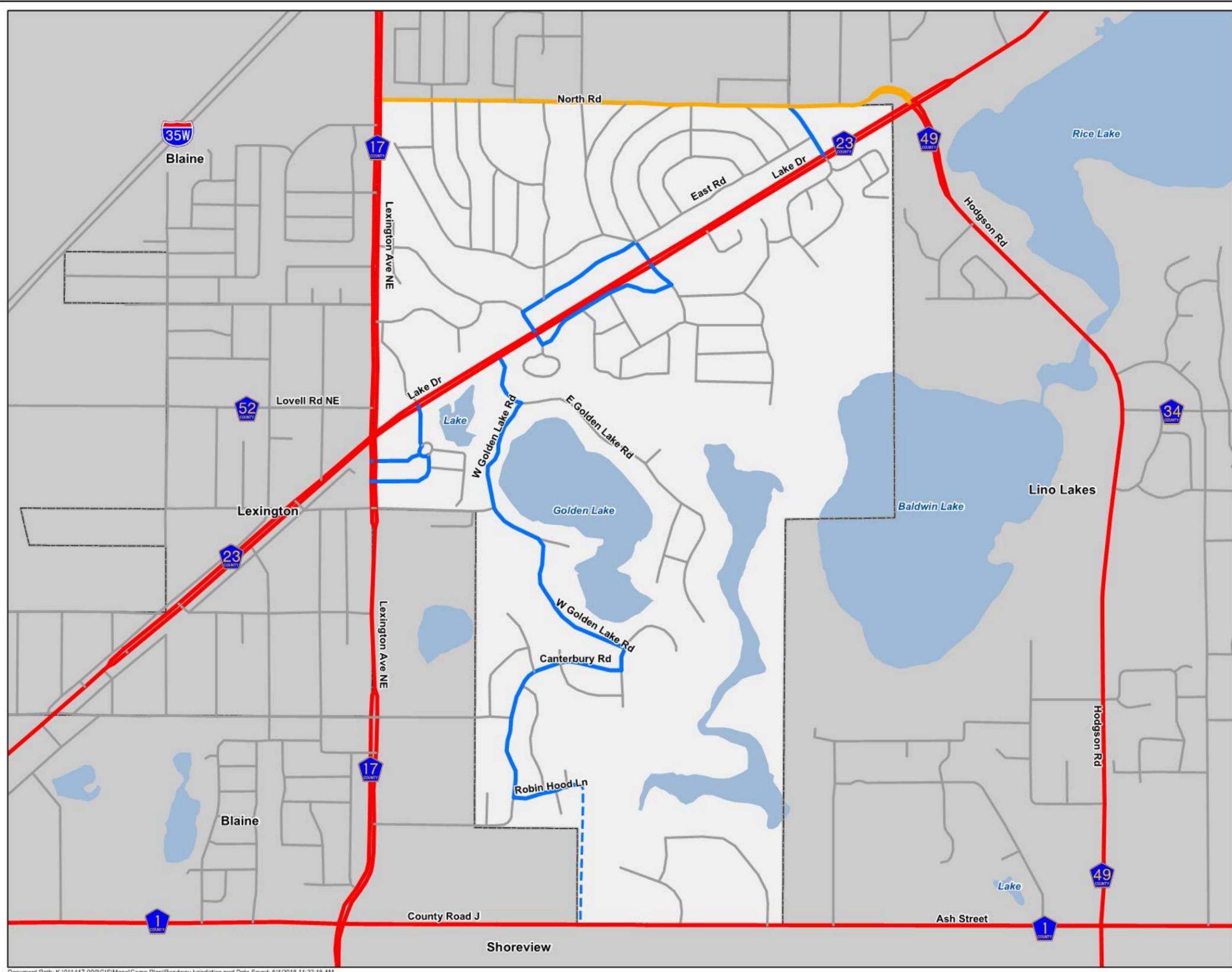
**Circle Pines Comprehensive Plan  
Figure 1: Existing  
Functional Classification  
Circle Pines, MN**

Functional Classification	
	A-Minor Reliever
	A-Minor Expander
	Major Collector
	City Boundary



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**Circle Pines Comprehensive Plan**  
**Figure 2 - Roadway Jurisdiction**  
Circle Pines, MN



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**Roadway Jurisdiction**

- County State Aid Highway (CSAH)
- Municipal State Aid Street
- County Road
- Local Street
- - - Proposed Municipal State Aid Street
- City Boundary

N

0 1,200 Feet  
1 inch = 1,200 feet



### 2.1.1. Principal Arterials

Principal arterials are roadways that provide the greatest level of mobility and access control. Within the metropolitan area, the great majority of principal arterials are under MnDOT jurisdiction. Principal arterials are typically Interstate highways or other state or US freeways or expressways. These facilities are intended to serve trips greater than eight miles and express transit trips. Spacing of principal arterials varies within developing areas of the metropolitan area. Typically these facilities are spaced between two and six miles apart. These facilities connect regional business and commercial concentrations, transportation terminals, and large institutions within the metropolitan area. Principal arterials also connect to other cities, regions, and states outside of the metropolitan area.

Principal arterials are intended to maintain average speeds of 40 mph during peak traffic periods. To maintain mobility and speeds on principal arterials, land access and transportation system connections are limited. There is little to no direct land access from principal arterials. Intersections are limited to interstate freeways, other principal arterials, and “A” Minor arterials. Access points are typically grade-separated or controlled with a signal and are spaced one to two miles apart.

There are no existing principal arterials located within Circle Pines. Interstate 35W (I-35W) is the closest principal arterial, located northwest of Circle Pines in the City of Blaine. Access to I-35W, both northbound and southbound, is less than half a mile north of Circle Pines. The 2040 Transportation Policy Plan does not propose any additional principal arterials within the City.

### 2.1.2. Minor Arterials

Minor arterials maintain a focus on mobility, but provide more land access than principal arterials. Within Circle Pines, all minor arterials are under the jurisdiction of Anoka County. Minor arterials are intended to serve trips of four to eight miles in length. Within developing areas of the metro, these facilities are spaced between one and two miles apart. Minor arterials connect cities and towns within the region and link to regional business and commercial concentrations. Access points along minor arterials are generally at-grade and typically controlled with signals or stop signs.

During peak traffic, minor arterials in developing areas are intended to maintain 30 mph average speeds. As a result, transportation system connections are limited to interstate freeways, other principal arterials, other minor arterials, collectors, and some local streets. Land access is limited to concentrations of commercial and industrial land uses. The Metropolitan Council has established a system of “A” Minor and “B” Minor arterials. “A” Minor arterials are eligible for federal funding administered by the Metropolitan Council.

The Metropolitan Council has further split “A” Minor arterials into four types, described below:

- **Relievers:** Arterials located parallel to congested principal arterials. The purpose of “A” Minor Relievers is to provide additional capacity in congested corridors.

- Augmenters: Arterials that supplement the principal arterials system within urban centers and urban communities.
- Expanders: Arterials that supplement principal arterials in less-densely developed areas of the metro area.
- Connectors: Arterials that provide connections between rural towns and connect rural areas with the principal arterial system.

There are two “A” Minor Expanders and one “A” Minor Reliever within the city:

“A” Minor Expanders:

- County State Aid Highway (CSAH) 17 (Lexington Avenue)
- CSAH 1 (Ash Street West)

“A” Minor Reliever:

- CSAH 23 (Lake Drive)

“B” Minor arterials have a similar focus on mobility above land access. These roadways connect major traffic generators in the region. “B” Minor arterials are not eligible for federal funding. There are no “B” Minor arterials within the City and the 2040 TPP does not propose any additional minor arterials within the City.

### **2.1.3. Major and Minor Collectors**

Major and minor collector roadways provide linkages to larger developments and community amenities. They generally do not link communities to one another. Collector roadways generally favor access to the system over mobility, but try to balance the two competing needs. Collector roadways are generally lower speed than the principal or minor arterial routes. Collector roadways are often owned and operated by cities, although counties operate some of these facilities. Within Circle Pines, there is one collector roadway; it is operated by Anoka County. Collectors are intended to serve trips of one to four miles in length. Collectors link minor arterials, other collectors, and local streets.

Major collectors typically serve higher density residential areas and concentrations of commercial and industrial land uses. These facilities tend to serve longer trips than minor collectors. Major collectors within the City include:

- County Road (CR) 10 (North Road)

There are no minor collectors within the city, and the 2040 Transportation Policy Plan does not propose any additional collector roadways within the city.

#### **2.1.4. Local Roadways**

The primary function of local roadways is land access. Local roadways connect individual land parcels with other local roadways and collectors. Trips on local roadways are typically under two miles. Speeds on local roadways are typically low. Longer trips are facilitated by local roadway connections to the collector and arterial systems. Local roadways are under the jurisdiction of the City of Circle Pines. Local roadways are all roadways that are not arterials or collectors.

#### **2.1.5. Planned Functional Classification**

No functional classification changes are recommended within the City.

**A note on transportation plan strategies:**

Throughout this Plan, locations associated with numbered mode-specific strategies are identified on corresponding maps. These strategies are listed and described in further detail in **Table 8**.

## 2.2. Existing Roadway Capacity and Safety

Roadway capacity and roadway safety are two key indicators of how well the roadway system is meeting the city’s transportation needs. The sections below provide information to better understand capacity and safety issues within Circle Pines.

### 2.2.1. Existing Roadway Capacity

A roadway’s capacity indicates how many vehicles may use a roadway before it experiences congestion. Capacity is largely dependent upon the number of lanes. **Table 1** below lists planning-level thresholds that indicate a roadway’s capacity (measured in annual average daily traffic, AADT). Additional variation (more or less capacity) on an individual segment is influenced by a number of factors including: amount of access, type of access, peak hour percent of traffic, directional split of traffic, truck percent, opportunities to pass, and amount of turning traffic, the availability of dedicated turn lanes, parking availability, intersection spacing, signal timing and a variety of other factors.

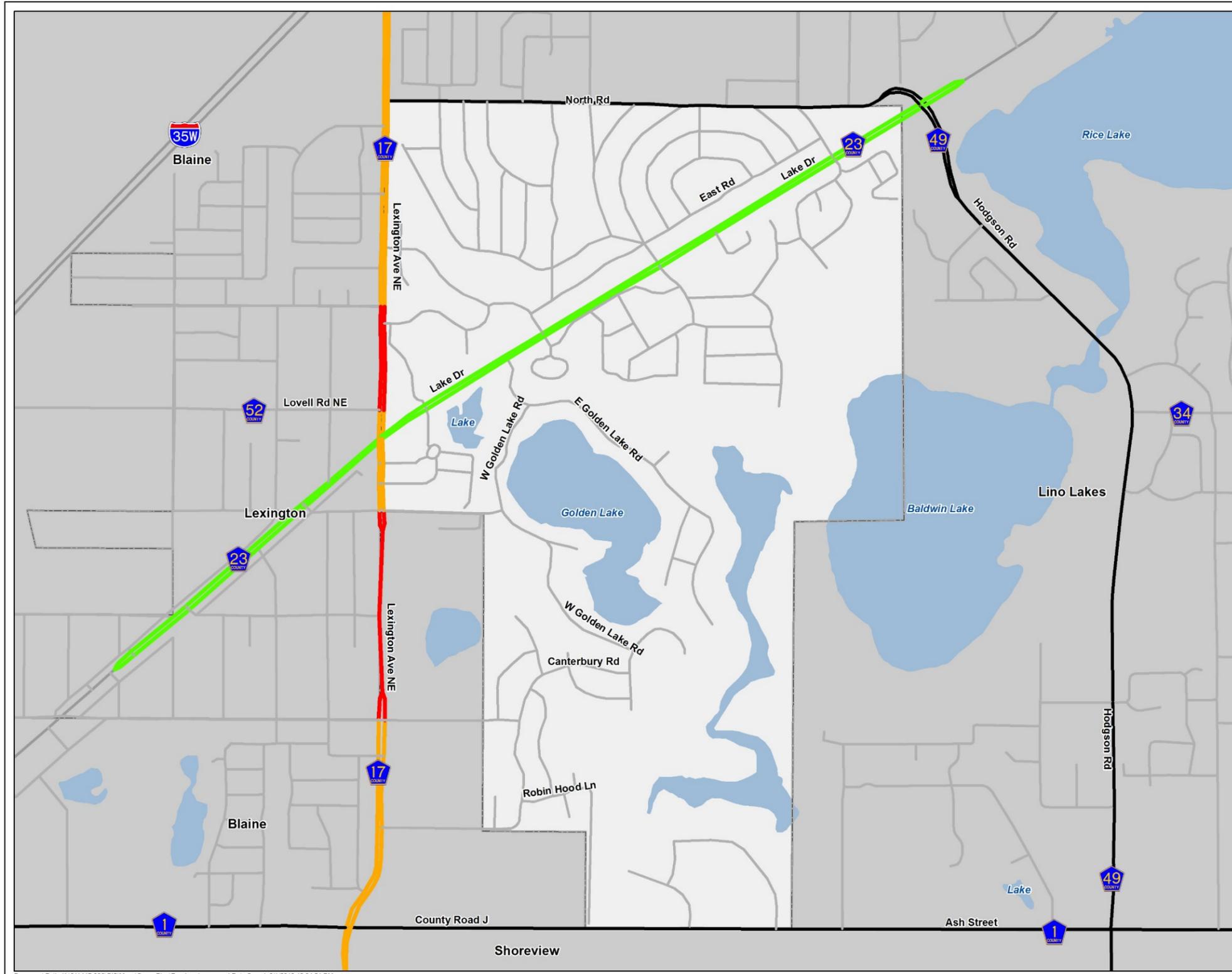
**Table 1: Planning-level Urban Roadway Capacities**

Facility Type		Daily Two-way Volume	
		Lower Threshold	Higher Threshold
Arterials	Two-lane Undivided	10,000	12,000
	Two-lane Divided or Three-lane Undivided	15,000	17,000
	Four-lane Undivided	18,000	22,000
	Four-lane Divided or Five-lane Undivided	28,000	32,000
Freeways	Four-lane Freeway	60,000	80,000
	Six-lane Freeway	90,000	120,000
	Eight-lane Freeway or Higher	Calculated on a segment-by-segment basis	

### 2.2.2. Existing Capacity Problems on Arterial Roads

At the planning level, capacity problems are identified by comparing the existing number of lanes with current traffic volumes. **Table 2** and **Figure 3** illustrate the existing number of lanes on collector and arterial roadways within the city. **Figure 4** illustrates existing traffic volumes on A-Minor Arterials and other significant roadways within the city.

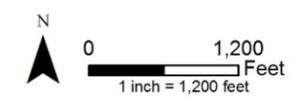
As shown in the table, CSAH 17 (Lexington Avenue) has either four or five lanes throughout the City. All other arterial roadways have two lanes. The arterials in Circle Pines currently exhibit traffic volumes below or within the range of the planning level capacity thresholds shown in **Table 1**. This indicates that these roadways are typically not experiencing high levels of congestion.



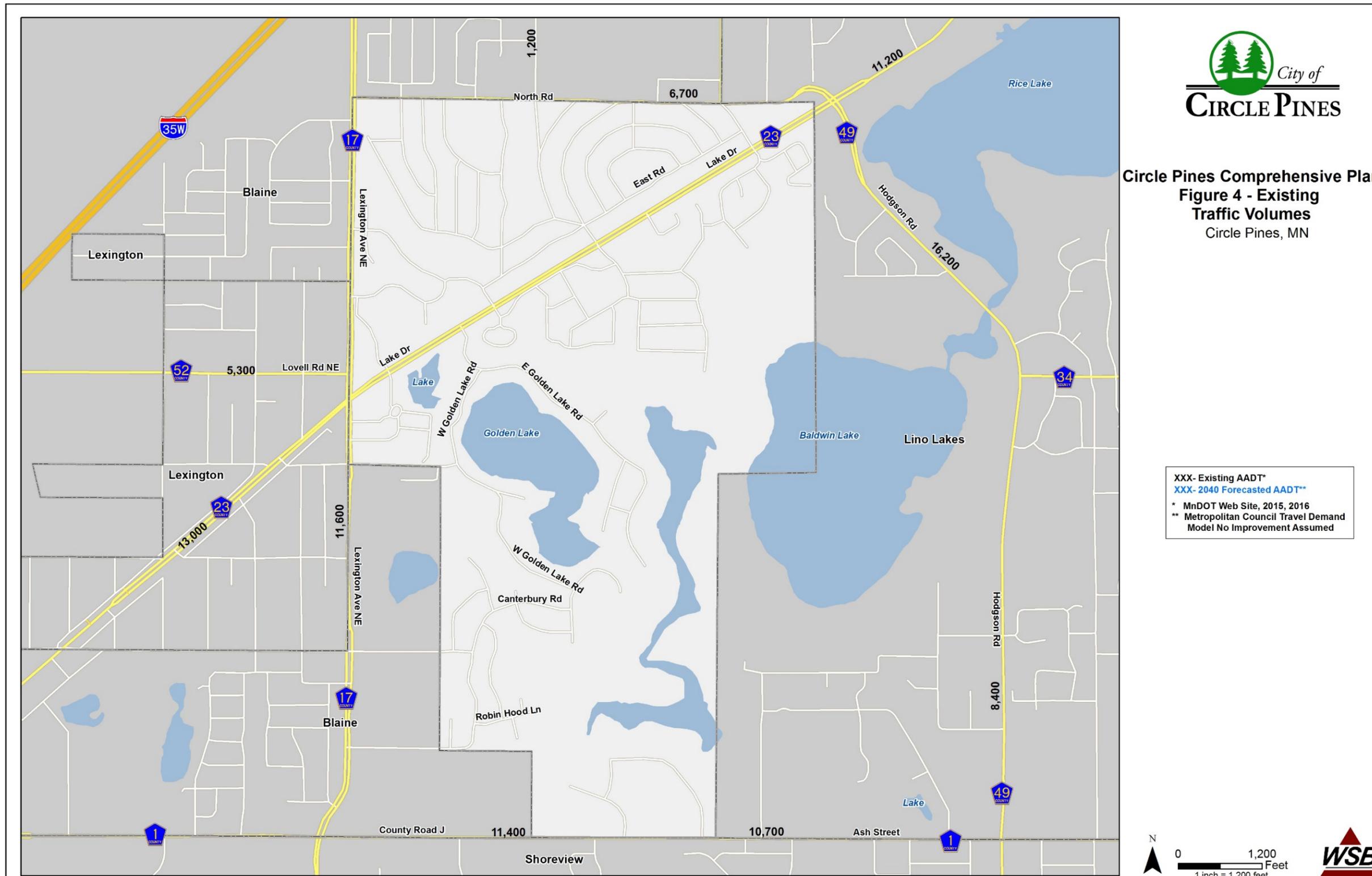
  
**City of**  
**CIRCLE PINES**  
 Circle Pines Comprehensive Plan  
 Figure 3 - Existing  
 Roadway Lanes  
 Circle Pines, MN

Existing Roadway Lanes

	5 Lanes
	4 Lane Divided
	2 Lane Divided
	2 Lane Undivided
	Local 2 Lane Street
	City Boundary



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**Table 2: Existing number of lanes on arterial roads**

<b>Functional Classification</b>	<b>Roadway Name</b>	<b>Location</b>	<b>Number of Lanes</b>
<b>“A” Minor Expander</b>	CSAH 17 (Lexington Avenue)	From southern Circle Pines-Blaine border to northern Circle Pines-Blaine border	4-5
	CSAH 1 (Ash Street W)	From western Circle Pines-Shoreview border to eastern Circle Pines-Shoreview border	2
<b>“A” Minor Reliever</b>	CSAH 23 (Lake Road)	From western Circle Pines-Blaine boarder to eastern Circle Pines-Lino Lakes border	2
<b>Major Collector</b>	CR 10 (North Road)	From western Circle Pines-Blaine boarder to eastern Circle Pines-Lino Lakes border	2

### 2.3. Access Management

The purpose of access management is to provide adequate access to adjacent land development while maintaining acceptable and safe traffic flow on higher level roadways. Access management consists of carefully controlling the spacing and design of public street intersections and private access points to the public roadway system. Because they are designed for higher speed, longer distance trips, arterials generally have restricted access, while local streets can accommodate much greater access. Collector roadways fall in between arterials and local roadways regarding the amount of access that is permitted.

The agency with jurisdiction over a roadway sets access management guidelines. Access to I-35W must meet MnDOT access management guidelines. See **Tables 3.1** and **3.2** for MnDOT Access Management Guidelines.

Anoka County has established access management guidelines for county roadways, as displayed in **Table 4**. It should be noted that there are existing access points within the City that do not meet Anoka County access spacing guidelines. In many cases these access points were established prior to county access spacing guidelines/policies. In other cases the County has granted an exception to the existing guidelines. As roadways are reconstructed or if

redevelopment occurs, the County will generally work to modify and/or relocate access points that do not meet current access spacing guidelines, recognizing that this may not be feasible in all instances.

*MnDOT Access Management Manual*

**Table 3.1 – Summary of Recommended Street Spacing for IRCs**

Category	Area or Facility Type	Typical Functional Class	Public Street Spacing		Signal Spacing
			Primary Full-Movement Intersection	Secondary Intersection	
<b>1 High Priority Interregional Corridors &amp; Interstate System (IRCs)</b>					
<b>1F</b>	Interstate Freeway	Principal Arterials	Interchange Access Only		⊘
<b>1AF</b>	Non-Interstate Freeway		Interchange Access Only (see Section 3.2.7 for interim spacing)		See Section 3.2.5 for Signalization on Interregional Corridors
<b>1A</b>	Rural		1 mile	1/2 mile	
<b>1B</b>	Urban/Urbanizing		1/2 mile	1/4 mile	
<b>1C</b>	Urban Core		300-660 feet dependent upon block length		
<b>2 Medium Priority Interregional Corridors</b>					
<b>2AF</b>	Non-Interstate Freeway	Principal Arterials	Interchange Access Only (See Section 3.2.7 for interim spacing)		See Section 3.2.5 for Signalization on Interregional Corridors
<b>2A</b>	Rural		1 mile	1/2 mile	
<b>2B</b>	Urban/Urbanizing		1/2 mile	1/4 mile	
<b>2C</b>	Urban Core		300-660 feet, dependent upon block length		1/4 mile
<b>3</b>	<b>Regional Corridors</b>				
<b>3AF</b>	Non-Interstate Freeway	Principal and Minor Arterials	Interchange Access Only (see Section 3.2.7 for interim spacing)		Interim

<b>3A</b>	Rural		1 mile	1/2 mile	See Section 3.2.5
<b>3B</b>	Urban/Urbanizing		1/2 mile	1/4 mile	1/2 mile
<b>3C</b>	Urban Core		300-660 feet, dependent upon block length		1/4 mile

*MnDOT Access Management Manual*

**Table 3.2 – Summary of Recommended Street Spacing for Non-IRCs**

Category	Area or Facility Type	Typical Functional Class	Public Street Spacing		Signal Spacing
			Primary Full-Movement Intersection	Secondary Intersection	
<b>4 Principal Arterials in the Twin Cities Metropolitan Area and Primary Regional Trade Centers (Non-IRCs)</b>					
<b>4AF</b>	Non-Interstate Freeway	Principal Arterials	Interchange Access Only (see Section 3.2.7 for interim spacing)		Interim
<b>4A</b>	Rural		1 mile	1/2 mile	See Section 3.2.5
<b>4B</b>	Urban/Urbanizing		1/2 mile	1/4 mile	1/2 mile
<b>4C</b>	Urban Core		300-660 feet dependent upon block length		1/4 mile
<b>5 Minor Arterials</b>					
<b>5A</b>	Rural	Minor Arterials	1/2 mile	1/4 mile	See Section 3.2.5
<b>5B</b>	Urban/Urbanizing		1/4 mile	1/8 mile	1/4 mile
<b>5C</b>	Urban Core		300-660 feet, dependent upon block length		1/4 mile

<b>6 Collectors</b>					
<b>6A</b>	Rural	Collectors	1/2 mile	1/4 mile	See Section 3.2.5
<b>6B</b>	Urban/Urbanizing		1/8 mile	Not Applicable	1/4 mile
<b>6C</b>	Urban Core		300-660 feet, dependent upon block length		1/8 mile
<b>7 Specific Area Access Management Plans</b>					
<b>7</b>	All	All	By adopted plan		

**Table 4: Anoka County Access Spacing Guidelines**

Roadway Type	Route Speed (miles per hour)	Intersection Spacing		Signal Spacing	Private Access
		Full Movement Intersection	Conditional Secondary Intersection		
<b>Principal Arterial</b>	50 – 55	1 mi.	1/2 mi.	1 mi.	Subject to conditions for all roadway types and speeds
	40 – 45	1/2 mi.	1/4 mi.	1/2 mi.	
	< 40	1/8 mi.	300 – 660 ft.	1/4 mi.	
<b>Arterial Expressway</b>	50 – 55	1 mi.	1/2 mi.	1 mi.	
<b>Minor Arterial</b>	50 – 55	1/2 mi.	1/4 mi.	1/2 mi.	
	40 – 45	1/4 mi.	1/8 mi.	1/4 mi.	
	< 40	1/8 mi.	300 – 660 ft.	1/4 mi.	
<b>Collector and Local</b>	50 – 55	1/2 mi.	1/4 mi.	1/2 mi.	
	40 – 45	1/8 mi.	NA	1/4 mi.	
	< 40	1/8 mi.	300 – 660 ft.	1/8 mi.	
<b>Specific Access Plan</b>	By adopted plan/agreement/covenant on land				

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## **2.4. Recommendations from Recent Plans and Studies**

### **2.4.1. 2018 Street and Utility Improvement Project**

In 2017, the City of Circle Pines completed the Feasibility Report to identify street and utility priorities for the 2018 Street and Utility Improvement Project. This project is part of the 2007 Long-Term Streets Plan to rehabilitate streets over the next 20 years. The study area focused on the northern portion of the City of Circle Pines. This report recommended that the roadways considered for rehabilitation are feasible based on the needs and anticipated cost. The local streets improved include East Road, Crossway Drive, Pine Drive, and Park Drive. These roadways will be rehabilitated in 2018.

### **2.4.2. 2011 Pavement Management Program**

In 2011, the City of Circle Pines implemented the Pavement Management Program to identify street and utility priorities for the street rehabilitation and reconstruction. In 2018, the Partial Reconstruction Project will be implemented in the southern portion of the City of Circle Pines. This project is also part of the 2007 Long-Term Streets Plan to rehabilitate streets over the next 20 years. The study area focused on local roads in southern portion of the City of Circle Pines. The rehabilitation project will repair approximately one mile of local roads.

### **2.4.3. I-35W N MnPASS Study**

In 2017, MnDOT completed the I-35W N Preliminary Design Study to assess the impacts of adding a MnPASS lane in each direction to relieve congestion. This study included an assessment of the environmental impacts and noise walls of the project. This study recommended that a MnPASS lane on I-35W N between Roseville and Blaine was necessary to relieve congestion. Road construction will begin in spring 2019. This project is not within the city of Circle Pines' city boundary, but because of the city's proximity to the project, there may be traffic benefits to the city.

## **3. Future Roadway System**

This section addresses future roadway improvement needs and roadway design guidelines.

### **3.1. Roadway Capacity – Traffic Forecasting**

To determine future roadway capacity needs, year 2040 traffic forecasts were prepared using the Metropolitan Council travel demand model. The 2040 projections were compared to the expected 2040 roadway capacity or various roadway links to identify where capacity deficiencies may result. The 2040 roadway network assumed for this analysis is the same as the current roadway network, as the City and County Capital Improvement Plans (CIPs) do not include any projects that add significant capacity to the roadway network.

While the travel demand model is a valuable tool for identifying future traffic based on the proposed land use impacts, it is not meant for use in detailed traffic operations studies. For a more accurate representation of the transportation impacts from specific developments, detailed

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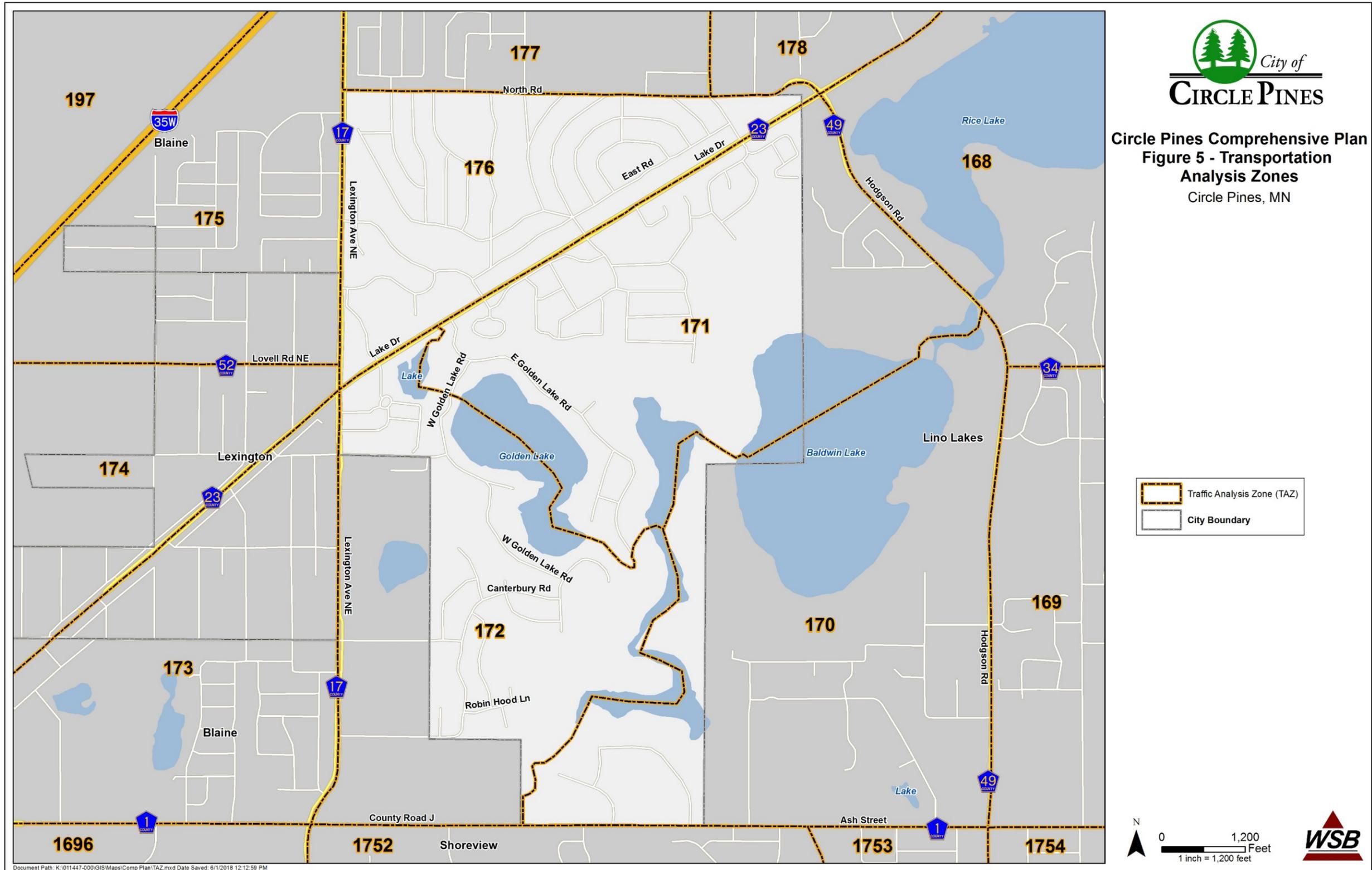
traffic studies should be conducted to determine the operational impacts on adjacent roadways and intersections.

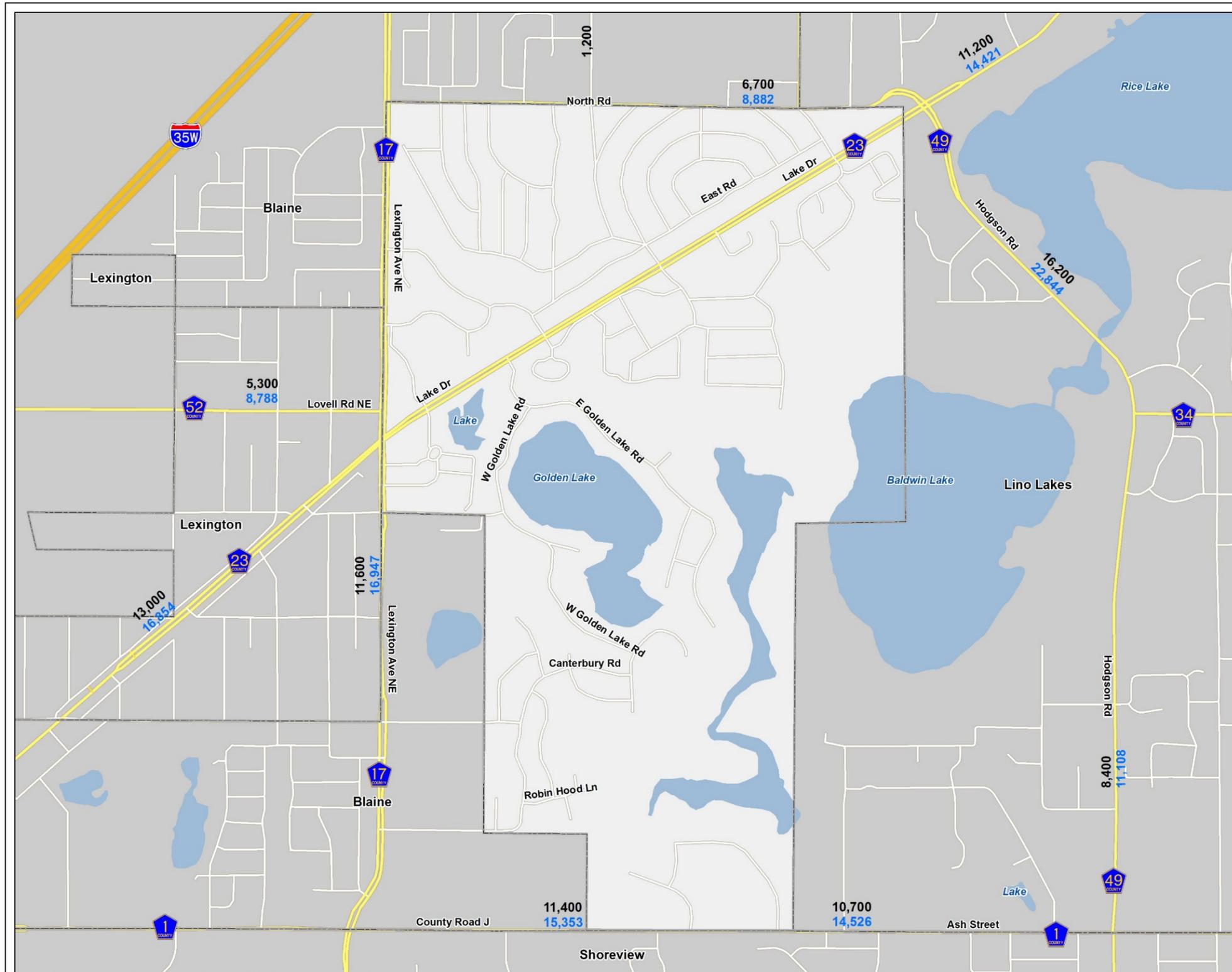
A central concept of travel demand forecasting is the use of Transportation Analysis Zones (TAZs). Each forecast study area, in this case, the City of Circle Pines, is divided into a series of TAZs. Each TAZ has population, employment, and household data that is used by the model to generate trips that are assigned to various links on the roadway network. **Figure 5** displays Metropolitan Council TAZs within Circle Pines.

The results of the Circle Pines modeling process are summarized in **Figure 6**, which displays Metropolitan Council 2040 projected Average Daily Traffic (ADT) volumes compared to the existing (2012–2015) traffic volumes.

**Table 5** provides a summary of existing and forecasted demographic growth by TAZ for Circle Pines through the year 2040. The Circle Pines population is forecasted to reach 5,300 by the year 2040, with households and employment increasing by approximately 200. Allocated demographic growth and associated land use was located throughout the community. Most of the forecasted growth for high density residential, commercial, and multi-optional development is expected to occur in the central portion of the city. For more information about the demographic allocation and associated land use forecast, please refer to the Circle Pines Land Use Plan in Chapter 2 of the Circle Pines Comprehensive Plan.

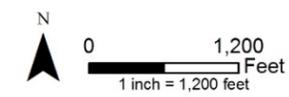
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**CIRCLE PINES**  
 Circle Pines Comprehensive Plan  
 Figure 6 - Existing & Forecasted Traffic  
 Circle Pines, MN

XXX- Existing AADT\*  
 XXX- 2040 Forecasted AADT\*\*  
 \* MnDOT Web Site, 2015, 2016  
 \*\* Metropolitan Council Travel Demand Model No Improvement Assumed



**Table 5: Circle Pines 2040 Land Use Plan TAZ Growth Allocation**

<b>CURRENT TAZ</b>	<b>POP2010</b>	<b>HH2010</b>	<b>EMP2010</b>		<b>POP2020</b>	<b>HH2020</b>	<b>EMP2020</b>		<b>POP2030</b>	<b>HH2030</b>	<b>EMP2030</b>		<b>POP2040</b>	<b>HH2040</b>	<b>EMP2040</b>
<b>170</b>	80	30	1		75	33	2		83	36	2		91	38	2
<b>171</b>	1,995	848	262		2,049	864	258		2,073	885	329		2,174	915	250
<b>172</b>	929	378	405		953	372	370		990	388	307		1,030	426	443
<b>176</b>	1,914	750	122		1,953	771	120		1,974	781	112		1,985	801	105
<b>Circle Pines 2040 Land Use Plan</b>	<b>4,918</b>	<b>2,006</b>	<b>790</b>		<b>5,030</b>	<b>2,040</b>	<b>750</b>		<b>5,200</b>	<b>2,090</b>	<b>750</b>		<b>5,300</b>	<b>2,180</b>	<b>1,000</b>
<b>Metropolitan Council Growth Allocation</b>	<b>4,918</b>	<b>2,006</b>	<b>790</b>		<b>5,030</b>	<b>2,040</b>	<b>750</b>		<b>5,120</b>	<b>2,090</b>	<b>750</b>		<b>5,280</b>	<b>2,180</b>	<b>800</b>

### 3.2. 2040 Future Roadway Capacity Improvement Needs

To identify the need for potential future capacity improvements, Metropolitan Council 2040 forecasts were compared to planning-level roadway capacities for Principal and A-Minor Arterial Roadways. Planning-level roadway capacities used for this analysis are illustrated in **Table 6** below. Based on this comparison, most roadways in the City have adequate capacity to accommodate forecasted Metropolitan Council 2040 travel volumes with little to minimal congestion. These roadways are expected to function well through the 2040 planning horizon.

**Table 6: Planning-Level Roadway Capacity**

Facility Type		Daily Two-way Volume	
		Lower Threshold	Higher Threshold
Arterials	Two-lane Undivided	10,000	12,000
	Two-lane Divided or Three-lane Undivided	15,000	17,000
	Four-lane Undivided	18,000	22,000
	Four-lane Divided or Five-lane Undivided	28,000	32,000
Freeways	Four-lane Freeway	60,000	80,000
	Six-lane Freeway	90,000	120,000
	Eight-lane Freeway or Higher	Calculated on a segment-by-segment basis	

Based on these planning level roadway capacities, Ash Road (CSAH 1) is expected to exceed capacity in 2040. Ash Road is currently a two-lane undivided roadway with a planning-level capacity of 10,000–12,000 and a forecasted 2040 volume of 14,000-15,000. Accordingly, motorists will likely experience some congestion along this roadway during the 2040 planning horizon.

## **4. Existing and Planned Non-Motorized Transportation Network**

This section addresses network needs for walking and bicycling within Circle Pines. This section also addresses the needs of people using wheelchairs and assistive mobility devices such as mobility scooters, as they are considered pedestrians.

Enhancing the non-motorized elements of the Circle Pines transportation system is a key goal in terms of improving transportation sustainability in the city and in the region. This approach gives residents an alternative to driving, supports transportation options for people who do not have consistent access to a personal vehicle, and encourages healthy activities and lifestyles.

This section includes information on the existing non-motorized transportation network within Circle Pines, connections to land use planning, the planned local non-motorized transportation network, and the planned regional non-motorized transportation network. This section also includes recommendations for intersection improvements and design best practices.

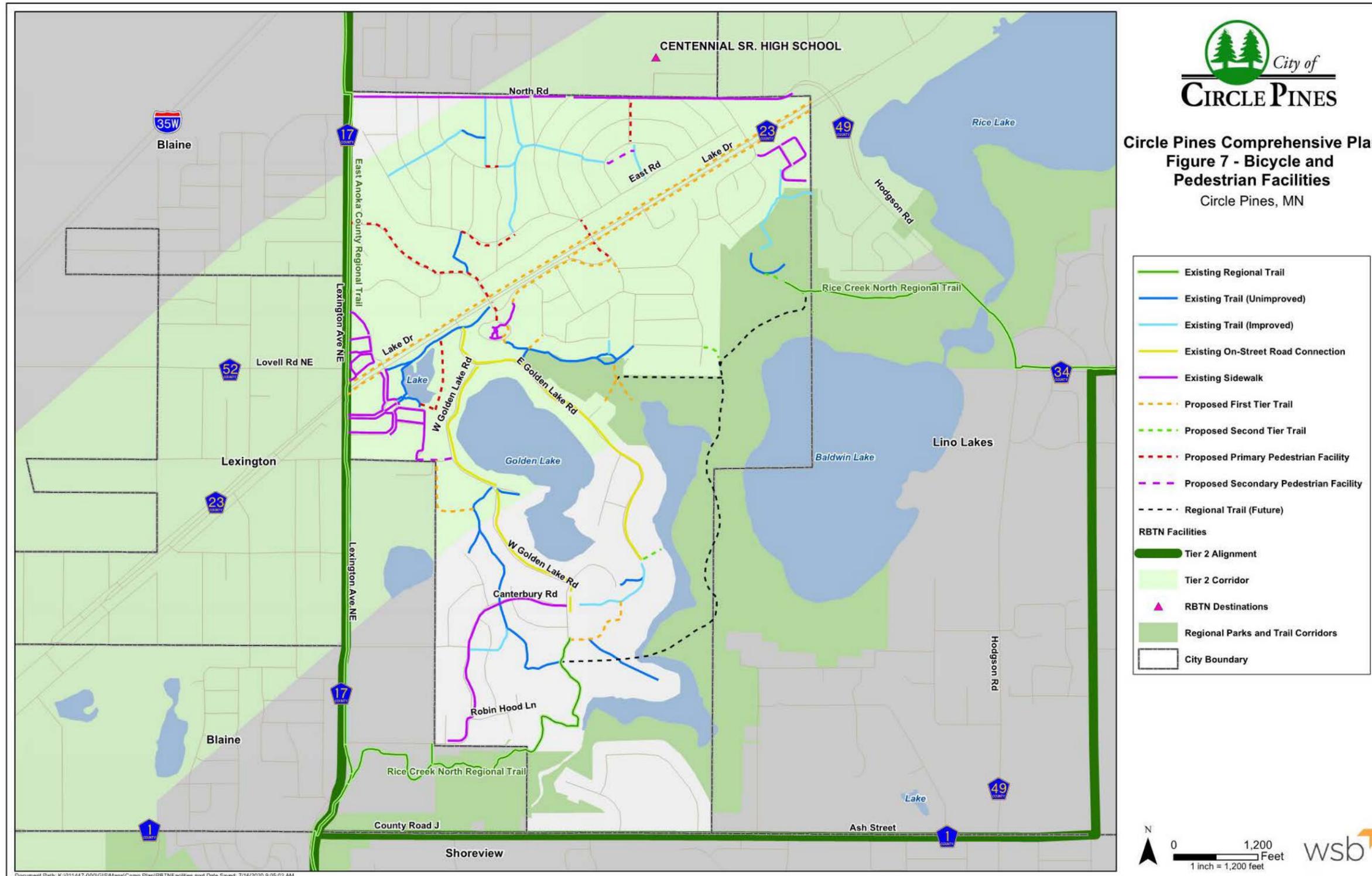
### **4.1. Existing Non-Motorized Transportation Network**

The non-motorized transportation network in Circle Pines is comprised of sidewalks, on-street bicycle lanes/shoulders, local multi-use trail, and regional trails. As shown in **Figure 7**, there are existing sidewalks on a number of the streets, both on the main roadways as well as on many local roads. There are also multiple City trails, which are largely paved with asphalt and primarily adjacent to roadways, connecting parks, schools, lakes, and other destinations within the City. Additionally, the City of Circle Pines also includes portions of the Rice Creek North Regional Trail and the East Anoka County Regional Trail.

### **4.2. Connections to Land Use Planning**

Circle Pines has development patterns largely consistent with its designation as an Suburban community. In many areas of the city, existing residential development is lower in density compared to many urban areas, reflecting a community that has automobile-oriented development patterns. As a result, most commercial land uses are separated from largely single-family residential land uses. This means that people walking and bicycling must cover greater distances to reach commercial areas from their homes. In these areas of the city, development patterns are likely better suited to bicycling than walking for transportation for most trips due to the distance between residential and commercial areas of the city. However, the development patterns in this city are well-suited for bicycling and walking due to the city's access to regional parks and lakes and existing trail and sidewalk network.

The City's land use planning and coordination with developers can help improve opportunities for walking and bicycling for transportation. The City can continue to encourage mixed-use development that situates residents within a short walk of commercial destinations. The City can also work with developers to construct sidewalks and trails within developments. Additionally, the City can require pedestrian and bicycle connections in areas where the roadway network does not connect, such as cul-de-sac connector trails that provide shortcuts for people walking and bicycling.





### 4.3. Planned Local Non-Motorized Transportation Network

The City's planned local non-motorized transportation network includes sidewalk, paved multi-use trails, and on-street bicycle lanes or shoulders. The existing and proposed network is shown in **Figure 7**. When the network is complete, it will provide safe, convenient linkages between residential areas and commercial, institutional, and recreational areas within the city. This includes filling existing network gaps and adding facilities adjacent to developing areas. The network will improve options for people to walk and bicycle for transportation within the city, and facilitate regional connections (described in greater detail in the following section).

The planned non-motorized transportation network identifies First Tier and Second Tier planned trails, as well as proposed Primary Pedestrian Facilities and Secondary Pedestrian Facilities. The proposed system will make Circle Pines' non-motorized transportation network more complete. One key planned trail is proposed on both sides of CSAH 23, which will connect the east and west city boundaries. Other planned trails and sidewalks will fill the gaps in between major roadways and the existing bicycle and pedestrian facilities.

### 4.4. Planned Regional Non-Motorized Transportation Network

The Metropolitan Council 2040 TPP encourages the use of bicycles as a mode of transportation and establishes a Regional Bicycle Transportation Network (RBTN) to establish an integrated network of on-street bikeways and off-road trails that complement each other to improve conditions for bicycle transportation at the regional level. The RBTN identifies Tier 1 and Tier 2 alignments where existing regional or other trails exist or where a specific alignment has been identified. The RBTN also identifies Tier 1 and Tier 2 corridors where specific alignments have not yet been defined.

Within Circle Pines, the RBTN identifies one Tier 2 RBTN corridor. The corridor follows the alignment of CSAH 23 southwest-northeast connecting Circle Pines to the network in Lexington and Lino Lakes. There are two Tier 2 alignments in the city. On CSAH 1, there is Tier 2 alignment that provides a west-east connection. On CSAH 17, there is a Tier 2 alignment that provides a north-south connection. Both provide connections from southern Anoka County and northern Ramsey County.

The planned non-motorized transportation network also includes construction of the planned Rice Creek North Regional Trail, filling the gap to connect the south and north ends of the trail. The Rice Creek North Regional Trail connection is a planned Anoka County trail that, when completed, will connect the disconnected Rice Creek trail in Circle Pines. There are other planned sidewalks and trails throughout the city that connects the main roads to the local roads.

The existing and proposed regional network is shown in **Figure 7**.

#### 4.5. Roadway Crossing Improvements for Bicycling and Walking

A number of intersections and other locations throughout the City have been identified for potential improvements based on safety issues for crossing pedestrians and bicyclists. In these locations, potential improvements could be made by adding or improving pavement markings or signals, constructing traffic calming elements, shortening crossing distances, and/or providing pedestrian refuges. In most cases, addition of these features would be evaluated and conducted as opportunities arise. For example, crossing improvements would be considered in concert with adjacent roadway improvements or if redevelopment occurs in an area.

#### 4.6. Non-Motorized Transportation Design Considerations

Design dimensions for sidewalks are recommended to be five feet or wider, with a minimum of a four-foot-wide boulevard between the sidewalk and the curb. Increased separation improves pedestrian comfort and provides space for street signs and snow storage.

Design considerations for bicycle facilities are somewhat more complicated due to the hierarchy of facility types. In order of their ability to provide a comfortable bicycling environment from largest improvement to smallest, facilities include: off-street facilities, protected bikeways, buffered bicycle lanes, conventional bicycle lanes, bicycle boulevards, and wide paved shoulders. **Figure 8** shows examples of these facility types.

Multi-use trails are recommended to be a minimum of eight-feet wide. Regional trails are recommended to be a minimum of ten-feet wide due to higher use and the design requirements to comply with federal funding. Trails must have a two-foot wide clear zone on either side to reduce hazards for bicyclists and provide a recovery zone if a bicyclist leaves the edge of the trail. The clear zone can be paved or turf surface. No signs, furnishings, trees, or other obstructions can be in the clear zone.

Paved shoulders should be a minimum of four-feet wide if intended for bicycle and pedestrian use. Four-foot wide shoulders are adequate on streets with traffic volumes below 1,000 vehicles per day. Six- to eight-foot shoulders are recommended when traffic volumes exceed 1,000 vehicles per day. A wider shoulder improves pedestrian and bicyclist safety and comfort when vehicle traffic speeds and volumes are higher.

As non-motorized facilities are planned and designed, the city should consult additional planning and design resources, including:

- Minnesota's Best Practices for Pedestrian/Bicycle Safety, MnDOT
- Bikeway Facility Design Manual, MnDOT
- Minnesota Manual on Uniform Traffic Control Devices, MnDOT
- NACTO Urban Bikeway Design Guide, Second Edition, National Association of City Transportation Officials
- Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials

- 
- Guide for the Planning, Design, and Operation of Pedestrian Facilities, American Association of State Highway and Transportation Officials
  - Complete Streets Implementation Resource Guide for Minnesota Local Agencies, MnDOT
  - Public Rights of Way Accessibility Guidelines (PROWAG), US Access Board

A Complete Streets approach to planning and implementing non-motorized facilities, as described in the MnDOT Complete Streets Implementation Resource Guide, can provide a helpful framework for creating a community-supported, safe, comfortable, and convenient transportation network that serves all modes. A Complete Streets policy or process is intended to provide design guidance and implementation clarity, allowing the community and project designers to advance individual projects in a collaborative and cost-efficient manner.

Accessibility is a very important consideration for non-motorized design. All new pedestrian and bicycle facilities must meet the ADA accessibility guidelines established in PROWAG. The guidelines in PROWAG address the design needs of people with physical and/or visual impairments. Accessibility will become increasingly important over the next 20 years due to demographic changes. Baby boomers are aging and the population over age 65 is increasing. People over 65 are more likely to have physical and/or visual impairments that affect their ability to get around.



**Off-street Facility**  
Source: [www.pedbikeimages.org](http://www.pedbikeimages.org) / Laura Sandt



**Conventional Bicycle Lane**  
Source: [www.pedbikeimages.org](http://www.pedbikeimages.org) / Jennifer Compos



**Protected Bikeway**  
Source: *NACTO Urban Bikeway Design Guide*



**Bicycle Boulevard**  
Source: *NACTO Urban Bikeway Design Guide*



**Buffered Bicycle Lane**  
Source: [www.pedbikeimages.org](http://www.pedbikeimages.org) / Lyubov Zuyeva



**Wide Paved Shoulder**  
Source: [www.pedbikeimages.org](http://www.pedbikeimages.org) / Laura Sandt



**Figure 8:**  
**Example Bicycle Facilities**  
Circle Pines Transportation Plan  
Circle Pines, MN



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## 5. Freight

Freight transportation in Circle Pines is primarily served by arterial roadways. **Figure 9** shows the City's freight system and potential freight generators.

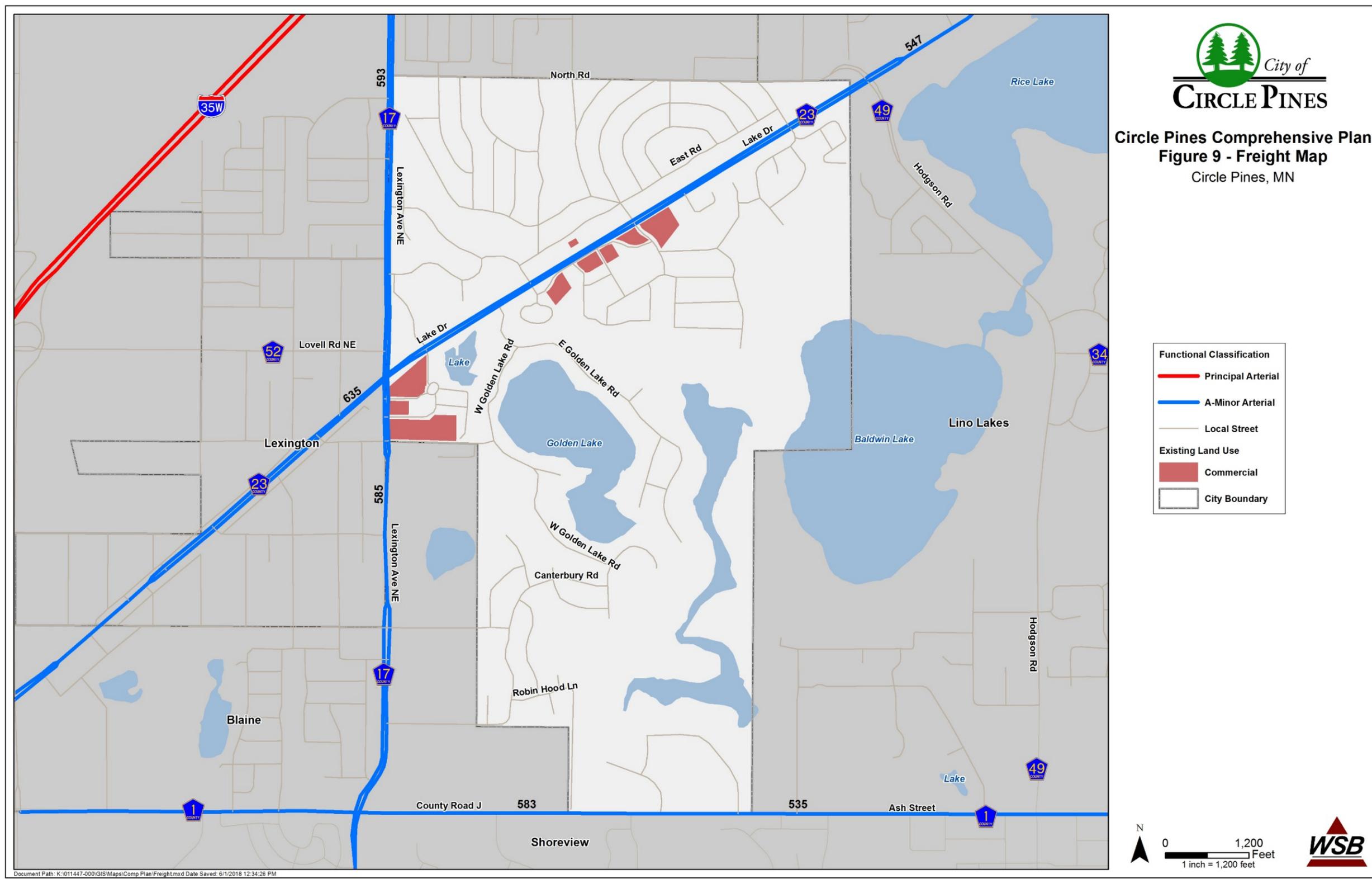
There are no large freight traffic generators or intermodal facilities within the city. Most truck is passing through Circle Pines on trips to, from, and through the Twin Cities. Freight traffic generators within Circle Pines are located along the CSAH 23. Freight generators include concentrations of commercial land uses along the CSAH 23 and CSAH 17.

**Figure 9** also shows Heavy Commercial Average Annual Daily Traffic (HCAADT) within the City of Circle Pines. CSAH 23 carries a number of heavy commercial vehicles (630 vehicles per day). CSAH 17 also carries a similar amount of heavy commercial traffic within the city (590). Circle Pines has lower volumes of heavy commercial traffic because there are no freight traffic generators within the city nor does the city have direct access to a principal arterial.

The Metropolitan Council 2040 TPP acknowledges several freight challenges that impact the city and the region. Freight traffic is expected to increase and place pressure on the region's highway and rail systems. While land use adjacent to the city's primary freight routes is generally compatible with these uses (industrial, commercial, etc.), there are several areas of existing and planned single-family residential housing or mixed use that lie adjacent to the arterial roadways.



**Circle Pines Comprehensive Plan**  
**Figure 9 - Freight Map**  
 Circle Pines, MN



Functional Classification	
	Principal Arterial
	A-Minor Arterial
	Local Street
Existing Land Use	
	Commercial
	City Boundary

N  
  
 0 1,200 Feet  
 1 inch = 1,200 feet  


## 6. Transit

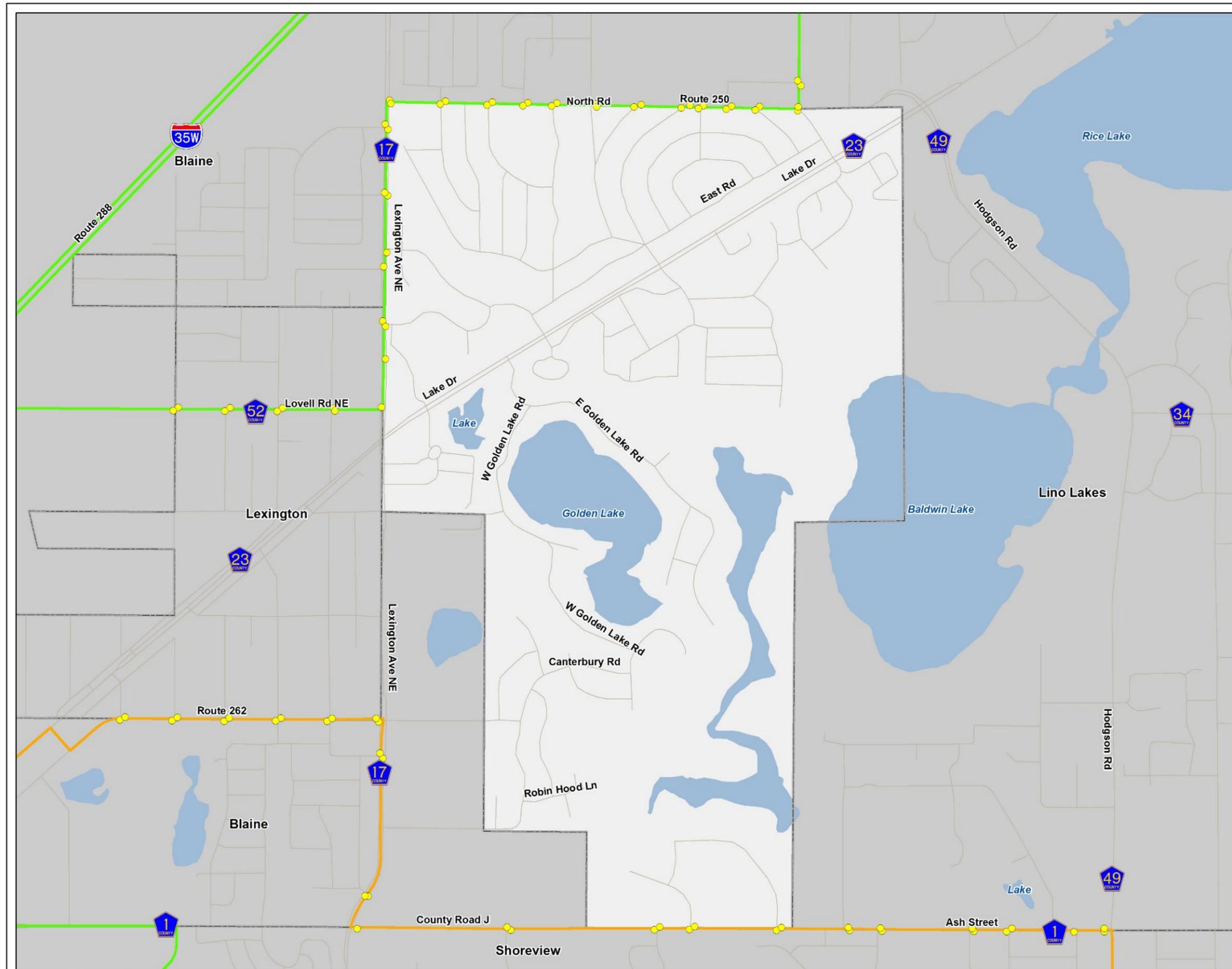
Circle Pines is located within the Transit Capital Levy District as shown in the Metropolitan Council 2040 TPP. The TPP further classifies the metropolitan area into transit markets based on demographic and urban design factors. Circle Pines is located in Market Area III. Market Area III generally supports commuter express bus service with some fixed-route local service providing basic coverage. General public dial-a-ride services are available where fixed-route service is not viable. Fixed route bus service in Circle Pines is currently provided by two routes, which are described below and shown on **Figure 10**.

- Route 250: This express route provides peak travel-time service between Lino Lakes to downtown Minneapolis. In Circle Pines, the service runs on Lexington Ave and North Road.
- Route 262: This suburban local route provides peak travel-time service from Blaine to downtown St. Paul. In Circle Pines, the service runs in southern Circle Pines on Ash Road.

The bus route that serve this area have a mixed and types of service that they provide. Both operating during peak commuting times.

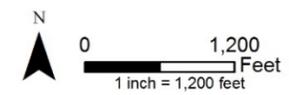
In addition to the fixed-route transit options, the City is also served by Anoka County Transit Link. Anoka County Transit Link is part of and funded by the regional transit system in the Twin Cities metro area. Transit Link provides shared dial-a-ride service for the general public and is available within the Twin Cities metro area where regular fixed route transit service is more than a ½ mile away (1/4 mile in the winter). The Anoka County Transit link service provides dial-a-ride connections to destinations within Anoka County. Transit Link also connects to regular route transit for trips within the metro area, including outside of Anoka County. In addition to Transit Link, Circle Pines residents also have opportunities to participate in the Metro Vanpool program. This program provides financial assistance for vanpools to serve areas with limited regular-route transit service.

The TPP's transit investment plan does not show any additional regional transitway investments planned for Circle Pines in the current revenue scenario.



**Circle Pines Comprehensive Plan**  
**Figure 10 - Transit Facilities**  
 Circle Pines, MN

	Bus Stop
<b>Bus Route Type</b>	
	Urban Local Route
	Suburban Local Route
	Express Route
	City Boundary



## 7. Aviation

There are currently no existing or planned aviation facilities within Circle Pines. However, the City is responsible for airspace protection in order to reduce hazards to air travel within the region. The closest airport is the Anoka County-Blaine Airport, approximately 3 miles west of Circle Pines.

Due to the distance to the nearest airport, there are no radio beacons or other air navigation aids located in off-airport locations in Circle Pines. The city is not within an area of influence, and is therefore not subject to associated land use restrictions.

Any person or organization who intends to sponsor the construction or alteration of a structure affecting navigable airspace as defined in Federal Regulation Title 14; Part 77 needs to inform the Federal Aviation Agency (FAA) of the project. This notification is accomplished through the completion and submittal to FAA of Form 7460-1, Notice of Proposed Construction or Alteration. In Circle Pines, this requirement applies to any construction or alteration exceeding 200 feet above ground level.

There are currently no heliports in Circle Pines or any known plans to construct one. Additionally, none of the surface waters within the city are identified by MnDOT as an authorized landing site for seaplanes.

## 8. Goals and Multimodal Strategies

This Plan, and the City’s actions over the next 20 years, will be guided by the following transportation goals, objectives, and strategies.

### 8.1. Goals and Objectives

**Table 7** below displays the goals and of the Circle Pines Transportation Plan. These goals represent the City’s overall vision for transportation over the next 20 years. The strategies listed in the following section provide guidance that the city can use to reach the transportation objectives.

**Table 7: Transportation Plan Goals and Objectives**

Goals	Objectives
<b>1. Facilitate efficient movement of people within and through the city</b>	1.1. Improve local roadway system connectivity to county roadways and state highways.
	1.2. Provide safe and efficient routes for emergency and public safety vehicles.
	1.3. Provide adequate capacity to relieve congestion.
	1.4. Encourage sound access management.
	1.5. Preserve necessary rights-of-way for the 20-year planning horizon and beyond.
<b>2. Facilitate efficient movements of goods within and through the city</b>	2.1. Maintain a safe and effective network of roadways for freight movement.
	2.2. Coordinate with MnDOT, Anoka County, and Ramsey County to proactively address freight safety.
<b>3. Provide a transportation system that is integrated with land use and development</b>	3.1. Coordinate transportation system investments with the City of Circle Pines Land Use Plan.
	3.2. Connect land use districts and provide safe access to major activity areas.
	3.3. Design, construct, and maintain roadways that fit the character of the adjacent land use.
	3.4. Encourage private residential streets be designed to city standards.

<b>4. Improve transportation safety for all users and modes of transportation</b>	4.1. Implement safety improvements to address high crash locations.
	4.2. Proactively address bicycle and pedestrian safety concerns along roadways and at crossings.
	4.3. Bring sidewalks, trails, and intersections into compliance with ADA.
	4.4. Support traffic calming and design to minimize speed on minor city collectors and local roadways.
<b>5. Develop a safe and convenient multimodal transportation system</b>	5.1. Invest in multi-modal transportation solutions including bicycle and pedestrian infrastructure.
	5.2 Consider a “complete streets” approach to designing and constructing roadways in high pedestrian and bicycle traffic corridors.
	5.2. Preserve adequate right of way for sidewalk and trail construction.
<b>6. Conserve and enhance environmental resources</b>	6.1. Support investments in bicycle, pedestrian, and transit infrastructure to reduce environmental impacts of transportation.
	6.2. Manage storm water effectively and minimize the construction of new impervious surfaces.
	6.3. Support native plant landscapes along roadways.
	6.4. Design new roadways to preserve natural features.
<b>7. Maintain the Existing Transportation System</b>	7.1. Regularly assess transportation maintenance needs and include roadway, trail pavement, and other transportation infrastructure maintenance in the City of Circle Pines Capital Improvement Program.

### 8.2. Multimodal Strategies

The multimodal strategies listed in this section are specific, actionable steps that the City can take in support of the goals of this Plan. These strategies are based upon existing and future transportation needs as described in detail in the previous sections of this Plan.

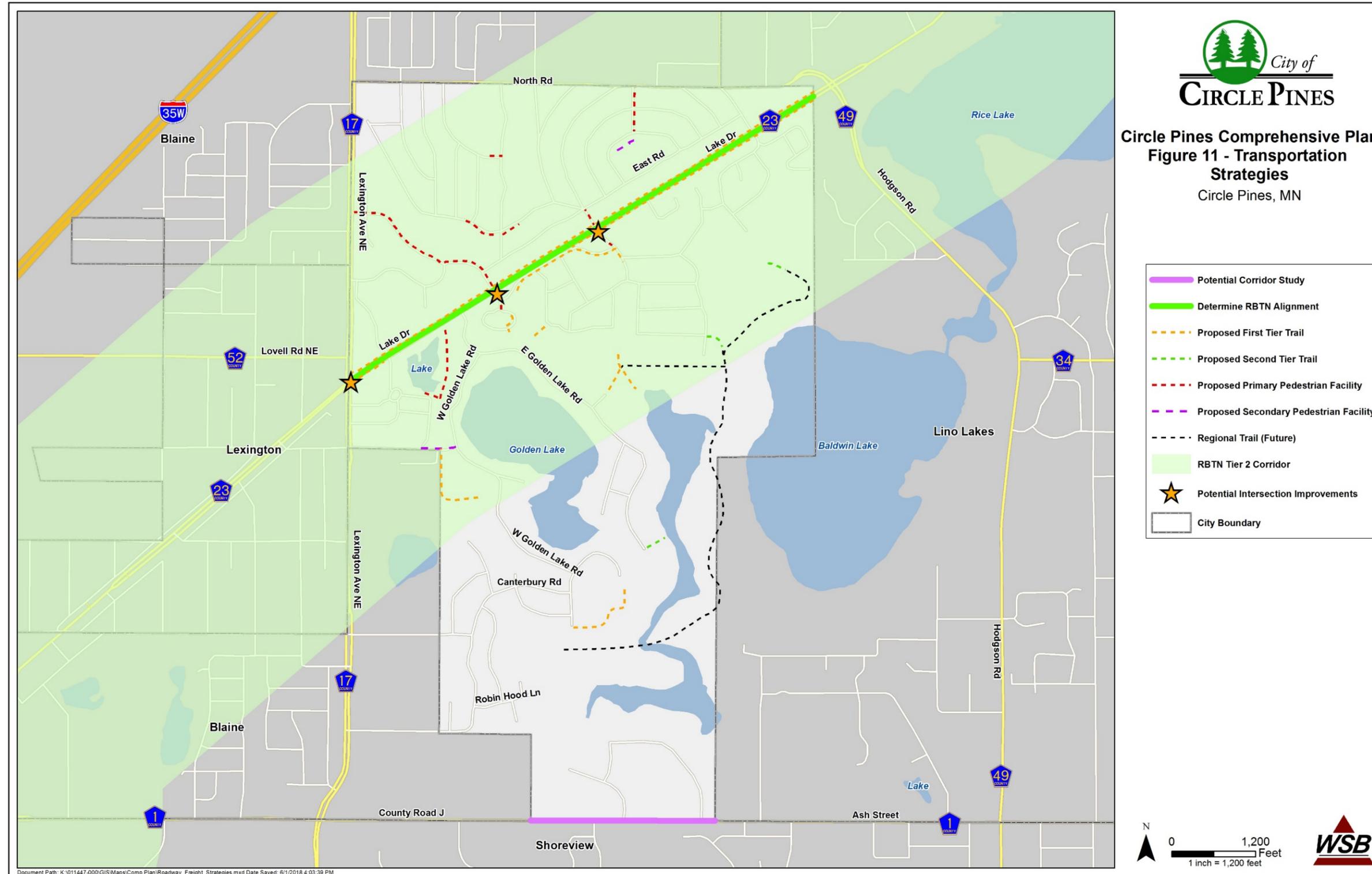
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Each strategy is tied to one or multiple goals; however, not all goals are associated with a specific strategy. In these cases, the city’s goals apply across individual projects, and the city will identify opportunities to achieve them throughout its existing project and policy development processes. **Table 8** on the following pages describes each strategy, notes which goal(s) is/are related to each strategy, and identifies the lead agency for the strategy. **Figure 11** following the tables illustrate the location-specific strategies geographically.

**Table 8: Transportation Implementation Strategies**

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
<b>Ash Street (CSAH 1)</b>	Corridor Study	Monitor traffic volumes and, if warranted, conduct a study to analyze future capacity and safety concerns	Figure 11	Anoka County/City of Circle Pines	1
<b>Various Locations</b>	Transit Improvements	Monitor transit ridership trends and demand to determine the need for improvements to bus route frequencies or alignments	Figure 11	City of Circle Pines, Metro Transit	3, 5
<b>Various Locations</b>	Multimodal Maintenance	Continue to implement the Pavement Management Program to ensure quality infrastructure throughout the city	Figure 11	City of Circle Pines	1, 7
<b>Rice Creek North Regional Trail</b>	Bicycle and Pedestrian Improvements	Work with Anoka to master plan for the proposed segment of the Rice Creek North Regional Trail	Figure 11	Anoka County/City of Circle Pines	5
<b>Lake Drive (CSAH 23) Corridor</b>	Bicycle and Pedestrian Improvements	Work with Metropolitan Council and Anoka County to determine the best alignment for RBTN designation	Figure 11	Metropolitan Council, Anoka County, City of Circle Pines	5
<b>Various Locations</b>	Bicycle and Pedestrian Safety	Evaluate intersections for potential safety improvements such as intersection controls, crosswalks, etc.	Figure 11	City of Circle Pines	4, 5
<b>Various locations</b>	Bicycle and Pedestrian Maintenance	Monitor and maintain bicycle and pedestrian planned facilities to provide safe and	Figure 11	City of Circle Pines	5, 6

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
		convenient conditions for users			



## **9. Proposed Short and Long Range Roadway Projects**

The sections below identify proposed short and long range roadway projects identified in the city's CIP and based on the proposed land use and redevelopment activities described in previous sections of this Plan.

### **9.1.1. Proposed Project from the TPP**

The Metropolitan Council 2040 TPP identifies a pavement project along I-35W programmed for the 2019-2024 timeframe. This project is anticipated to repave segments of I-35W, replace and repair bridges throughout the project area, and construct MnPASS Express lanes. The I-35W project is not directly within the city limits, but the project has close access to the City.

### **9.1.2. Proposed Projects from CIPs**

The city's CIP identifies a couple of roadway projects. These projects are local street reconstruction projects intended to improve and maintain the roadway surfaces. These projects are identified in the Pavement Management Program. A number of streets will be improved in the northwest portion of the city, most within the Starlite Vista neighborhood.

### **9.1.2. Proposed Projects based on Land Use and Redevelopment**

While the City does not anticipate major development or redevelopment, transportation needs in the city may shift as a result of land use changes or demographic changes. The expansion of the Anoka County Centennial Library is one example of how a land use change may impact transportation. There may be areas where redevelopment occurs and requires modifications such as intersection traffic controls, turn lanes, or changes in access. Similarly, land use changes may increase demand for non-motorized transportation facilities to provide safe access to the transportation system for pedestrians and bicyclists. Consideration of roadway modifications, intersection traffic control improvements, and non-motorized facilities will continue as individual proposals for redevelopment move forward.

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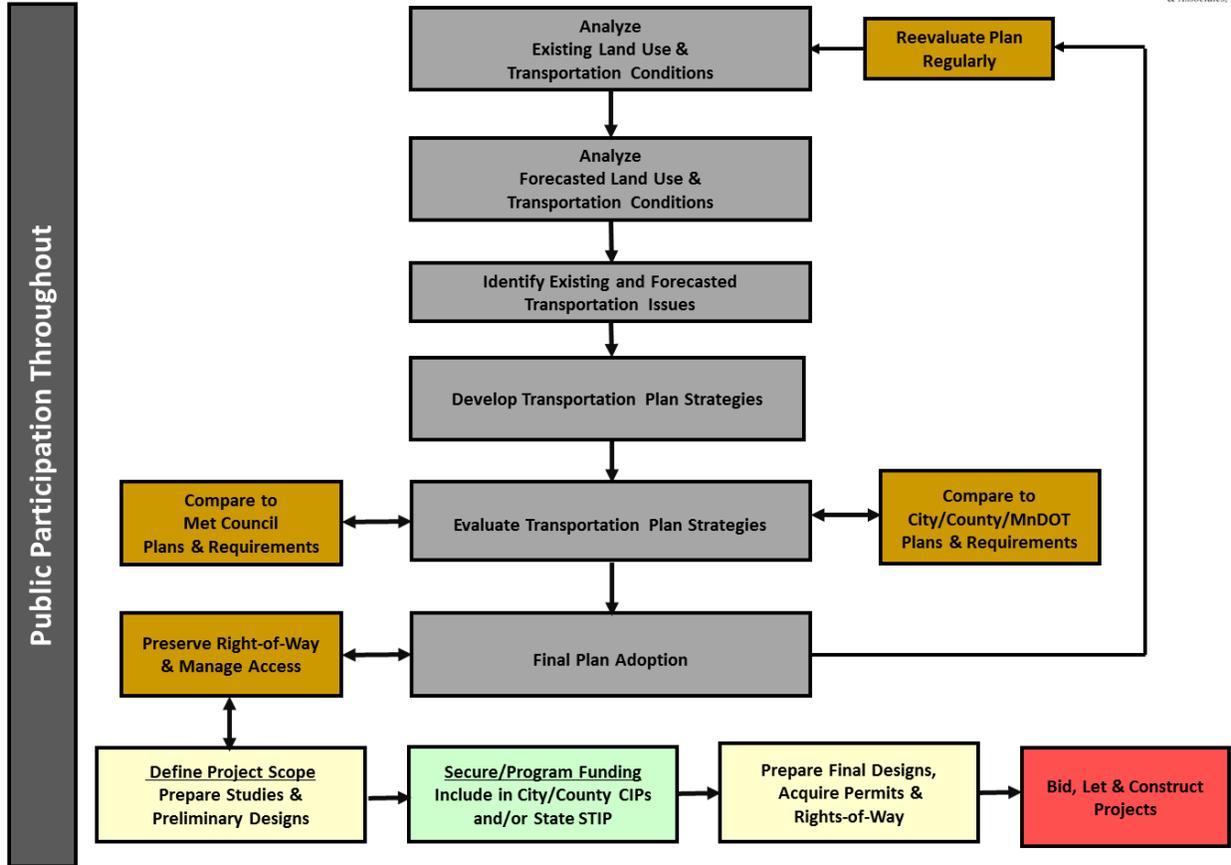
## 10. Conclusion and Next Steps

The purpose of this Transportation Plan is to set a multimodal transportation vision for the City of Circle Pines through the year 2040. Goals and specific strategies have been identified collaboratively by the city, Anoka County, and members of the public within the framework of Metropolitan Council requirements. The vision and associated strategies outlined in this Plan were established by considering existing and forecasted conditions, City of Circle Pines priorities, regional travel patterns and a variety of other factors.

As the owners of the transportation network in Circle Pines (i.e. City of Circle Pines, Anoka County, MnDOT, and Metro Transit) advance their respective Capital Improvement Programs (CIPs), this Plan is intended to serve as an important resource and reference in establishing priorities and advancing transportation projects for implementation. Advancing these projects from a planning to implementation phase will require collaborative discussions among facility owners, adjacent communities, the Metropolitan Council, residents and others to conduct traffic studies, finalize designs, preserve rights-of-way, obtain environmental clearances and leverage necessary financial resources. **Figure 15** on the following page outlines the entire planning and project development process required for transportation projects from concept plans to construction implementation.

Figure 15  
Transportation Planning Process

### Transportation Planning Process



## Chapter 4: Water Resources

### Water Supply

DEPARTMENT OF NATURAL RESOURCES – DIVISION OF ECOLOGICAL AND WATER  
RESOURCES AND METROPOLITAN COUNCIL

A copy of this plan was sent to the DNR on January 26, 2017 and sent back to the City of Circle Pines for comment changes. The City submitted changes to the plan and resubmitted the plan to the DNR on January 14, 2019

Complete Table 1 with information about the public water supply system covered by this WSP.

**Table 1. General information regarding this WSP**

Requested Information	Description
DNR Water Appropriation Permit Number(s)	<b>590782</b>
Ownership	Public
Metropolitan Council Area	Yes - Anoka
Street Address	<b>200 Civic Heights Circle</b>
City, State, Zip	<b>Circle Pines MN 55014</b>
Contact Person Name	Chandra Peterson
Title	Assistant City Administrator
Phone Number	763.231.2611
MDH Supplier Classification	Municipal

#### PART 1. WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

The first step in any water supply analysis is to assess the current status of demand and availability. Information summarized in Part 1 can be used to develop Emergency Preparedness Procedures (Part 2) and the Water Conservation Plan (Part 3). This data is also needed to track progress for water efficiency measures.

##### A. Analysis of Water Demand

Complete Table 2 showing the past 10 years of water demand data.

- Some of this information may be in your Wellhead Protection Plan.
- If you do not have this information, do your best, call your engineer for assistance or if necessary leave blank.

If your customer categories are different than the ones listed in Table 2, please describe the differences below:

NA
----

**Table 2. Historic water demand (see definitions in the glossary after Part 4 of this template)**

**Table 3. Historic water demand (see definitions in the glossary after Part 4 of this template)**

Year	Pop. Served	Total Connections	Residential Water Delivered (MG)	C/I/I Water Delivered (MG)	Water used for Non-essential	Wholesale Deliveries (MG)	Total Water Delivered (MG)	Total Water Pumped (MG)	Water Supplier Services	Percent Unmetered/Unaccounted	Average Daily Demand (MGD)	Max. Daily Demand (MGD)	Date of Max. Demand	Residential Per Capita Demand (GPCD)	Total per capita Demand (GPCD)
2005	5072	1920	145.9	6.4		0	152.3	157.3		3.3	.431	1.483	7/15	78.8	82.3
2006	5072	1945	155.5	10.7		0	166.2	198.7		16.3	.455	1.271	7/13	83.4	85.4
2007	5250	1891	154.7	11.5		0	166.2	183.7		9.5	.455	1.358	6/26	83.1	87.8
2008	5211	1891	132.5	11.2		0	143.7	166.8		13.8	.393	.999	7/3	71.2	75.9
2009	5270	1891	141.5	15.9		0	157.4	179.2		12.1	.431	1.306	6/4	76.0	83.2
2010	4918	1891	127.5	17.3		0	144.8	156.9		7.7	.396	.883	4/29	68.5	76.5
2011	4922	1891	124.8	16.2		0	141.0	154.3		8.6	.386	.841	7/7	67.0	74.5
2012	5018	1959	139.2	22.1		0	161.3	182.3		11.5	.441	1.0	7/12	74.1	93.0
2013	5014	1959	127.1	20.5		0	147.6	156.7		5.8	.404	1.0	8/27	67.7	79.9
2014	4904	1918	118.7	13.5		0	132.2	142.3		7.0	.361	2.194	7/28	63.3	74.1
2015	4961	1906	106.3	18.5		0	124.9	144.9		13	.642	2.8	5/6	56.7	65.5
Avg. 2010-2015	5056	1915	134.0	14.9			148.9	165.7		9.9	.436	1.376	NA	71.8	79.8

**MG** – Million Gallons    **MGD** – Million Gallons per Day    **GPCD** – Gallons per Capita per Day

Complete Table 3 by listing the top 10 water users by volume, from largest to smallest. For each user, include information about the category of use (residential, commercial, industrial, institutional, or wholesale), the amount of water used in gallons per year, the percent of total water delivered, and the status of water conservation measures.

**Table 4. Large volume users**

Customer	Use Category (Residential, Industrial, Commercial, Institutional, Wholesale)	Amount Used (Gallons per Year)	Percent of Total Annual Water Delivered	Implementing Water Conservation Measures? (Yes/No/Unknown)
1 THERE ARE NO LARGE VOLUME USERS. CITY IS ALMOST ENTIRELY RESIDENTIAL				

**B. Treatment and Storage Capacity**

Complete Table 4 with a description of where water is treated, the year treatment facilities were constructed, water treatment capacity, the treatment methods (i.e. chemical addition, reverse osmosis, coagulation, sedimentation, etc.) and treatment types used (i.e. fluoridation, softening, chlorination, Fe/MN removal, coagulation, etc.). Also describe the annual amount and method of disposal of treatment residuals. Add rows to the table as needed.

**Table 5. Water treatment capacity and treatment processes**

Treatment Site ID (Plant Name or Well ID)	Year Constructed	Treatment Capacity (GPD)	Treatment Method	Treatment Type	Annual Amount of Residuals	Disposal Process for Residuals	Do You Reclaim Filter Backwash Water?
Water Filtration	1992	2.16	Pressure sand filter	Chlorine	Unknown	Sanitary Sewer	yes
Total	NA	2.16	NA	NA		NA	

Complete Table 5 with information about storage structures. Describe the type (i.e. elevated, ground, etc.), the storage capacity of each type of structure, the year each structure was constructed, and the primary material for each structure. Add rows to the table as needed.

**Table 6. Storage capacity, as of the end of the last calendar year**

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (Gallons)
1 Water Tower	Elevated storage	1968	steel	500,000
2	Ground storage			
3	Other -			
Total	NA	NA	NA	500,000

**Treatment and storage capacity versus demand**

It is recommended that total storage equal or exceed the average daily demand.

Discuss the difference between current storage and treatment capacity versus the water supplier’s projected average water demand over the next 10 years (see Table 7 for projected water demand):

The City’s storage capacity of 500,000 gallons exceeds the current and future average daily demand by a significant margin. Treatment also meets the average daily demand.

**C. Water Sources**

Complete Table 6 by listing all types of water sources that supply water to the system, including groundwater, surface water, interconnections with other water suppliers, or others. Provide the name of each source (aquifer name, river or lake name, name of interconnecting water supplier) and the Minnesota unique well number or intake ID, as appropriate. Report the year the source was installed or established and the current capacity. Provide information about the depth of all wells. Describe the status of the source (active, inactive, emergency only, retail/wholesale interconnection) and if the source facilities have a dedicated emergency power source. Add rows to the table as needed for each installation.

Include copies of well records and maintenance summary for each well that has occurred since your last approved plan in **Appendix 1**.

**Table 7. Water sources and status**

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection)	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Groundwater	Well #2	00208995	1961	1000	321	Normal	yes
Groundwater	Well #3	00208636	1967	1200	270	Normal	yes
Interconnection	Blaine interconnect	NA	1977	12,500	NA	Emergency	NA
Interconnection	Shoreview Interconnect	NA	1987	7,600	NA	Emergency	NA
Interconnection	Lino Lakes Interconnect	NA	1986	4,950	NA	Emergency	NA

**Limits on Emergency Interconnections**

Discuss any limitations on the use of the water sources (e.g. not to be operated simultaneously, limitations due to blending, aquifer recovery issues etc.) and the use of interconnections, including capacity limits or timing constraints (i.e. only 200 gallons per minute are available from the City of Prior Lake, and it is estimated to take 6 hours to establish the emergency connection). If there are no limitations, list none.

Since water from both wells is pumped through the filtration plant total max capacity is 2.16 MGD. May take up to an hour to open an interconnection

**D. Future Demand Projections – Key Metropolitan Council Benchmark**

**Water Use Trends**

Use the data in Table 2 to describe trends in 1) population served; 2) total per capita water demand; 3) average daily demand; 4) maximum daily demand. Then explain the causes for upward or downward trends. For example, over the ten years has the average daily demand trended up or down? Why is this occurring?

Population served is stable as city is fully developed. Total per capita demand is influenced by seasonal residential sprinkling. Average daily demand is reflective of seasonal residential sprinkling. Maximum Daily demand is driven by residential sprinkling. The ten year trend shows a decrease as the Utility has implemented odd even and time of day sprinkling restrictions and implemented increasing tiered rate structure.

Use the water use trend information discussed above to complete Table 7 with projected annual demand for the next ten years. Communities in the seven-county Twin Cities metropolitan area must also include projections for 2030 and 2040 as part of their local comprehensive planning. Projected demand should be consistent with trends evident in the historical data in Table 2, as discussed above. Projected demand should also reflect state demographer population projections and/or other planning projections.

**Table 8. Projected annual water demand**

Year	Projected Total Population	Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)
2020	5030	5030	78	0.392	1.37
2021	5039	5039	77	0.388	1.36
2022	5048	5048	76	0.384	1.34
2023	5057	5057	75	0.379	1.33
2024	5066	5066	74	0.375	1.31
2025	5075	5075	74	0.376	1.31
2030	5120	5120	73	0.374	1.31
2040	5280	5280	72	0.380	1.33

**GPCD** – Gallons per Capita per Day

**MGD** – Million Gallons per Day

**Projection Method**

Describe the method used to project water demand, including assumptions for population and business growth and how water conservation and efficiency programs affect projected water demand:

The assumption used include: That there is minimal population and household growth. That conservation efforts will focus on reduced lawn irrigation. Would also expect some efficiency improvements with normal fixture and appliance replacement.

E. Resource Sustainability

**Monitoring – Key DNR Benchmark**

Complete Table 8 by inserting information about source water quality monitoring efforts. The list should include all production wells, observation wells, and source water intakes or reservoirs.

Additional information on groundwater level monitoring program at:

[http://www.dnr.state.mn.us/waters/groundwater\\_section/obwell/index.html](http://www.dnr.state.mn.us/waters/groundwater_section/obwell/index.html) Add rows to the table as needed.

**Table 9. Information about source water quality monitoring**

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
00208995	<input checked="" type="checkbox"/> production well <input type="checkbox"/> observation well <input type="checkbox"/> source water intake <input type="checkbox"/> source water reservoir	<input checked="" type="checkbox"/> Routine MDH sampling <input checked="" type="checkbox"/> Routine water utility sampling <input type="checkbox"/> other	<input type="checkbox"/> continuous <input type="checkbox"/> hourly <input checked="" type="checkbox"/> daily <input type="checkbox"/> monthly <input type="checkbox"/> quarterly <input type="checkbox"/> annually	<input type="checkbox"/> SCADA <input checked="" type="checkbox"/> grab sampling <input type="checkbox"/> steel tape <input type="checkbox"/> stream gauge
00208636	<input checked="" type="checkbox"/> production well <input type="checkbox"/> observation well <input type="checkbox"/> source water intake <input type="checkbox"/> source water reservoir	<input checked="" type="checkbox"/> Routine MDH sampling <input checked="" type="checkbox"/> Routine water utility sampling <input type="checkbox"/> other	<input type="checkbox"/> continuous <input type="checkbox"/> hourly <input checked="" type="checkbox"/> daily <input type="checkbox"/> monthly <input type="checkbox"/> quarterly <input type="checkbox"/> annually	<input type="checkbox"/> SCADA <input checked="" type="checkbox"/> grab sampling <input type="checkbox"/> steel tape <input type="checkbox"/> stream gauge

**Water Level Data**

A water level monitoring plan that includes monitoring locations and a schedule for water level readings must be submitted as **Appendix 2**. If one does not already exist, it needs to be prepared and submitted with the WSP. Ideally, all production and observation wells are monitored at least monthly.

Complete Table 9 to summarize water level data for each well being monitored. Provide the name of the aquifer and a brief description of how much water levels vary over the season (the difference between the highest and lowest water levels measured during the year) and the long-term trends for each well. If water levels are not measured and recorded on a routine basis, then provide the static water level when each well was constructed and the most recent water level measured during the same season the well was constructed. Also include all water level data taken during any well and pump maintenance. Add rows to the table as needed.

Provide water level data graphs for each well in **Appendix 3** for the life of the well, or for as many years as water levels have been measured. See DNR website for Date Time Water Level [http://www.dnr.state.mn.us/waters/groundwater\\_section/obwell/waterleveldata.html](http://www.dnr.state.mn.us/waters/groundwater_section/obwell/waterleveldata.html)

**Table 9. Water level data**

Unique Well Number or Well ID	Aquifer Name	Seasonal Variation (Feet)	Long-term Trend in water level data	Water level measured during well/pumping maintenance
00208995	Drift	NA	<input type="checkbox"/> Falling <input type="checkbox"/> Stable <input type="checkbox"/> Rising	MM/DD/YY: ____ MM/DD/YY: ____ MM/DD/YY: ____
00208636	Prairiedu Chein Jordan	NA	<input type="checkbox"/> Falling <input type="checkbox"/> Stable <input type="checkbox"/> Rising	MM/DD/YY: ____ MM/DD/YY: ____ MM/DD/YY: ____

**Potential Water Supply Issues & Natural Resource Impacts – Key DNR & Metropolitan Council Benchmark**

Complete Table 10 by listing the types of natural resources that are or could be impacted by permitted water withdrawals. If known, provide the name of specific resources that may be impacted. Identify what the greatest risks to the resource are and how the risks are being assessed. Identify any resource protection thresholds – formal or informal – that have been established to identify when actions should be taken to mitigate impacts. Provide information about the potential mitigation actions that may be taken, if a resource protection threshold is crossed. Add additional rows to the table as needed. See the glossary at the end of the template for definitions. Some of this baseline data should have been in your earlier water supply plans or county comprehensive water plans. When filling out this table, think of what are the water supply risks, identify the resources, determine the threshold and then determine what your community will do to mitigate the impacts.

Your DNR area hydrologist is available to assist with this table.  
 For communities in the seven-county Twin Cities metropolitan area, the *Master Water Supply Plan Appendix 1 (Water Supply Profiles)*, provides information about potential water supply issues and natural resource impacts for your community.)

**Table 10. Natural resource impacts**

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
<input type="checkbox"/> River or stream	None	<input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends and/or MCLs exceeded <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts <input type="checkbox"/> Other: _____	<input type="checkbox"/> GIS analysis <input type="checkbox"/> Modeling <input type="checkbox"/> Mapping <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> Other: _____		<input type="checkbox"/> Revise permit <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other	
<input type="checkbox"/> Calcareous	None	<input type="checkbox"/> Flow/water level decline	<input type="checkbox"/> GIS analysis		<input type="checkbox"/> Revise permit	

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
fen		<input type="checkbox"/> Degrading water quality trends and/or MCLs exceeded <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts <input type="checkbox"/> Other: _____	<input type="checkbox"/> Modeling <input type="checkbox"/> Mapping <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> Other: _____		<input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other	
X Lake	Golden Lake	<input type="checkbox"/> Flow/water level decline <input checked="" type="checkbox"/> Degrading water quality trends and/or MCLs exceeded <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts <input type="checkbox"/> Other: _____	<input type="checkbox"/> GIS analysis <input type="checkbox"/> GIS analysis <input type="checkbox"/> Modeling <input type="checkbox"/> Mapping <input checked="" type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> Other: _____	Degrading water trends	<input type="checkbox"/> Revise permit <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other	
<input type="checkbox"/> Wetland	None	<input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends and/or MCLs exceeded <input type="checkbox"/> Impacts on	<input type="checkbox"/> GIS analysis <input type="checkbox"/> Modeling <input type="checkbox"/> Mapping <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing		<input type="checkbox"/> Revise permit <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other	

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
		endangered, threatened, or special concern species habitat or other natural resource impacts <input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____			
<input type="checkbox"/> Trout Stream	None	<input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends and/or MCLs exceeded <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts <input type="checkbox"/> Other: _____	<input type="checkbox"/> GIS analysis <input type="checkbox"/> Modeling <input type="checkbox"/> Mapping <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> Other: _____		<input type="checkbox"/> Revise permit <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other	
X Aquifer	Drift & Prairiedu Chein Jordan	<input type="checkbox"/> Flow/water level decline <input checked="" type="checkbox"/> Degrading water quality trends and/or MCLs exceeded <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat or	<input type="checkbox"/> GIS analysis <input type="checkbox"/> Modeling <input type="checkbox"/> Mapping <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input checked="" type="checkbox"/> Other: well casing	Water level in well casing drops below 80 feet.	<input type="checkbox"/> Revise permit <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other	Monitor water depth in well casing.

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
		other natural resource impacts <input type="checkbox"/> Other:				
<input type="checkbox"/> Endangered, threatened, or special concern species habitat, other Natural resource impacts	none					

\* Examples of thresholds: a lower limit on acceptable flow in a river or stream; water quality outside of an accepted range; a lower limit on acceptable aquifer level decline at one or more monitoring wells; withdrawals that exceed some percent of the total amount available from a source; or a lower limit on acceptable changes to a protected habitat.

**Wellhead Protection (WHP) and Source Water Protection (SWP) Plans**

Complete Table 11 to provide status information about WHP and SWP plans. The emergency procedures in this plan are intended to comply with the contingency plan provisions required in the Minnesota Department of Health’s (MDH) Wellhead Protection (WHP) Plan and Surface Water Protection (SWP) Plan.

**Table 11. Status of Wellhead Protection and Source Water Protection Plans**

Plan Type	Status	Date Adopted	Date for Update
WHP	<input checked="" type="checkbox"/> In Process <input type="checkbox"/> Completed <input type="checkbox"/> Not Applicable		
SWP	<input checked="" type="checkbox"/> In Process <input type="checkbox"/> Completed <input type="checkbox"/> Not Applicable		

**WHP** – Wellhead Protection Plan      **SWP** – Source Water Protection Plan

**F. Capital Improvement Plan (CIP)**

Please note that any wells that received approval under a ten-year permit, but that were not built, are now expired and must submit a water appropriations permit.

**Adequacy of Water Supply System**

Complete Table 12 with information about the adequacy of wells and/or intakes, storage facilities, treatment facilities, and distribution systems to sustain current and projected demands. List planned capital improvements for any system components, in chronological order. Communities in the seven-county Twin Cities metropolitan area should also include information about plans through 2040.

The assessment can be the general status by category; it is not necessary to identify every single well, storage facility, treatment facility, lift station, and mile of pipe. Please attach your latest Capital Improvement Plan as **Appendix 4**.

**Table 12. Adequacy of Water Supply System**

System Component	Planned action	Anticipated Construction Year	Notes
Wells/Intakes	<input checked="" type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition		
Water Storage Facilities	<input checked="" type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition		
Water Treatment Facilities	<input checked="" type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition		
Distribution Systems (pipes, valves, etc.)	<input type="checkbox"/> No action planned - adequate <input checked="" type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition	2018,2020	
Pressure Zones	<input checked="" type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition		
Other:	<input type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition		

**Proposed Future Water Sources**

Complete Table 13 to identify new water source installation planned over the next ten years. Add rows to the table as needed.

**Table 13. Proposed future installations/sources**

Source	Installation Location (approximate)	Resource Name	Proposed Pumping Capacity (gpm)	Planned Installation Year	Planned Partnerships
Groundwater	None				
Surface Water					
Interconnection to another supplier					

**Water Source Alternatives - Key Metropolitan Council Benchmark**

Do you anticipate the need for alternative water sources in the next 10 years?

Yes  No

For metro communities, will you need alternative water sources by the year 2040?  Yes  No

**If you answered yes for either question, then complete table 14. If no, insert NA.**

Complete Table 14 by checking the box next to alternative approaches that your community is considering, including approximate locations (if known), the estimated amount of future demand that could be met through the approach, the estimated timeframe to implement the approach, potential partnerships, and the major benefits and challenges of the approach. Add rows to the table as needed.

For communities in the seven-county Twin Cities metropolitan area, these alternatives should include approaches the community is considering to meet projected 2040 water demand.

**Table 14. Alternative water sources**

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
<input type="checkbox"/> Groundwater	NA					
<input type="checkbox"/> Surface Water	NA					
<input type="checkbox"/> Reclaimed Storm water	NA					
<input type="checkbox"/> Reclaimed Wastewater	NA					
<input type="checkbox"/> Interconnection to another supplier	NA					

**Part 2. Emergency Preparedness Procedures**

The emergency preparedness procedures outlined in this plan are intended to comply with the contingency plan provisions required by MDH in the WHP and SWP. Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failings, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. Municipalities that already have written procedures dealing with water emergencies should review the following information and update existing procedures to address these water supply protection measures.

**A. Federal Emergency Response Plan**

Section 1433(b) of the Safe Drinking Water Act, (Public Law 107-188, Title IV- Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan.

**Do you have a federal emergency response plan?**  Yes  No

**If yes, what was the date it was certified?** 12 22 2004

Complete Table 15 by inserting the noted information regarding your completed Federal Emergency Response Plan.

**Table 15. Emergency Preparedness Plan contact information**

<b>Emergency Response Plan Role</b>	<b>Contact Person</b>	<b>Contact Phone Number</b>	<b>Contact Email</b>
Emergency Response Lead	ON-CALL UTILITY PERSONNEL	763-427-1212	RLAVELL@CI.CIRCLE-PINES.MN.US
Alternate Emergency Response Lead	PATRICK ANTONEN	763-784-5898	PANTONEN@CI.CIRCLE-PINES.MN.US

**B. Operational Contingency Plan**

All utilities should have a written operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance.

**Do you have a written operational contingency plan?**  Yes  No

At a minimum, a water supplier should prepare and maintain an emergency contact list of contractors and suppliers.

**C. Emergency Response Procedures**

Water suppliers must meet the requirements of MN Rules 4720.5280 . Accordingly, the Minnesota Department of Natural Resources (DNR) requires public water suppliers serving more than 1,000 people to submit Emergency and Conservation Plans. Water emergency and conservation plans that have been approved by the DNR, under provisions of Minnesota Statute 186 and Minnesota Rules, part 6115.0770, will be considered equivalent to an approved WHP contingency plan.

**Emergency Telephone List**

Prepare and attach a list of emergency contacts, including the MN Duty Officer (1-800-422-0798), as **Appendix 5**. A template is available at [www.mndnr.gov/watersupplyplans](http://www.mndnr.gov/watersupplyplans)

The list should include key utility and community personnel, contacts in adjacent water suppliers, and appropriate local, state and federal emergency contacts. Please be sure to verify and update the contacts on the emergency telephone list and date it. Thereafter, update on a regular basis (once a year is recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the Emergency Manager for that community. Responsibilities and services for each contact should be defined.

**Current Water Sources and Service Area**

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

**Do records and maps exist?**  Yes  No

**Can staff access records and maps from a central secured location in the event of an emergency?**  
 Yes  No

**Does the appropriate staff know where the materials are located?**  
 Yes  No

**Procedure for Augmenting Water Supplies**

Complete Tables 16 – 17 by listing all available sources of water that can be used to augment or replace existing sources in an emergency. Add rows to the tables as needed. In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Municipalities are encouraged to execute. Outstate Communities may consider using nearby high capacity wells (industry, golf course) as emergency water sources. WSP should include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MDH are required for interconnections or the reuse of water.

**Table 16. Interconnections with other water supply systems to supply water in an emergency**

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	List of services, equipment, supplies available to respond
BLAINE	12,500		
SHOREVIEW	7,600		
LINO LAKES	4,950		

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	List of services, equipment, supplies available to respond

**GPM – Gallons per minute    MGD – million gallons per day**

**Table 17. Utilizing surface water as an alternative source**

Surface Water Source Name	Capacity (GPM)	Capacity (MGD)	Treatment Needs	Note Any Limitations On Use
NONE				

If not covered above, describe additional emergency measures for providing water (obtaining bottled water, or steps to obtain National Guard services, etc.)

**Allocation and Demand Reduction Procedures**

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary. Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

1. Water use for human needs such as cooking, cleaning, drinking, washing and waste disposal; use for on-farm livestock watering; and use for power production that meets contingency requirements.
2. Water use involving consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes)
3. Water use for agricultural irrigation and processing of agricultural products involving consumption of more than 10,000 gallons per day (usually from private high-capacity wells or surface water intakes)
4. Water use for power production above the use provided for in the contingency plan.
5. All other water use involving consumption of more than 10,000 gallons per day.
6. Nonessential uses – car washes, golf courses, etc.

Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Lower priority uses will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. Water

use for lawn sprinkling, vehicle washing, golf courses, and recreation are legislatively considered non-essential.

**Table 18. Water use priorities**

Customer Category	Allocation Priority	Average Daily Demand (GDP)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	393,000	70,000
Commercial	2	17,000	3,000
Non-Essential	3	300,000	150,000

**GPD** – Gallons per Day

**Tip: Calculating Emergency Demand Reduction Potential**

The emergency demand reduction potential for all uses will typically equal the difference between maximum use (summer demand) and base use (winter demand). In extreme emergency situations, lower priority water uses must be restricted or eliminated to protect priority domestic water requirements. Emergency demand reduction potential should be based on average day demands for customer categories within each priority class. Use the tables in Part 3 on water conservation to help you determine strategies.

Complete Table 19 by selecting the triggers and actions during water supply disruption conditions.

**Table 19. Emergency demand reduction conditions, triggers and actions (Select all that may apply and describe)**

Emergency Triggers	Short-term Actions	Long-term Actions
X Contamination X Loss of production X Infrastructure failure X Executive order by Governor <input type="checkbox"/> Other: _____	X Supply augmentation through INTERCONNECTIONS X Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. <input type="checkbox"/> Water allocation through _____ <input type="checkbox"/> Meet with large water users to discuss their contingency plan.	<input type="checkbox"/> Supply augmentation through _____ <input type="checkbox"/> Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. <input type="checkbox"/> Water allocation through _____ <input type="checkbox"/> Meet with large water users to discuss their contingency plan.

**Notification Procedures**

Complete Table 20 by selecting trigger for informing customers regarding conservation requests, water use restrictions, and suspensions; notification frequencies; and partners that may assist in the notification process. Add rows to the table as needed.

**Table 20. Plan to inform customers regarding conservation requests, water use restrictions, and suspensions**

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
X Short-term demand reduction declared (< 1 year)	<input checked="" type="checkbox"/> Website <input type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input checked="" type="checkbox"/> Press release (TV, radio, newspaper), <input type="checkbox"/> Meeting with large water users (> 10% of total city use) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Annually	
<input type="checkbox"/> Long-term Ongoing demand reduction declared	<input checked="" type="checkbox"/> Website <input type="checkbox"/> Email list serve <input type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input type="checkbox"/> Press release (TV, radio, newspaper), <input type="checkbox"/> Meeting with large water users (> 10% of total city use) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Annually	
<input type="checkbox"/> Governor's Critical water deficiency declared	<input checked="" type="checkbox"/> Website <input type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input type="checkbox"/> Press release (TV, radio, newspaper), <input type="checkbox"/> Meeting with large water users (> 10% of total city use) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Daily <input checked="" type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	

**Enforcement**

Prior to a water emergency, municipal water suppliers must adopt regulations that restrict water use and outline the enforcement response plan. The enforcement response plan must outline how conditions will be monitored to know when enforcement actions are triggered, what enforcement tools will be used, who will be responsible for enforcement, and what timelines for corrective actions will be expected.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions.

**Important Note:**

Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

**Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may**

**be an ordinance, rule, regulation, policy under a council directive, or other official control)**  
**X Yes  No**

If yes, attach the official control document to this WSP as **Appendix 7**.

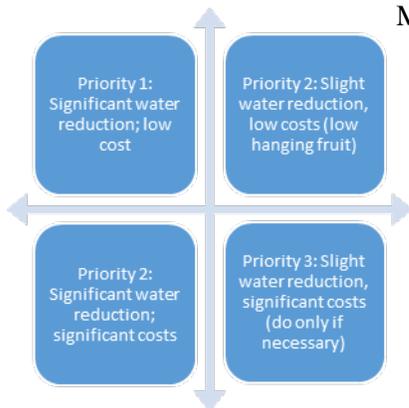
If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

**Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions?  Yes  No**

**If yes, cite the regulatory authority reference: City Code Section 615 Regulating the Operation of Public Water System**

**If no, who has authority to implement water use restrictions in an emergency?**

### PART 3. WATER CONSERVATION PLAN



Minnesotans have historically benefited from the state’s abundant water supplies, reducing the need for conservation. There are however, limits to the available supplies of water and increasing threats to the quality of our drinking water. Causes of water supply limitation may include: population increases, economic trends, uneven statewide availability of groundwater, climatic changes, and degraded water quality. Examples of threats to drinking water quality include: the presence of contaminant plumes from past land use activities, exceedances of water quality standards from natural and human sources, contaminants of emerging concern, and increasing pollutant trends from nonpoint sources.

There are many incentives for conserving water; conservation:

- reduces the potential for pumping-induced transfer of contaminants into the deeper aquifers, which can add treatment costs
- reduces the need for capital projects to expand system capacity
- reduces the likelihood of water use conflicts, like well interference, aquatic habitat loss, and declining lake levels
- conserves energy, because less energy is needed to extract, treat and distribute water (and less energy production also conserves water since water is use to produce energy)
- maintains water supplies that can then be available during times of drought

It is therefore imperative that water suppliers implement water conservation plans. The first step in water conservation is identifying opportunities for behavioral or engineering changes that could be made to reduce water use by conducting a thorough analysis of:

- Water use by customer
- Extraction, treatment, distribution and irrigation system efficiencies
- Industrial processing system efficiencies
- Regulatory and barriers to conservation
- Cultural barriers to conservation
- Water reuse opportunities

Once accurate data is compiled, water suppliers can set achievable goals for reducing water use. A successful water conservation plan follows a logical sequence of events. The plan should address both conservation on the supply side (leak detection and repairs, metering), as well as on the demand side (reductions in usage). Implementation should be conducted in phases, starting with the most obvious and lowest-cost options. In some cases one of the early steps will be reviewing regulatory constraints to water conservation, such as lawn irrigation requirements. Outside funding and grants may be available for implementation of projects. Engage water system operators and maintenance staff and customers in brainstorming opportunities to reduce water use. Ask the question: “How can I help save water?”

Progress since 2006  
**Is this your community’s first Water Supply Plan?  Yes  No**

If yes, describe conservation practices that you are already implementing, such as: pricing, system improvements, education, regulation, appliance retrofitting, enforcement, etc.

If no, complete Table 21 to summarize conservation actions taken since the adoption of the 2006 water supply plan.

**Table 21. Implementation of previous ten-year Conservation Plan**

2006 Plan Commitments	Action Taken?
Change Water Rates Structure to provide conservation pricing	X Yes <input type="checkbox"/> No
Water Supply System Improvements (e.g. leak repairs, valve replacements, etc.)	X Yes <input type="checkbox"/> No
Educational Efforts	X Yes <input type="checkbox"/> No
New water conservation ordinances	<input type="checkbox"/> Yes <input type="checkbox"/> No
Rebate or retrofitting Program (e.g. for toilet, faucets, appliances, showerheads, dish washers, washing machines, irrigation systems, rain barrels, water softeners, etc.)	<input type="checkbox"/> Yes X No
Enforcement	X Yes <input type="checkbox"/> No
Describe Other	<input type="checkbox"/> Yes <input type="checkbox"/> No

**What are the results you have seen from the actions in Table 21 and how were results measured?**

**Peak water demand for irrigation has been reduced**

A. Triggers for Allocation and Demand Reduction Actions

Complete table 22 by checking each trigger below, as appropriate, and the actions to be taken at various levels or stages of severity. Add in additional rows to the table as needed.

**Table 22. Short and long-term demand reduction conditions, triggers and actions**

Objective	Triggers	Actions
Protect Surface Water Flows	<input type="checkbox"/> Low stream flow conditions <input type="checkbox"/> Reports of declining wetland and lake levels <input type="checkbox"/> Other:	<input type="checkbox"/> Increase promotion of conservation measures <input type="checkbox"/> Other: _____

Objective	Triggers	Actions
Short-term demand reduction (less than 1 year)	<input checked="" type="checkbox"/> Extremely high seasonal water demand (more than double winter demand) <input checked="" type="checkbox"/> Loss of treatment capacity <input checked="" type="checkbox"/> Lack of water in storage <input type="checkbox"/> State drought plan <input type="checkbox"/> Well interference <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Adopt (if not already) and enforce the critical water deficiency ordinance to restrict or prohibit lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. <input type="checkbox"/> Supply augmentation through _____ <input type="checkbox"/> Water allocation through _____ <input type="checkbox"/> Meet with large water users to discuss user's contingency plan.
Long-term demand reduction (>1 year)	<input checked="" type="checkbox"/> Per capita demand increasing <input type="checkbox"/> Total demand increase (higher population or more industry) Water level in well(s) below elevation of _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> Develop a critical water deficiency ordinance that is or can be quickly adopted to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. <input type="checkbox"/> Enact a water waste ordinance that targets overwatering (causing water to flow off the landscape into streets, parking lots, or similar), watering impervious surfaces (streets, driveways or other hardscape areas), and negligence of known leaks, breaks, or malfunctions. <input type="checkbox"/> Meet with large water users to discuss user's contingency plan. <input type="checkbox"/> Enhanced monitoring and reporting: audits, meters, billing, etc.
Governor's "Critical Water Deficiency Order" declared	<input checked="" type="checkbox"/> Declaration by the Governor	<input checked="" type="checkbox"/> City Ordinance 154 allows the city to enforce the declaration. Appendix 12

**B. Conservation Objectives and Strategies – Key benchmark for DNR**

This section establishes water conservation objectives and strategies for eight major areas of water use.

**Objective 1: Reduce Unaccounted (Non-Revenue) Water loss to Less than 10%**

The Minnesota Rural Waters Association, the Metropolitan Council and the Department of Natural Resources recommend that all water uses be metered. Metering can help identify high use locations and times, along with leaks within buildings that have multiple meters.

It is difficult to quantify specific unmetered water use such as that associated with firefighting and system flushing or system leaks. Typically, water suppliers subtract metered water use from total water pumped to calculate unaccounted or non-revenue water loss.

**Is your ten-year average (2005-2014) unaccounted Water Use in Table 2 higher than 10%?**  
**X Yes No**

**What is your leak detection monitoring schedule? (e.g. monitor 1/3rd of the city lines per year)**

**Given the age of the system, since 2008 The City has begun a street reconstruction project every two years that includes replacing all the utilities including water lines.**

**Water Audits** - are intended to identify, quantify and verify water and revenue losses. The volume of unaccounted-for water should be evaluated each billing cycle. The American Water Works Association (AWWA) recommends that ten percent or less of pumped water is unaccounted-for water. Water audit procedures are available from the AWWA and MN Rural Water Association [www.mrwa.com](http://www.mrwa.com). Drinking Water Revolving Loan Funds are available for purchase of new meters when new plants are built.

**What is the date of your most recent water audit? December 2015**

**Frequency of water audits:**     yearly                     other (specify frequency) \_\_\_\_\_

**Leak detection and survey:**     every year     every other year     periodic as needed

**Year last leak detection survey completed:** \_\_\_\_NA

If Table 2 shows annual water losses over 10% or an increasing trend over time, describe what actions will be taken to reach the <10% loss objective and within what timeframe

**Given the age of the system, since 2008 The City has begun a street reconstruction project every two years that includes replacing all the utilities including water lines.**

**Metering** -AWWA recommends that every water supplier install meters to account for all water taken into its system, along with all water distributed from its system at each customer’s point of service. An effective metering program relies upon periodic performance testing, repair, maintenance or replacement of all meters. AWWA also recommends that water suppliers conduct regular water audits to ensure accountability. Some cities install separate meters for interior and exterior water use, but some research suggests that this may not result in water conservation. Complete Table 23 by adding the requested information regarding the number, types, testing and maintenance of customer meters.

**Table 23. Information about customer meters**

Customer Category	Number of Customers	Number of Metered Connections	Number of Automated Meter Readers	Meter testing intervals (years)	Average age/meter replacement schedule (years)
Residential	2,308	2,308			12 / 20
Irrigation	8	8			12 / 20_

Customer Category	Number of Customers	Number of Metered Connections	Number of Automated Meter Readers	Meter testing intervals (years)	Average age/meter replacement schedule (years)
meters					
Institutional	0	0			___ / ___
Commercial	118	118			12 / 20
Industrial	0	0			___ / ___
Public Facilities	0	0			12 / 20
Other	0	0			___ / ___
<b>TOTALS</b>	2434	2434		NA	NA

For unmetered systems, describe any plans to install meters or replace current meters with advanced technology meters. Provide an estimate of the cost to implement the plan and the projected water savings from implementing the plan.

Meter Park Irrigation systems \$14,000

**Table 24. Water source meters**

	Number of Meters	Meter testing schedule (years)	Number of Automated Meter Readers	Average age/meter replacement schedule (years)
Water Source (wells/intakes)	2	5	0	5 / 20
Treatment Plant	2	5	0	10 / 20

**Objective 2: Achieve Less than 75 Residential Gallons per Capita Demand (GPCD)**

The 2002 average residential per capita demand in the Twin Cities Metropolitan area was 75 gallons per capita per day.

Is your average 2010-2015 residential per capita water demand in Table 2 more than 75?  Yes  No

What was your 2005 – 2014 ten-year average residential per capita water demand? **73.31 g/person/day**

Describe the water use trend over that timeframe:

During 2005 to 2007 some residential customer growth. Also implementation of increasing tiered rate structure. Odd Even and Time of day restrictions in place

Complete Table 25 by checking which strategies you will use to continue reducing residential per capita demand and project a likely timeframe for completing each checked strategy (Select all that apply and add rows for additional strategies):

**Table 25. Strategies and timeframe to reduce residential per capita demand**

Strategy to reduce residential per capita demand	Timeframe for completing work
<input type="checkbox"/> Revise city ordinances/codes to encourage or require water efficient landscaping.	
<input type="checkbox"/> Revise city ordinance/codes to permit water reuse options, especially for non-potable purposes like irrigation, groundwater recharge, and industrial use. Check with plumbing authority to see if internal buildings reuse is permitted	
<input type="checkbox"/> Revise ordinances to limit irrigation. Describe the restricted irrigation plan:	
<input type="checkbox"/> Revise outdoor irrigation installations codes to require high efficiency systems (e.g. those with soil moisture sensors or programmable watering areas) in new installations or system replacements.	
X Make water system infrastructure improvements	Complete by 2022
<input type="checkbox"/> Offer free or reduced cost water use audits) for residential customers.	
<input type="checkbox"/> Implement a notification system to inform customers when water availability conditions change.	
<input type="checkbox"/> Provide rebates or incentives for installing water efficient appliances and/or fixtures indoors (e.g., low flow toilets, high efficiency dish washers and washing machines, showerhead and faucet aerators, water softeners, etc.)	
X Provide rebates or incentives to reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	Complete by 2000
<input type="checkbox"/> Identify supplemental Water Resources	
X Conduct audience-appropriate water conservation education and outreach.	ongoing
<input type="checkbox"/> Describe other plans	

**Objective 3: Achieve at least a 1.5% per year water reduction for Institutional, Industrial, Commercial, and Agricultural GPCD over the next 10 years or a 15% reduction in ten years.**

Complete Table 26 by checking which strategies you will used to continue reducing non-residential customer use demand and project a likely timeframe for completing each checked strategy (add rows for additional strategies).

Where possible, substitute recycled water used in one process for reuse in another. (For example, spent rinse water can often be reused in a cooling tower.) Keep in mind the true cost of water is the amount on the water bill PLUS the expenses to heat, cool, treat, pump, and dispose of/discard the water. Don't just calculate the initial investment. Many conservation retrofits that appear to be prohibitively expensive are actually very cost-effective when amortized over the life of the equipment. Often reducing water use also saves electrical and other utility costs. Note: as

of 2015, water reuse, and is not allowed by the state plumbing code, M.R. 4715 (a variance is needed). However several state agencies are addressing this issue.

**Table 26. Strategies and timeframe to reduce institutional, commercial industrial, and agricultural and non-revenue use demand**

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
<input type="checkbox"/> Conduct a facility water use audit for both indoor and outdoor use, including system components	
<input type="checkbox"/> Install enhanced meters capable of automated readings to detect spikes in consumption	
<input type="checkbox"/> Compare facility water use to related industry benchmarks, if available (e.g., meat processing, dairy, fruit and vegetable, beverage, textiles, paper/pulp, metals, technology, petroleum refining etc.),	
<input type="checkbox"/> Install water conservation fixtures and appliances or change processes to conserve water	
<input type="checkbox"/> Repair leaking system components (e.g., pipes, valves)	
<input type="checkbox"/> Investigate the reuse of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	
X Reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	2022
<input type="checkbox"/> Train employees how to conserve water	
<input type="checkbox"/> Implement a notification system to inform non-residential customers when water availability conditions change.	
<input type="checkbox"/> [Rainwater catchment systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, industrial processes, water features, vehicle washing facilities, cooling tower makeup, and similar uses shall be approved by the commissioner. Proposed plumbing code 4714.1702.1 <a href="http://www.dli.mn.gov/PDF/docket/4714rule.pdf">http://www.dli.mn.gov/PDF/docket/4714rule.pdf</a>	
<input type="checkbox"/> Describe other plans:	

**Objective 4: Achieve a Decreasing Trend in Total Per Capita Demand**

Include as **Appendix 8** one graph showing total per capita water demand for each customer category (i.e., residential, institutional, commercial, industrial) from 2005-2014 and add the calculated/estimated linear trend for the next 10 years.

Describe the trend for each customer category; explain the reason(s) for the trends, and where trends are increasing.

Residential is expected to show a slowly declining trend as fixture replacement occurs and less water is used by irrigation systems. Commercial is in a similar situation. Industrial and institution are NA

**Objective 5: Reduce Peak Day Demand so that the Ratio of Average Maximum day to the Average Day is less than 2.6**

**Is the ratio of average 2005-2014 maximum day demand to average 2005-2014 average day demand reported in Table 2 more than 2.6? X Yes  No**

**Calculate a ten year average (2005 – 2014) of the ratio of maximum day demand to average day demand: 1.23 Max. Ave. Demand/.480 Ave. Daily Demand**

The position of the DNR has been that a peak day/average day ratio that is above 2.6 for in summer indicates that the water being used for irrigation by the residents in a community is too large and that efforts should be made to reduce the peak day use by the community.

It should be noted that by reducing the peak day use, communities can also reduce the amount of infrastructure that is required to meet the peak day use. This infrastructure includes new wells, new water towers which can be costly items.

**Objective 6: Implement a Conservation Water Rate Structure and/or a Uniform Rate Structure with a Water Conservation Program**

**Water Conservation Program**

Municipal water suppliers serving over 1,000 people are required to adopt demand reduction measures that include a conservation rate structure, or a uniform rate structure with a conservation program that achieves demand reduction. These measures must achieve demand reduction in ways that reduce water demand, water losses, peak water demands, and nonessential water uses. These measures must be approved before a community may request well construction approval from the Department of Health or before requesting an increase in water appropriations permit volume (*Minnesota Statutes*, section 103G.291, subd. 3 and 4). Rates should be adjusted on a regular basis to ensure that revenue of the system is adequate under reduced demand scenarios. If a municipal water supplier intends to use a Uniform Rate Structure, a community-wide Water Conservation Program that will achieve demand reduction must be provided.

**Current Water Rates**

Include a copy of the actual rate structure in **Appendix 9** or list current water rates including base/service fees and volume charges below.

Volume included in base rate or service charge: \_\_\_\_\_ gallons or \_\_\_\_\_ cubic feet \_\_\_\_\_ other  
 Frequency of billing: X Monthly  Bimonthly  Quarterly  Other:

Water Rate Evaluation Frequency: X every year  every \_\_\_\_\_ years  no schedule

Date of last rate change: 1/1/2016

**Table 27. Rate structures for each customer category (Select all that apply and add additional rows as needed)**

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
Residential	<input checked="" type="checkbox"/> Monthly Billing <input checked="" type="checkbox"/> Increasing block rates (volume tiered rates) <input type="checkbox"/> Seasonal rates <input type="checkbox"/> Time of Use rates <input checked="" type="checkbox"/> Water bills reported in gallons <input type="checkbox"/> Individualized goal rates <input type="checkbox"/> Excess Use rates <input type="checkbox"/> Drought surcharge <input type="checkbox"/> Use water bill to provide comparisons <input checked="" type="checkbox"/> Service charge not based on water volume <input type="checkbox"/> Other (describe)	<input type="checkbox"/> Uniform <input type="checkbox"/> Odd/Even day watering	<input type="checkbox"/> Service charge based on water volume <input type="checkbox"/> Declining block <input type="checkbox"/> Flat <input type="checkbox"/> Other (describe)
Commercial/Industrial/Institutional	<input checked="" type="checkbox"/> Monthly Billing <input checked="" type="checkbox"/> Increasing block rates <input type="checkbox"/> Seasonal rates <input type="checkbox"/> Time of Use rates <input checked="" type="checkbox"/> Bill water use in gallons <input type="checkbox"/> Individualized goal rates <input type="checkbox"/> Excess Use rates <input type="checkbox"/> Drought surcharge <input type="checkbox"/> Use water bill to provide comparisons <input checked="" type="checkbox"/> Service charge not based on water volume <input type="checkbox"/> Other (describe)	<input type="checkbox"/> Uniform	<input type="checkbox"/> Service charge based on water volume <input type="checkbox"/> Declining block <input type="checkbox"/> Flat <input type="checkbox"/> Other (describe)
<input type="checkbox"/> Other			

**\* Rate Structures components that may promote water conservation:**

- **Monthly billing:** is encouraged to help people see their water usage so they can consider changing behavior.
- **Increasing block rates (also known as a tiered residential rate structure):** Typically, these have at least three tiers: should have at least three tiers.
  - The first tier is for the winter average water use.
  - The second tier is the year-round average use, which is lower than typical summer use. This rate should be set to cover the full cost of service.
  - The third tier should be above the average annual use and should be priced high enough to encourage conservation, as should any higher tiers. For this to be effective, the difference in block rates should be significant.
- **Seasonal rate:** higher rates in summer to reduce peak demands
- **Time of Use rates:** lower rates for off peak water use
- **Bill water use in gallons:** this allows customers to compare their use to average rates
- **Individualized goal rates:** typically used for industry, business or other large water users to promote water conservation if they keep within agreed upon goals. **Excess Use rates:** if water use goes above an agreed upon amount this higher rate is charged

- **Drought surcharge:** an extra fee is charged for guaranteed water use during drought
- **Use water bill to provide comparisons:** simple graphics comparing individual use over time or compare individual use to others.
- **Service charge or base fee that does not include a water volume** – a base charge or fee to cover universal city expenses that are not customer dependent and/or to provide minimal water at a lower rate (e.g., an amount less than the average residential per capita demand for the water supplier for the last 5 years)
- **Emergency rates** -A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

**\*\*Conservation Neutral\*\***

- **Uniform rate:** rate per unit used is the same regardless of the volume used
- **Odd/even day watering** –This approach reduces peak demand on a daily basis for system operation, but it does not reduce overall water use.

**\*\*\* Non-Conserving \*\*\***

- **Service charge or base fee with water volume:** an amount of water larger than the average residential per capita demand for the water supplier for the last 5 years
- **Declining block rate:** the rate per unit used decreases as water use increases.
- **Flat rate:** one fee regardless of how much water is used (usually unmetered).

Provide justification for any conservation neutral or non-conserving rate structures. If intending to adopt a conservation rate structure, include the timeframe to do so:

**Objective 7: Additional strategies to Reduce Water Use and Support Wellhead Protection Planning**

Development and redevelopment projects can provide additional water conservation opportunities, such as the actions listed below. If a Uniform Rate Structure is in place, the water supplier must provide a Water Conservation Program that includes at least two of the actions listed below. Check those actions that you intent to implement within the next 10 years.

**Table 28. Additional strategies to Reduce Water Use & Support Wellhead Protection**

<input type="checkbox"/>	Participate in the GreenStep Cities Program, including implementation of at least one of the 20 “Best Practices” for water
<input type="checkbox"/>	Prepare a Master Plan for Smart Growth (compact urban growth that avoids sprawl)
<input type="checkbox"/>	Prepare a Comprehensive Open Space Plan (areas for parks, green spaces, natural areas)
<input type="checkbox"/>	Adopt a Water Use Restriction Ordinance (lawn irrigation, car washing, pools, etc.)
<input type="checkbox"/>	Adopt an Outdoor Lawn Irrigation Ordinance
<input type="checkbox"/>	Adopt a Private well Ordinance (private wells in a city must comply with water restrictions)
<input checked="" type="checkbox"/>	Implement a Stormwater Management Program
<input type="checkbox"/>	Adopt Non-Zoning Wetlands Ordinance (can further protect wetlands beyond state/federal laws-for vernal pools, buffer areas, restrictions on filling or alterations)
<input type="checkbox"/>	Adopt a Water Offset Program (primarily for new development or expansion)
<input type="checkbox"/>	Implement a Water Conservation Outreach Program

<input type="checkbox"/>	Hire a Water Conservation Coordinator (part-time)
<input type="checkbox"/>	Implement a Rebate program for water efficient appliances, fixtures, or outdoor water management
<input type="checkbox"/>	Other

**Objective 8: Tracking Success: How will you track or measure success through the next ten years?**

By Monitoring average GPC

**Tip: The process to monitor demand reduction and/or a rate structure includes:**

- The DNR District Hydrologist or Groundwater Appropriation Hydrologist will call or visit the community the first 1-3 years after the water supply plan is completed.
- They will discuss what activities the community is doing to conserve water and if they feel their actions are successful. The Water Supply Plan, Part 3 tables and responses will guide the discussion. For example, they will discuss efforts to reduce unaccounted for water loss if that is a problem, or go through Tables 33, 34 and 35 to discuss new initiatives.
- The city representative and the hydrologist will discuss total per capita water use, residential per capita water use, and business/industry use. They will note trends.
- They will also discuss options for improvement and/or collect case studies of success stories to share with other communities. One option may be to change the rate structure, but there are many other paths to successful water conservation.
- If appropriate, they will cooperatively develop a simple work plan for the next few years, targeting a couple areas where the city might focus efforts.

**A. Regulation**

Complete Table 29 by selecting which regulations are used to reduce demand and improve water efficiencies. Add additional rows as needed.

Copies of adopted regulations or proposed restrictions or should be included in

**Appendix 10** (a list with hyperlinks is acceptable).

**Table 29. Regulations for short-term reductions in demand and long-term improvements in water efficiencies**

Regulations Utilized	When is it applied (in effect)?
<input type="checkbox"/> Rainfall sensors required on landscape irrigation systems	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Water efficient plumbing fixtures required	<input type="checkbox"/> New Development <input type="checkbox"/> Replacement <input type="checkbox"/> Rebate Programs
<input type="checkbox"/> Critical/Emergency Water Deficiency ordinance	<input checked="" type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Watering restriction requirements (time of day, allowable days, etc.)	<input checked="" type="checkbox"/> Odd/Even <input type="checkbox"/> 2 days/week <input type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Water waste prohibited (for example, having a fine for irrigators spraying on the street)	<input type="checkbox"/> -Ongoing <input type="checkbox"/> Seasonal

Regulations Utilized	When is it applied (in effect)?
	<input type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Limitations on turf areas (requiring lots to have 10% - 25% of the space in natural areas)	<input type="checkbox"/> New Development <input type="checkbox"/> Shoreland/zoning <input type="checkbox"/> Other
<input type="checkbox"/> Soil preparation requirements (after construction, requiring topsoil to be applied to promote good root growth)	<input type="checkbox"/> New Development <input type="checkbox"/> Construction Projects <input type="checkbox"/> Other
<input type="checkbox"/> Tree ratios (requiring a certain number of trees per square foot of lawn)	<input type="checkbox"/> New development <input type="checkbox"/> Shoreland/zoning <input type="checkbox"/> Other
<input type="checkbox"/> Permit to fill swimming pool and/or requiring pools to be covered (to prevent evaporation)	<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Ordinances that permit stormwater irrigation, reuse of water, or other alternative water use (Note: be sure to check current plumbing codes for updates)	<input type="checkbox"/> Describe

**B. Retrofitting Programs**

Education and incentive programs aimed at replacing inefficient plumbing fixtures and appliances can help reduce per capita water use, as well as energy costs. It is recommended that municipal water suppliers develop a long-term plan to retrofit public buildings with water efficient plumbing fixtures and appliances. Some water suppliers have developed partnerships with organizations having similar conservation goals, such as electric or gas suppliers, to develop cooperative rebate and retrofit programs.

A study by the AWWA Research Foundation (Residential End Uses of Water, 1999) found that the average indoor water use for a non-conserving home is 69.3 gallons per capita per day (gpcd). The average indoor water use in a conserving home is 45.2 gpcd and most of the decrease in water use is related to water efficient plumbing fixtures and appliances that can reduce water, sewer and energy costs. In Minnesota, certain electric and gas providers are required (Minnesota Statute 216B.241) to fund programs that will conserve energy resources and some utilities have distributed water efficient showerheads to customers to help reduce energy demands required to supply hot water.

**Retrofitting Programs**

Complete Table 30 by checking which water uses are targeted, the outreach methods used, the measures used to identify success, and any participating partners.

**Table 30. Retrofitting programs (Select all that apply)**

Water Use Targets	Outreach Methods	Partners
<input checked="" type="checkbox"/> low flush toilets, <input type="checkbox"/> toilet leak tablets, <input checked="" type="checkbox"/> low flow showerheads, <input type="checkbox"/> faucet aerators;	<input checked="" type="checkbox"/> Education about <input type="checkbox"/> free distribution of <input type="checkbox"/> rebate for <input type="checkbox"/> other	<input checked="" type="checkbox"/> Gas company <input type="checkbox"/> Electric company <input type="checkbox"/> Watershed organization

Water Use Targets	Outreach Methods	Partners
<input checked="" type="checkbox"/> X water conserving washing machines, <input type="checkbox"/> dish washers, <input type="checkbox"/> water softeners;	<input checked="" type="checkbox"/> X Education about <input type="checkbox"/> free distribution of <input type="checkbox"/> rebate for <input type="checkbox"/> other	<input checked="" type="checkbox"/> X Gas company <input type="checkbox"/> Electric company <input type="checkbox"/> Watershed organization
<input type="checkbox"/> rain gardens, <input type="checkbox"/> rain barrels, <input type="checkbox"/> Native/drought tolerant landscaping, etc.	<input type="checkbox"/> Education about <input type="checkbox"/> free distribution of <input type="checkbox"/> rebate for <input type="checkbox"/> other	<input type="checkbox"/> Gas company <input type="checkbox"/> Electric company <input type="checkbox"/> Watershed organization

Briefly discuss measures of success from the above table (e.g. number of items distributed, dollar value of rebates, gallons of water conserved, etc.):

Reduced gallons per customer per day

**C. Education and Information Programs**

Customer education should take place in three different circumstances. First, customers should be provided information on how to conserve water and improve water use efficiencies. Second, information should be provided at appropriate times to address peak demands. Third, emergency notices and educational materials about how to reduce water use should be available for quick distribution during an emergency.

**Proposed Education Programs**

Complete Table 31 by selecting which methods are used to provide water conservation and information, including the frequency of program components. Select all that apply and add additional lines as needed.

**Table 31. Current and Proposed Education Programs**

Education Methods	General summary of topics	#/Year	Frequency
Billing inserts or tips printed on the actual bill	Ordinance irrigation requirements		<input type="checkbox"/> Ongoing <input checked="" type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Consumer Confidence Reports	Yearly as required		<input type="checkbox"/> Ongoing <input checked="" type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Press releases to traditional local news outlets (e.g., newspapers, radio and TV)	Irrigation restrictions		<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input checked="" type="checkbox"/> Only during declared Emergencies
Social media distribution (e.g., emails, Facebook, Twitter)	conservation		<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Paid advertisements (e.g., billboards, print media, TV, radio, web sites, etc.)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Presentations to community groups			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Staff training			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Facility tours			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Displays and exhibits			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies

Education Methods	General summary of topics	#/Year	Frequency
Marketing rebate programs (e.g., indoor fixtures & appliances and outdoor practices)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Community news letters	Conservation		<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Direct mailings (water audit/retrofit kits, showerheads, brochures)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Information kiosk at utility and public buildings			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Public Service Announcements			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Cable TV Programs	Conservation		<input type="checkbox"/> Ongoing <input checked="" type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Demonstration projects (landscaping or plumbing)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
K-12 Education programs (Project Wet, Drinking Water Institute, presentations)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Community Events (children’s water festivals, environmental fairs)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Community education classes			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during

Education Methods	General summary of topics	#/Year	Frequency
			declared Emergencies
Water Week promotions			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Website (include address:)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Targeted efforts (large volume users, users with large increases)	Know the flow website Part of Anoka County permit training		<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Notices of ordinances			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
Emergency conservation notices	Irrigation limitations		<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input checked="" type="checkbox"/> Only during declared Emergencies
Other: Tiered rate increases	Increased irrigation cost		<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies

Briefly discuss what future education and information activities your community is considering in the future:

We will contact customers with high water consumption variances by phone to alert them to potential problems



**Part 4. ITEMS FOR METROPOLITAN AREA COMMUNITIES**

Minnesota Statute 473.859 requires WSPs to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process.

Much of the information in Parts 1-3 addresses water demand for the next 10 years. However, additional information is needed to address water demand through 2040, which will make the WSP consistent with the Metropolitan Land Use Planning Act, upon which the local comprehensive plans are based.

This Part 4 provides guidance to complete the WSP in a way that addresses plans for water supply through 2040.

**A. Water Demand Projections through 2040**

Complete Table 7 in Part 1D by filling in information about long-term water demand projections through 2040. Total Community Population projections should be consistent with the community’s system statement, which can be found on the Metropolitan Council’s website and which was sent to the community in September 2015.

Projected Average Day, Maximum Day, and Annual Water Demands may either be calculated using the method outlined in *Appendix 2 of the 2015 Master Water Supply Plan* or by a method developed by the individual water supplier.

**B. Potential Water Supply Issues**

Complete Table 10 in Part 1E by providing information about the potential water supply issues in your community, including those that might occur due to 2040 projected water use.

The *Master Water Supply Plan* provides information about potential issues for your community in *Appendix 1 (Water Supply Profiles)*. This resource may be useful in completing Table 10.

You may document results of local work done to evaluate impact of planned uses by attaching a feasibility assessment or providing a citation and link to where the plan is available electronically.

**C. Proposed Alternative Approaches to Meet Extended Water Demand Projections**

Complete Table 12 in Part 1F with information about potential water supply infrastructure impacts (such as replacements, expansions or additions to wells/intakes, water storage and treatment capacity, distribution systems, and emergency interconnections) of extended plans for development and redevelopment, in 10-year increments through 2040. It may be useful to refer to information in the community’s local Land Use Plan, if available.

Complete Table 14 in Part 1F by checking each approach your community is considering to meet future demand. For each approach your community is considering, provide information about the amount of future water demand to be met using that approach, the timeframe to implement the approach, potential partners, and current understanding of the key benefits and challenges of the approach.

As challenges are being discussed, consider the need for: evaluation of geologic conditions (mapping, aquifer tests, modeling), identification of areas where domestic wells could be impacted, measurement and analysis of water levels & pumping rates, triggers & associated actions to protect water levels, etc.

**D. Value-Added Water Supply Planning Efforts (Optional)**

The following information is not required to be completed as part of the local water supply plan, but completing this can help strengthen source water protection throughout the region and help Metropolitan Council and partners in the region to better support local efforts.

**Source Water Protection Strategies**

**Does a Drinking Water Supply Management Area for a neighboring public water supplier overlap your community?**  Yes  No

If you answered no, skip this section. If you answered yes, please complete Table 32 with information about new water demand or land use planning-related local controls that are being considered to provide additional protection in this area.

**Table 32. Local controls and schedule to protect Drinking Water Supply Management Areas**

Local Control	Schedule to Implement	Potential Partners
<input type="checkbox"/> None at this time		
<input type="checkbox"/> Comprehensive planning that guides development in vulnerable drinking water supply management areas		
<input type="checkbox"/> Zoning overlay		
<input type="checkbox"/> Other:		

**Technical assistance**

From your community’s perspective, what are the most important topics for the Metropolitan Council to address, guided by the region’s Metropolitan Area Water Supply Advisory Committee and Technical Advisory Committee, as part of its ongoing water supply planning role?

- Coordination of state, regional and local water supply planning roles
- Regional water use goals
- Water use reporting standards
- Regional and sub-regional partnership opportunities
  
- X Identifying and prioritizing data gaps and input for regional and sub-regional analyses
- Others: \_\_\_\_\_

## GLOSSARY

**Agricultural/Irrigation Water Use** - Water used for crop and non-crop irrigation, livestock watering, chemigation, golf course irrigation, landscape and athletic field irrigation.

**Average Daily Demand** - The total water pumped during the year divided by 365 days.

**Calcareous Fen** - Calcareous fens are rare and distinctive wetlands dependent on a constant supply of cold groundwater. Because they are dependent on groundwater and are one of the rarest natural communities in the United States, they are a protected resource in MN. Approximately 200 have been located in Minnesota. They may not be filled, drained or otherwise degraded.

**Commercial/Institutional Water Use** - Water used by motels, hotels, restaurants, office buildings, commercial facilities and institutions (both civilian and military). Consider maintaining separate institutional water use records for emergency planning and allocation purposes. Water used by multi-family dwellings, apartment buildings, senior housing complexes, and mobile home parks should be reported as Residential Water Use.

**Commercial/Institutional/Industrial (C/I/I) Water Sold** - The sum of water delivered for commercial/institutional or industrial purposes.

**Conservation Rate Structure** - A rate structure that encourages conservation and may include increasing block rates, seasonal rates, time of use rates, individualized goal rates, or excess use rates. If a conservation rate is applied to multifamily dwellings, the rate structure must consider each residential unit as an individual user. A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

**Date of Maximum Daily Demand** - The date of the maximum (highest) water demand. Typically this is a day in July or August.

**Declining Rate Structure** - Under a declining block rate structure, a consumer pays less per additional unit of water as usage increases. This rate structure does not promote water conservation.

**Distribution System** - Water distribution systems consist of an interconnected series of pipes, valves, storage facilities (water tanks, water towers, reservoirs), water purification facilities, pumping stations, flushing hydrants, and components that convey drinking water and meeting fire protection needs for cities, homes, schools, hospitals, businesses, industries and other facilities.

**Flat Rate Structure** - Flat fee rates do not vary by customer characteristics or water usage. This rate structure does not promote water conservation.

**Industrial Water Use** - Water used for thermonuclear power (electric utility generation) and other industrial use such as steel, chemical and allied products, paper and allied products, mining, and petroleum refining.

**Low Flow Fixtures/Appliances - Plumbing fixtures and appliances that significantly reduce the amount of water released per use are labeled “low flow”. These fixtures and appliances use just enough water to be effective, saving excess, clean drinking water that usually goes down the drain.**

**Maximum Daily Demand -** The maximum (highest) amount of water used in one day.

**Metered Residential Connections -** The number of residential connections to the water system that have meters. For multifamily dwellings, report each residential unit as an individual user.

**Percent Unmetered/Unaccounted For -** Unaccounted for water use is the volume of water withdrawn from all sources minus the volume of water delivered. This value represents water “lost” by miscalculated water use due to inaccurate meters, water lost through leaks, or water that is used but unmetered or otherwise undocumented. Water used for public services such as hydrant flushing, ice skating rinks, and public swimming pools should be reported under the category “Water Supplier Services”.

**Population Served -** The number of people who are served by the community’s public water supply system. This includes the number of people in the community who are connected to the public water supply system, as well as people in neighboring communities who use water supplied by the community’s public water supply system. It should not include residents in the community who have private wells or get their water from neighboring water supply.

**Residential Connections -** The total number of residential connections to the water system. For multifamily dwellings, report each residential unit as an individual user.

**Residential Per Capita Demand -** The total residential water delivered during the year divided by the population served divided by 365 days.

**Residential Water Use -** Water used for normal household purposes such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Should include all water delivered to single family private residences, multi-family dwellings, apartment buildings, senior housing complexes, mobile home parks, etc.

**Smart Meter - Smart meters can be used by municipalities or by individual homeowners. Smart metering generally indicates the presence of one or more of the following:**

- **Smart irrigation water meters are controllers that look at factors such as weather, soil, slope, etc. and adjust watering time up or down based on data. Smart controllers in a typical summer will reduce water use by 30%-50%. Just changing the spray nozzle to new efficient models can reduce water use by 40%.**
- **Smart Meters on customer premises that measure consumption during specific time periods and communicate it to the utility, often on a daily basis.**
- **A communication channel that permits the utility, at a minimum, to obtain meter reads on demand, to ascertain whether water has recently been flowing through the meter and onto the premises, and to issue commands to the meter to perform specific tasks such as disconnecting or restricting water flow.**

**Total Connections -** The number of connections to the public water supply system.

**Total Per Capita Demand** - The total amount of water withdrawn from all water supply sources during the year divided by the population served divided by 365 days.

**Total Water Pumped** - The cumulative amount of water withdrawn from all water supply sources during the year.

**Total Water Delivered** - The sum of residential, commercial, industrial, institutional, water supplier services, wholesale and other water delivered.

**Ultimate (Full Build-Out)** - Time period representing the community’s estimated total amount and location of potential development, or when the community is fully built out at the final planned density.

**Unaccounted (Non-revenue) Loss** - See definitions for “percent unmetered/unaccounted for loss”.

**Uniform Rate Structure** - A uniform rate structure charges the same price-per-unit for water usage beyond the fixed customer charge, which covers some fixed costs. The rate sends a price signal to the customer because the water bill will vary by usage. Uniform rates by class charge the same price-per-unit for all customers within a customer class (e.g. residential or non-residential). This price structure is generally considered less effective in encouraging water conservation.

**Water Supplier Services** - Water used for public services such as hydrant flushing, ice skating rinks, public swimming pools, city park irrigation, back-flushing at water treatment facilities, and/or other uses.

**Water Used for Nonessential Purposes** - Water used for lawn irrigation, golf course and park irrigation, car washes, ornamental fountains, and other non-essential uses.

**Wholesale Deliveries** - The amount of water delivered in bulk to other public water suppliers.

### Acronyms and Initialisms

- AWWA – American Water Works Association
- C/I/I – Commercial/Institutional/Industrial
- CIP – Capital Improvement Plan**
- GIS – Geographic Information System
- GPCD – Gallons per capita per day
- GWMA – Groundwater Management Area – North and East Metro, Straight River, Bonanza,
- MDH – Minnesota Department of Health**
- MGD – Million gallons per day
- MG – Million gallons
- MGL – Maximum Contaminant Level
- MnTAP – Minnesota Technical Assistance Program (University of Minnesota)
- MPARS – MN/DNR Permitting and Reporting System (new electronic permitting system)
- MRWA – Minnesota Rural Waters Association
- SWP – Source Water Protection
- WHP – Wellhead Protection

- Appendix 1: Well records and maintenance summaries – see Part 1C
- Appendix 2: Water level monitoring plan – see Part 1E
- Appendix 3: Water level graphs for each water supply well - see Part 1E
- Appendix 4: Capital Improvement Plan - see Part 1E
- Appendix 5: Emergency Telephone List – see Part 2C
- Appendix 6: Cooperative Agreements for Emergency Services – see Part 2C
- Appendix 7: Municipal Critical Water Deficiency Ordinance – see Part 2C
- Appendix 8: Graph showing annual per capita water demand for each customer category during the last ten-years – see Part 3 Objective 4
- Appendix 9: Water Rate Structure – see Part 3 Objective 6
- Appendix 10: Adopted or proposed regulations to reduce demand or improve water efficiency – see Part 3 Objective 7
- Appendix 11: Implementation Checklist – summary of all the actions that a community is doing, or proposes to do, including estimated implementation dates – see [www.mndnr.gov/watersupplyplans](http://www.mndnr.gov/watersupplyplans)
- Appendix 12: City of Circle Pines Ordinance 154 Regulating nonessential water usage upon critical water deficiency as authorized by Minn. Stat. §103G.291, subd. 1 and 2

## Appendix 1: Well Records and Maintenance Summaries

Unique No. 00208995

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD

Update Date 2003/02/19

County Name Anoka

Minnesota Statutes Chapter 1031

Entry Date 1991/04/15

Township Name Township Range Dir Section Subsection  
31 23 W 25 BACA

Well Depth Depth Completed Date Well Completed  
321 ft. 321 ft. 1959/12/00

Well Name CIRCLE PINES 2

Drilling Method Cable Tool

Well Owner's Name CIRCLE PINES 2  
CENTER RD  
CIRCLE PINES MN 55014-

Drilling Fluid Well Hydrofractured?  Yes  No  
From ft. to ft.

Contact's Name CITY OF CIRCLE PINES  
CIRCLE PINES MN 55014-

Use Community Supply (municipal)

GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO

FINE SAND		0	34
SANDY CLAY		34	38
CLAY		38	58
SAND & GRAVEL		58	97
HARDPAN		97	121
SAND		121	133
SANDY CLAY		133	173
HARDPAN		173	183
SAND		183	217
SAND, GRAVEL, SOME SAN		217	263
SAND & GRAVEL		263	285
FINE SAND		285	300
GRAVEL		300	319
HARDPAN		319	321

Casing Drive Shoe?  Yes  N Hole Diameter

Casing Diameter Weight(lbs/ft)  
12 in. t 301 ft

Screen Y Open Hole From ft. to ft.

Make EVERDUR Type

Diameter Slot Length Set Fitting

12	15	3	301	ft. to 304	ft
12	35	1	304	ft. to 305	ft
12	55	9	305	ft. to 314	ft
12	100	7	314	ft. to 321	ft

Static Water Level 30 ft. from Land surface Date 1959/12/00

PUMPING LEVEL (below land surface)  
58.5 ft. after hrs. pumping 1100 g.p.m.

Well Head Completion  
Pitless adapter mfr Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type

Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed Y

Mfr nam  
Model HP 75 Volts  
Drop Pipe Length ft. Capacity E+03 g.p.m  
Type T

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

# WELL AND BORING RECORD

Update Date 2003/02/19

County Name Anoka

*Minnesota Statutes Chapter 1031*

Entry Date 1991/04/15

Township Name Township Range Dir Section Subsection  
 31 23 W 25 DBABBB

Well Depth Depth Completed Date Well Completed  
 270 ft. 270 ft. 1967/09/08

Well Name CIRCLE PINES 3

Drilling Method Cable Tool

Well Owner's Name CIRCLE PINES 3

Drilling Fluid Well Hydrofractured?  Yes  No  
 From ft. to ft.

CIRCLE PINES MN 55014-

Contact's Name CITY OF CIRCLE PINES

Use Community Supply (municipal)

CIRCLE PINES MN 55014-

Casing Drive Shoe?  Yes  N Hole Diameter

**GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO**

FINE SAND 0 30

FINE SAND, GRAY CLAY GRAY 30 41

SANDY CLAY 41 70

FINE SANDY CLAY RED 70 100

SAND-ROCKS 100 105

COARSE SAND-CLAY-ROCK 105 117

COARSE SAND-BOULDERS 117 129

LIMESTONE 129 166

JORDAN SANDSTONE 166 265

SHALE 265 270

Casing Diameter Weight(lbs/ft)

20 in. t 141 ft

16 in. t 181 ft

Screen N Open Hole From 181 ft. to 270 ft.

Make Type

Static Water Level 30 ft. from Land surface Date 1967/09/05

**PUMPING LEVEL (below land surface)**  
 ft. after 3 hrs. pumping 1000 g.p.m.

**Well Head Completion**  
 Pitless adapter mfr Model  
 Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

**Grouting Information** Well grouted?  Yes  No

**Nearest Known Source of Contamination**  
 ft. direction type  
 Well disinfected upon completion?  Yes  No

**Pump**  Not Installed Date Installed Y  
 Mfr nam  
 Model HP Volts  
 Drop Pipe Length ft. Capacity g.p.m  
 Type T

**REMARKS, ELEVATION, SOURCE OF DATA, etc.**

M.G.S. NO.449. SAMPLES FROM 0-130 FT. ONLY.

USGS Quad Circle Pines Elevation 913  
 Aquifer: CJSL Alt Id: 59-0782

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

**Well CONTRACTOR CERTIFICATION** Lic. Or Reg. No. 27010

License Business Name  
 Name of Driller

## Report Copy



# McCarthy WELL COMPANY



MAIN OFFICE, SHOP, YARD & WAREHOUSE • 590 CITATION DRIVE • SHAKOPEE, MN 55379-1887

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Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Circle Pines, MN, City of

Date: 9/2/2008

Circle Pines MN

Well/Pump Name: 3

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Engine L 2-5 Driven L 3-6   Good  Fair  Poor
4. Check Voltage Running- L 1-4 Engine L 2-5 Driven L 3-6 60 Hertz  Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 610  G.P.M.  C.F.P.M. Pump Throttled? NO  Good  Fair  Poor
18. Check Water Levels-Static Access Blocked Pumping Access Blocked Yield Good GPM Per Foot of Draw Down           Good  Fair  Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was last removed from well for repair by McCarthy Well Company.

Report By: **Tim McCarthy**

**Your 24 Hour Full Service Well & Pump Company**

*Nation's Oldest • Northwest's Largest Water Producers*



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Circle Pines, MN, City of

Date: 9/2/2008

Circle Pines MN

Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Engine L 2-5 Driven L 3-6  Good  Fair  Poor
4. Check Voltage Running- L 1-4 Engine L 2-5 Driven L 3-6  60 Hertz  Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Slight Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 540  G.P.M.  C.F.P.M. Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 54' Pumping 70' Yield Good          GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit appears to be operating properly at this time.

Report By: Tim McCarthy

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Circle Pines, MN, City of

Date: 9/2/2008

Circle Pines MN

Well/Pump Name: Back Wash pump

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 212 L 2-5 212 L 3-6 212  60 Hertz  Good  Fair  Poor
4. Check Voltage Running- L 1-4 212 L 2-5 211 L 3-6 212  60 Hertz  Good  Fair  Poor
5. Check Motor Amps- L1 21.1 L2 21.6 L3 20.7 Utilization 85%  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube Unnecessary  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing-  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- Not Metered  G.P.M.  C.F.P.M. Pump Throttled? NO  Good  Fair  Poor
18. Check Water Levels-Static NA Pumping NA Yield Good Is The GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was last removed for repair which increases the likelihood it may fail without warning.

Report By: Tim McCarthy

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

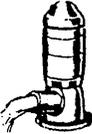
Circle Pines, MN, City of

Date: 9/10/2009

Circle Pines MN

Well/Pump Name: Back Wash pump

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 213 L 2-5 211 L 3-6 212   Good  Fair  Poor
4. Check Voltage Running- L 1-4 212 L 2-5 210 L 3-6 211 Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1 21.5 L2 21.5 L3 22.0 Utilization 87%  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube Unnecessary  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 139  G.P.M.  C.F.P.M. Is The Pump Throttled? NO  Good  Fair  Poor
18. Check Water Levels-Static NA Pumping NA Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit appears to be operating properly at this time.

Report By: Tim McCarthy

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

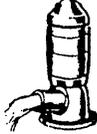
Circle Pines, MN, City of

Date: 9/10/2009

Circle Pines MN

Well/Pump Name: 3

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Engine L 2-5 Driven L 3-6   Good  Fair  Poor
4. Check Voltage Running- L 1-4 Engine L 2-5 Driven L 3-6 60 Hertz  Good  Fair  Poor
5. Check Motor Amps- L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_ Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- Variable  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 800  G.P.M.  C.F.P.M. Is The Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static Access Blocked Pumping Access Blocked Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was last removed from the well for repair by McCarthy Well Company.

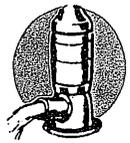
Report By: Tim McCarthy

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Circle Pines, MN, City of

Date: 9/10/2009

Circle Pines MN

Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Engine L 2-5 Driven L 3-6   Good  Fair  Poor
4. Check Voltage Running- L 1-4 Engine L 2-5 Driven L 3-6          Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- Variable  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 580  G.P.M.  C.F.P.M. Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 48' Pumping 63' Yield Good Is The          GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was last removed from well for repair by McCarthy Well Company.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company

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# McCARTHY WELL COMPANY

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"SINCE 1860"

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/27/2011

Circle Pines MN

Well/Pump Name: Back Wash pump

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

- 1. Check Wiring & Connections- Good  Good  Fair  Poor
- 2. Check Starter Overload Protection- Good  Good  Fair  Poor
- 3. Check Voltage Supply- L 1-4 213 L 2-5 212 L 3-6 213   Good  Fair  Poor
- 4. Check Voltage Running- L 1-4 211 L 2-5 211 L 3-6 212 Hertz 60  Good  Fair  Poor
- 5. Check Motor Amps- L1 22.0 L2 22.0 L3 22.0 Utilization 88%  Good  Fair  Poor
- 6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
- 7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
- 8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
- 9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
- 10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
- 11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
- 14. Check Discharge Line Check Valve- Good Pump Foot Valve Good  Good  Fair  Poor
- 15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
- 16. Check Condition Of Water- Good  Good  Fair  Poor
- 17. Check Pumping Rate- 143  G.P.M.  C.F.P.M. Pump Throttled? NO  Good  Fair  Poor
- 18. Check Water Levels-Static 5' Pumping 5' Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

**Comments:**

This unit is operating properly at this time, however, the pump has been in service for over 5 years since it was installed in the clear well.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/27/2011

Circle Pines MN

Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6 Only   Good  Fair  Poor
4. Check Voltage Running- L 1-4 \_\_\_\_\_ L 2-5 \_\_\_\_\_ L 3-6 \_\_\_\_\_  Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_ Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1709  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 652  G.P.M.  C.F.P.M. Is The Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 45' Pumping 64' Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit is operating properly at this time, however, the pump has been in service for over 5 years since it was removed for repair by McCarthy Well Co.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY

590 Citation Drive - Suite I, Shakopee MN 55379-1862

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/27/2011

Circle Pines MN

Well/Pump Name: 3

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6 Only  60 Hertz  Good  Fair  Poor
4. Check Voltage Running- L 1-4          L 2-5          L 3-6           Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1440  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 780  G.P.M.  C.F.P.M. Is The Pump Throttled? NO  Good  Fair  Poor
18. Check Water Levels-Static 46' Pumping 51' Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This pump appears to be operating satisfactorily at this time.

Report By: Tim McCarthy

# MCCARTHY WELL COMPANY

590 Citation Drive - Suite I, Shakopee MN 55379-1862

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/25/2012

Circle Pines MN

Well/Pump Name: Back Wash pump

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 213 L 2-5 214 L 3-6 213   Good  Fair  Poor
4. Check Voltage Running- L 1-4 213 L 2-5 214 L 3-6 213  Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1 9.0 L2 9.0 L3 9.0 Utilization 36%  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- Not Metered  G.P.M.  C.F.P.M. Pump Throttled? NO  Good  Fair  Poor
18. Check Water Levels-Static Good Pumping Good Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit is operating properly at this time however, the pump has been in service for over 5 years. The amps have dropped considerably since last years. Is the discharge line gate valve throttling the pump?

Report By: Tim McCarthy

# McCARTHY WELL COMPANY

590 Citation Drive - Suite I, Shakopee MN 55379-1862

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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 10/8/2012

Circle Pines MN

Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

- 1. Check Wiring & Connections- Good  Good  Fair  Poor
- 2. Check Starter Overload Protection- Good  Good  Fair  Poor
- 3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6 Pump  60 Hertz  Good  Fair  Poor
- 4. Check Voltage Running- L 1-4 Gas L 2-5 Driven L 3-6 Pump  60 Hertz  Good  Fair  Poor
- 5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
- 6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
- 7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
- 8. Check Pump & Motor Operating R.P.M.- Variable  Good  Fair  Poor
- 9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
- 10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
- 11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
- 14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
- 15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
- 16. Check Condition Of Water- Good  Good  Fair  Poor
- 17. Check Pumping Rate- 540  G.P.M.  C.F.P.M. Pump Throttled? Yes  Good  Fair  Poor
- 18. Check Water Levels-Static 49' Pumping 62' Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit is operating properly at this time however, the pump has been in service over 5 years since it was repaired by McCarthy Well Co.

Report By: Tim McCarthy

# MCCARTHY WELL COMPANY

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/25/2012

Circle Pines MN

Well/Pump Name: 3

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6 Pump  60 Hertz  Good  Fair  Poor
4. Check Voltage Running- L 1-4 Gas L 2-5 Driven L 3-6 Pump  60 Hertz  Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- Variable  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 910  G.P.M.  C.F.P.M.          Is The Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 51' Pumping 62' Yield Good GPM Per Foot of Draw Down           Good  Fair  Poor

Comments:  
This pump appears to be operating satisfactorily at this time.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/30/2013

Circle Pines MN

Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

- 1. Check Wiring & Connections- Good  Good  Fair  Poor
- 2. Check Starter Overload Protection- Good  Good  Fair  Poor
- 3. Check Voltage Supply- L 1-4 Gas L 2-5 Engine L 3-6 Driven  Good  Fair  Poor
- 4. Check Voltage Running- L 1-4 \_\_\_\_\_ L 2-5 \_\_\_\_\_ L 3-6 \_\_\_\_\_ Hertz 60  Good  Fair  Poor
- 5. Check Motor Amps- L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_ Utilization ?  Good  Fair  Poor
- 6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
- 7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
- 8. Check Pump & Motor Operating R.P.M.- 1720  Good  Fair  Poor
- 9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
- 10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
- 11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 13. Check Discharge Head Packing Box Bearing-  Good  Fair  Poor
- 14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
- 15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
- 16. Check Condition Of Water- Good  Good  Fair  Poor
- 17. Check Pumping Rate- 620  G.P.M.  C.F.P.M. Pump Throttled? Yes  Good  Fair  Poor
- 18. Check Water Levels-Static 38' Pumping 56' Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit is operating properly at this time however, the pump has been in service over 5 years since it was repaired by McCarthy Well Co.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/30/2013

Circle Pines MN

Well/Pump Name: 3

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

- 1. Check Wiring & Connections- Good  Good  Fair  Poor
- 2. Check Starter Overload Protection- Good  Good  Fair  Poor
- 3. Check Voltage Supply- L 1-4 Gas L 2-5 Engine L 3-6 Driven  Good  Fair  Poor
- 4. Check Voltage Running- L 1-4 \_\_\_\_\_ L 2-5 \_\_\_\_\_ L 3-6 \_\_\_\_\_ Hertz 60  Good  Fair  Poor
- 5. Check Motor Amps- L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_ Utilization ?  Good  Fair  Poor
- 6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
- 7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
- 8. Check Pump & Motor Operating R.P.M.- 1660  Good  Fair  Poor
- 9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
- 10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
- 11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
- 14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
- 15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
- 16. Check Condition Of Water- Good  Good  Fair  Poor
- 17. Check Pumping Rate- 950  G.P.M.  C.F.P.M. Is The Pump Throttled? Yes  Good  Fair  Poor
- 18. Check Water Levels-Static 49' Pumping Good Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit appears to be operating properly at this time.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 9/30/2013

Circle Pines MN

Well/Pump Name: Back Wash pump

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

- 1. Check Wiring & Connections- Good  Good  Fair  Poor
- 2. Check Starter Overload Protection- Good  Good  Fair  Poor
- 3. Check Voltage Supply- L 1-4 213 L 2-5 213 L 3-6 213  Good  Fair  Poor
- 4. Check Voltage Running- L 1-4 212 L 2-5 212 L 3-6 212 Hertz 60  Good  Fair  Poor
- 5. Check Motor Amps- L1 8.0 L2 9.0 L3 9.0 Utilization 35%  Good  Fair  Poor
- 6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
- 7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
- 8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
- 9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
- 10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
- 11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
- 13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
- 14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
- 15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
- 16. Check Condition Of Water- Good  Good  Fair  Poor
- 17. Check Pumping Rate- Not Metered  G.P.M.  C.F.P.M. Is The Pump Throttled? NO  Good  Fair  Poor
- 18. Check Water Levels-Static Good Pumping Good Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit is operating properly at this time however, the pump has been in service for over 5 years. The amp load has dropped significantly from 2011 levels.

Report By: **Tim McCarthy**

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 10/6/2014

Circle Pines MN

Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6           Good  Fair  Poor
4. Check Voltage Running- L 1-4          L 2-5          L 3-6          Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1650  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 620  G.P.M.  C.F.P.M. Is The Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 41' Pumping 44' Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This pump appears to be operating satisfactorily at this time.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 10/6/2014

Circle Pines MN

Well/Pump Name: 3

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6           Good  Fair  Poor
4. Check Voltage Running- L 1-4          L 2-5          L 3-6          Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization           Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 950  G.P.M.  C.F.P.M. Is The Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 43' Pumping 62' Yield Good GPM Per Foot of Draw Down           Good  Fair  Poor

**Comments:**

This pump appears to be operating satisfactorily at this time.

Report By: **Tim McCarthy**

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 10/6/2014

Circle Pines MN

Well/Pump Name: Back Wash pump

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 211 L 2-5 212 L 3-6 211  Good  Fair  Poor
4. Check Voltage Running- L 1-4 210 L 2-5 210 L 3-6 210 Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1 22.0 L2 20.0 L3 19.0 Utilization 81%  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 136  G.P.M.  C.F.P.M. Pump Throttled? NO  Good  Fair  Poor
18. Check Water Levels-Static Good Pumping Good Yield Good GPM Per Foot of Draw Down Is The  Good  Fair  Poor

Comments:

This unit is operating properly at this time however, the pump has been in service for over 5 years.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 10/14/2015

Circle Pines MN

Well/Pump Name: Back Wash pump

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 213 L 2-5 213 L 3-6 213  Good  Fair  Poor
4. Check Voltage Running- L 1-4 213 L 2-5 213 L 3-6 213 Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1 9.0 L2 8.4 L3 8.7 Utilization 35%  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- 1800  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- Not Metered  G.P.M.  C.F.P.M. Pump Throttled? NO  Good  Fair  Poor
18. Check Water Levels-Static Good Pumping Good Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

Comments:

This unit is operating properly at this time however, the pump has been in service for over 5 years. The amperage is low but this may be due to the pump being throttled.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 10/14/2015

Circle Pines MN

Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6 Good  Good  Fair  Poor
4. Check Voltage Running- L 1-4 \_\_\_\_\_ L 2-5 \_\_\_\_\_ L 3-6 \_\_\_\_\_ Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_ Utilization \_\_\_\_\_  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- Variable  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 600  G.P.M.  C.F.P.M. Is The Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 42' Pumping 58'q Yield Good GPM Per Foot of Draw Down  Good  Fair  Poor

**Comments:**

This pump appears to be operating satisfactorily at this time.

Report By: Tim McCarthy

# McCARTHY WELL COMPANY



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## "18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Centennial Utilities

Date: 10/14/2015

Circle Pines MN

Well/Pump Name: 3

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good  Good  Fair  Poor
2. Check Starter Overload Protection- Good  Good  Fair  Poor
3. Check Voltage Supply- L 1-4 Gas L 2-5 Driven L 3-6           Good  Fair  Poor
4. Check Voltage Running- L 1-4          L 2-5          L 3-6          Hertz 60  Good  Fair  Poor
5. Check Motor Amps- L1          L2          L3          Utilization ?  Good  Fair  Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good  Good  Fair  Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good  Good  Fair  Poor
8. Check Pump & Motor Operating R.P.M.- Variable  Good  Fair  Poor
9. Check Temperature-Motor Good Well Room Good  Good  Fair  Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK  Good  Fair  Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA  Good  Fair  Poor
13. Check Discharge Head Packing Box Bearing- Good  Good  Fair  Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA  Good  Fair  Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good  Good  Fair  Poor
16. Check Condition Of Water- Good  Good  Fair  Poor
17. Check Pumping Rate- 850  G.P.M.  C.F.P.M. Pump Throttled? Yes  Good  Fair  Poor
18. Check Water Levels-Static 45' Pumping 53'q Yield Good GPM Per Foot of Draw Down           Good  Fair  Poor

**Comments:**

This unit is operating properly at this time however, the pump has been in service 5 years since it was repaired by McCarthy Well Co.

Report By: **Tim McCarthy**

## Appendix 2: Water Level Monitoring Plan

## Water Level Monitoring Plan for the City of Circle Pines

Currently the City of Circle Pines Water Level Monitoring practice is to measure annually. The city will begin the following monthly plan beginning in 2017.

**Purpose:** To document water level of all supply wells to track the variations in water levels and trends for each well.

**Data Collection:** Static level for each well will be measured monthly with a metal tape.

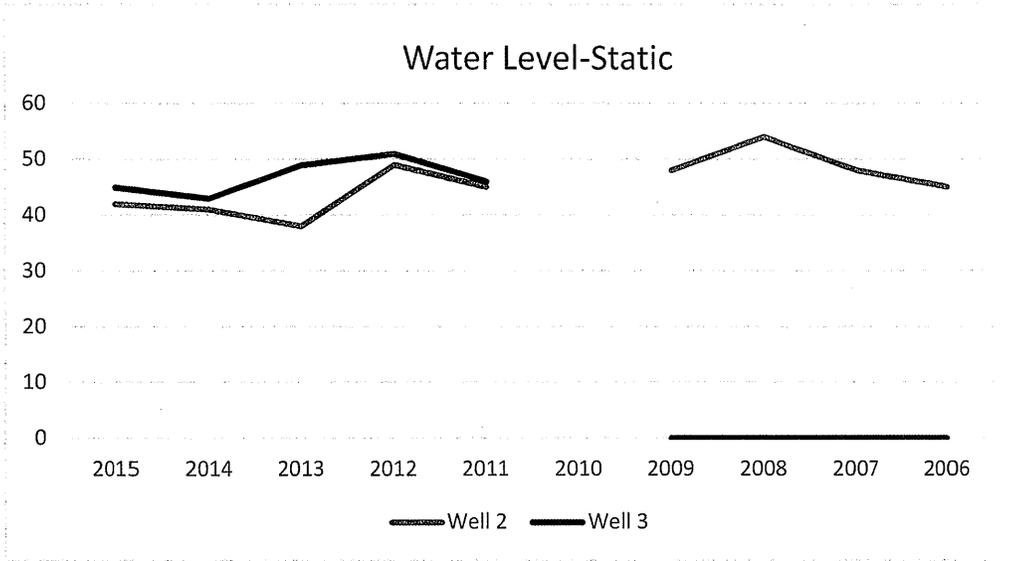
### Measurement and Frequency:

Well Number	MDH Well Number	Measurement Frequency
Well 2	00208995	Monthly
Well 3	00208636	Monthly

### Appendix 3: Water Level Graphs for Water Supply Well

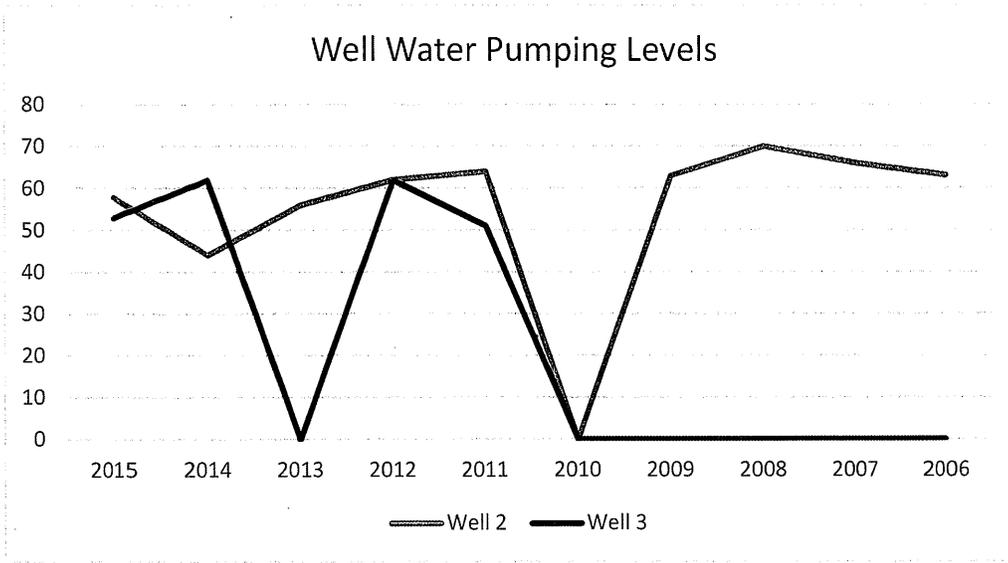
Water Level-Static (feet)

Year	Well 2	Well 3
2015	42	45
2014	41	43
2013	38	49
2012	49	51
2011	45	46
2010		
2009	48	Access Blocked
2008	54	Access Blocked
2007	48	Access Blocked
2006	45	Access Blocked



Well Water Pumping Levels

Year	Well 2	Well 3
2015	58	53
2014	44	62
2013	56	Good
2012	62	62
2011	64	51
2010	Not Available	Not Available
2009	63	Access Blocked
2008	70	Access Blocked
2007	66	Access Blocked
2006	63	Access Blocked



# Minnesota Department of Health Unique Well Number: 206707

Name: OPDC at Shoreview

Obwell Number: 62006

Aquifer Type: Bedrock

County: Ramsey

Lat/Lon: 45.123086/-93.120921

Measure Point Elevation: 900.1 ft MSL

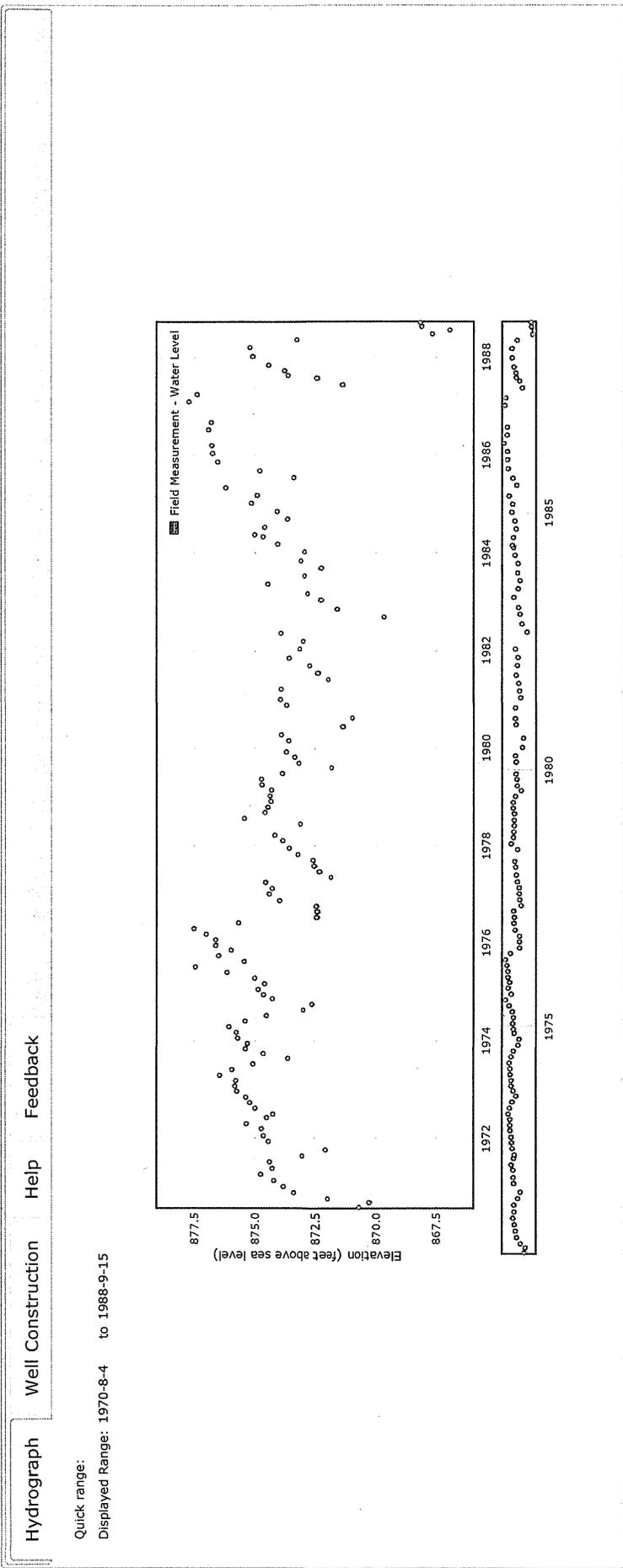
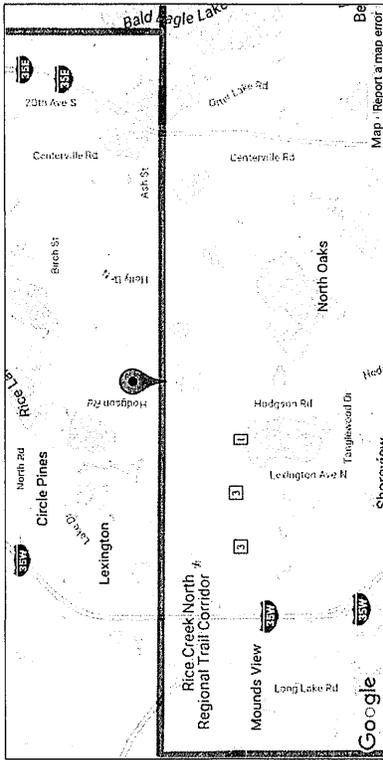
### Reports and Data

- [MDH Well Log Report](#)
- [Download time series data \(CSV | Excel\)](#)

### Field Measurement Data

Period of Record:

1970-8-4 to 1988-9-15



# Minnesota Department of Health Unique Well Number: 243469

Name: QWTA at Lino Lakes

Obwell Number: 02006

Aquifer Type: Water Table

County: Anoka

Lat/Lon: 45.162332/-93.114273

Measure Point Elevation: 885.62 ft MSL

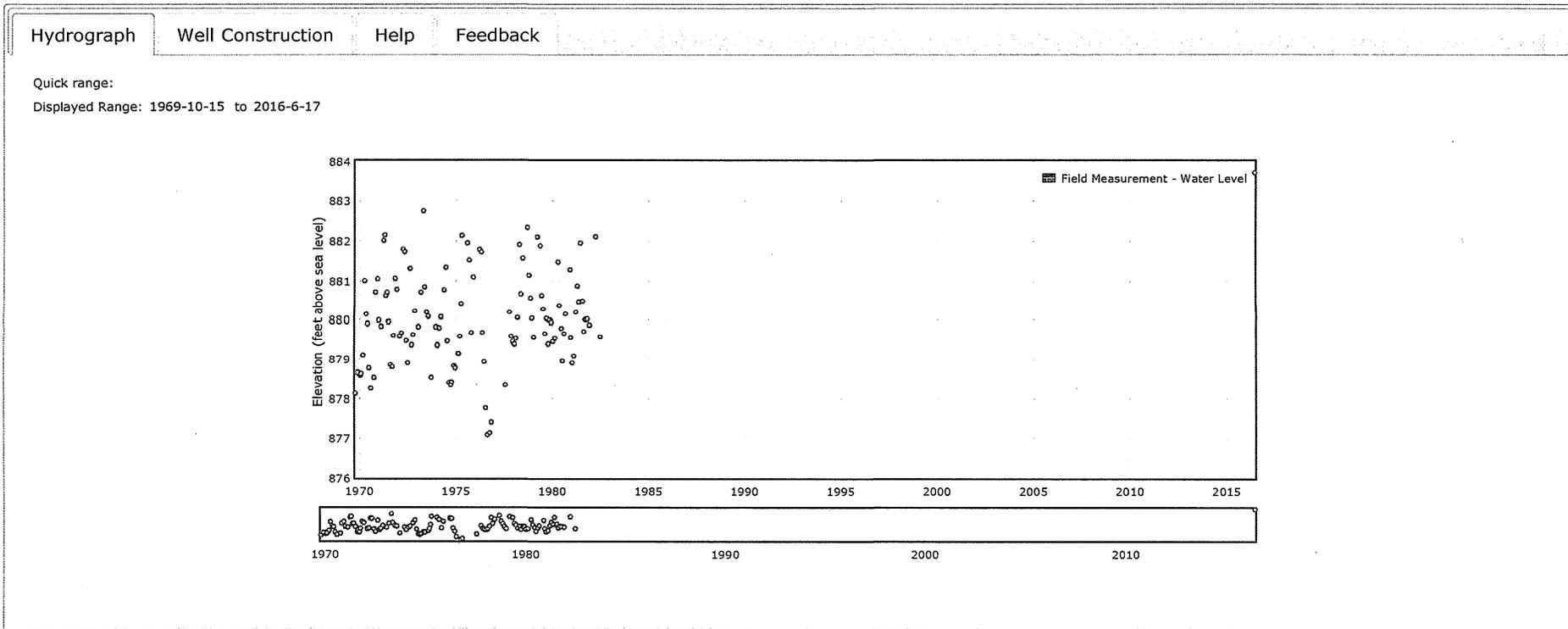
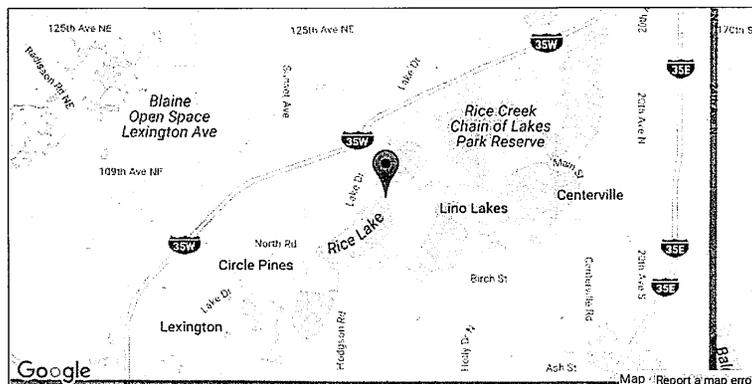
### Reports and Data

- [MDH Well Log Report](#)
- Download time series data ([CSV](#) | [Excel](#))

### Field Measurement Data<sup>®</sup>

Period of Record:

1969-10-15 to 2016-6-17



## Appendix 4: Capital Improvement Plan

**Capital Improvements**

	<b>WATER</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>		
Public Works	WELL # 2 ENGINE-TOP-END REPAIR	0	0	0	0	20,000	5	20,000
Public Works	WELL # 3 ENGINE-TOP-END REPAIR	0	0	0	20,000	0	10	20,000
Public Works	WELL # 2 WELL PUMP REHAB	0	20,000	0	0	0	10	20,000
Public Works	WELL # 3 WELL PUMP REHAB	25,000	0	0	0	0	10	25,000

## Appendix 5: Emergency Telephone List

## Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	On-Call Utility Personnel	763-784-6751	
Alternate Emergency Response Lead	Patrick Antonen	763-784-5898	
Water Operator	Rich Lavell	763-784-5898	
Alternate Water Operator	Patrick Antonen	763-784-5898	
Public Communications	Patrick Antonen	763-784-5898	

State and Local Emergency Response Contacts	Name	Work Telephone	Alternate Telephone
State Incident Duty Officer	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
County Emergency Director	Terry Stoltzman	911	
National Guard	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
Mayor/Board Chair	Dave Bartholomay	763-784-5898	
Fire Chief	Harlan Lundstrom	651-792-7900	
Sheriff	James Stuart	911	
Police Chief	Jim Coan	763-784-2501	
Ambulance	Allina	911	
Hospital	Unity Hospital	763-236-5000	
Doctor or Medical Facility	Fridley Medical	763-785-4500	

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer	Robert Dehler	651-201-3710	
MDH	Drinking Water Protection	651-201-4700	
State Testing Laboratory	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
MPCA	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
DNR Area Hydrologist	Kate Drewry	651-259-5753	
County Water Planner	Bart Biernat	763-422-6985	

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Connexus	763-323-2660	
Gas Company	Centennial Utilities	763-784-6751	
Telephone Company	Century Link	911	
Gopher State One Call	Utility Locations	800-252-1166	651-454-0002
Highway Department	MNDOT	911	

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System	City of Blaine	763-785-6165	
	City of Lino Lakes	651-982-2440	
	City of Shoreview	651-490-4660	
	City of Lexington	651-784-6849	

Technical/Contracted Services/Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800-367-6792	
Well Driller/Repair	McCarthy	952-854-5333	
Pump Repair	McCarthy	952-854-5333	
Electrician	Aid Electric	763-571-7267	
Plumber	Circle Plumbing	612-419-8812	
Backhoe	On Call Employee	763-427-1212	
Chemical Feed	Hawkins	612-618-4987	
Meter Repair	On Call Employee	763-427-1212	
Generator	Ziegler Power	952-445-4292	

Valves	On Call Employee	763-427-1212	
Pipe & Fittings	Ferguson	651-638-5000	
Water Storage	On Call Employee	763-427-1212	
Laboratory	Instrumental Research	763-571-3698	
Engineering firm	WSB	763-541-4800	

<b>Communications</b>	<b>Name</b>	<b>Work Telephone</b>	<b>Alternate Telephone</b>
News Paper	Star Tribune	612-673-4000	
Radio Station	WCCO	612-339-4444	
School Superintendent	Brian Dietz	763-792-6010	

## Appendix 6: Cooperative Agreements for Emergency Services

RESOLUTION 87-2

CITY OF SHOREVIEW  
CITY OF CIRCLE PINES  
MUNICIPAL WATER SYSTEM  
INTERCONNECTION AGREEMENT

I. PARTIES. This agreement is dated the 6<sup>th</sup> day of JULY 1987, and is entered into, pursuant to the provisions of the Minnesota Joint Powers Act (M.S.A. 471.59), by and between the City of Shoreview, a municipal corporation and political subdivision of the State of Minnesota (herein "Shoreview") and the City of Circle Pines Public Utilities Commission (herein the "Commission"), established pursuant to M.S.A. 412.321 through M.S.A. 412.391 as an instrumentality of the City of Circle Pines, a municipal corporation and political subdivision of the State of Minnesota (herein "Circle Pines").

II. RECITALS. Shoreview and Circle Pines share a common border along County Road J near its intersection with Fernwood Street. Each city's municipal water system has been extended to the vicinity of the common border. Each city has determined that in the event of certain emergencies it would be mutually beneficial to have an interconnection between their municipal water systems.

III. PURPOSE. The purpose of this agreement is to define the scope of each party's authority and responsibility in relationship to the construction, maintenance and use of an interconnection between each party's municipal water system.

IV. TERMS. Now, therefore, pursuant to the statutory authority granted to each party and in consideration of the undertakings herein expressed, the parties agree as follows:

(A) Project. The project shall consist of the construction of a six inch water main interconnection in the general vicinity of the intersections of Fernwood, Ramsey County Road J, and Indian Hills Lane. The specific location shall be mutually agreed upon by the parties. The project shall include the installation of two control valves and a bleeder within a sixty inch reinforced concrete manhole as illustrated on Exhibit A attached.

(B) Plans, Specifications, Bids. The Commission shall be responsible for preparing plans and specifications and for advertising the project for bids. Project plans and specifications and the award of the project bid shall be approved by both parties.

(C) Maintenance. Shoreview shall be responsible for maintenance of the interconnection pursuant to the procedures and schedules approved by both parties.

(D) Financing. All project costs, including but not limited to construction, engineering, legal and administrative, and all maintenance expense shall be shared equally by the parties for the connection constructed in the vicinity of the intersections of Fernwood, Ramsey County Road J and Indian Hills Lane. Each party agrees to pay invoices for project costs and maintenance expense within thirty days after receipt from the submitting party.

(E) Use of Interconnection. The interconnection may only be used by a party if a water main break results in a loss of adequate pressure in the party's municipal water system, or, if a party's water system becomes polluted or otherwise unusable.

(F) Notice. Prior to the use of the interconnection, the party requesting use must give notice to the other parties director of public works. The notice shall indicate the reason for the intended use. Actual notice must be given during normal business hours and reasonable efforts to notify must be made during nonbusiness hours. Unless usage of a party's water supply continues beyond a 48 hour period, neither party shall charge for the use of its water supply. Where a water use charge is imposed, it shall be at a rate equal to the prevailing rate for usage by single family residential users in the city which supplies the water, or at a rate initially agreed upon at the time of usage request.

(G) Water Standards and Construction. Shoreview and the Commission agree that each shall exercise reasonable care to prevent toxic or harmful substances from contaminating the water supply of either party. On a yearly basis each party shall supply the other with copies of yearly analytical test data from the Minnesota Department of Health, Division of Environmental Health. In addition, on a yearly basis, each party shall supply test results from a recognized testing lab, whose analyses were performed by EPA or other recognized standard procedures. Test results shall be provided for hardness, manganese, iron and volatile organics.

(H) Term of Agreement. This agreement shall become effective upon its approval of an appropriate resolution for each party and shall continue in force and effect for an indefinite term, provided, that either party may terminate the agreement by giving the other party one year written notice; and provided further that the agreement shall terminate immediately, subject to the obligations to reimburse for costs incurred to date if the Commission fails to award a contract to the lowest responsible bidder for the project, or, if either party fails to comply with the provisions of Section IV(G). If termination occurs after the project has been constructed, the project assets shall belong to the party in which the assets are located.

IN WITNESS WHEREOF, the parties have hereunto set their hands.

CITY OF SHOREVIEW

Richard A. Wedell  
Richard Wedell, Mayor

Dwight D. Johnson  
Dwight Johnson  
City Manager

Pursuant to authority  
granted by Council  
Resolution No. 87-62  
adopted on the 6<sup>th</sup> day  
of JULY, 1987

CITY OF CIRCLE PINES  
PUBLIC UTILITIES COMMISSION

Andrew Gibson

Pursuant to authority  
granted by Commission  
Resolution No. 87-2  
adopted on the 15<sup>th</sup> day  
of July, 1987

Jane W. Kerath

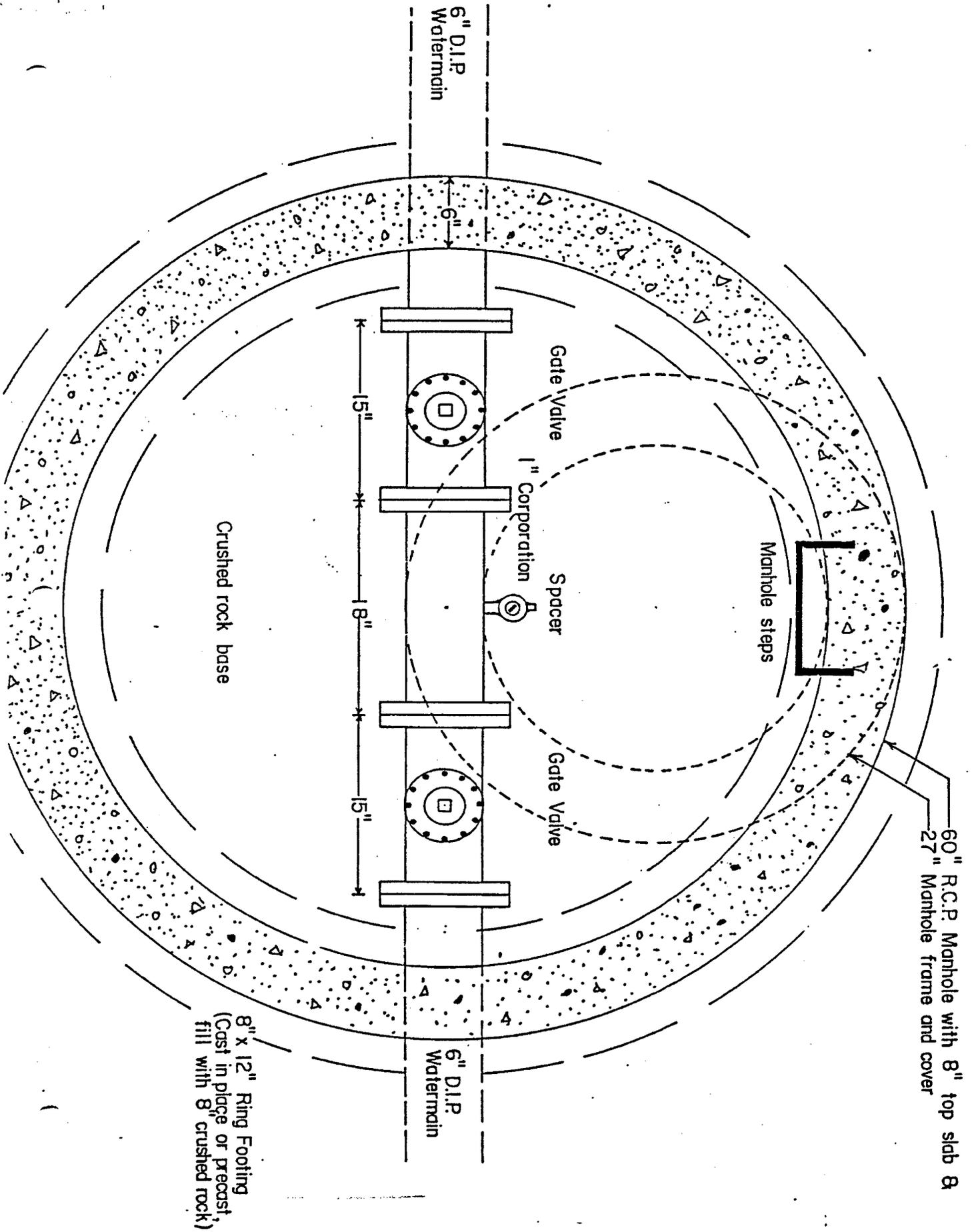


EXHIBIT A

**CONTRACT FOR JOINT USAGE OF WATER FACILITIES**  
**BY AND BETWEEN THE CITY OF LINO LAKES AND**  
**THE CITY OF CIRCLE PINES, ANOKA COUNTY MINNESOTA**

THIS AGREEMENT, made and entered into this 13<sup>TH</sup> day of JUNE, 1986, by and between the City of Lino Lakes, a municipal corporation, situated in Anoka County, Minnesota, hereinafter called "Lino Lakes", and the City of Circle Pines, by and through its Utilities Commission, a municipal corporation, situated in Anoka County, Minnesota, hereinafter called "Circle Pines".

WHEREAS, Circle Pines has constructed a water system capable of serving various areas in the West Central Service Area of Lino Lakes and Lino Lakes is in the process of developing a water system in the West Central Service Area of Lino Lakes.

WHEREAS, until this water system in the Lino Lakes West Central Service Area is fully developed with source, distribution and storage capacity, this area can be more effectively served by interconnection with the Circle Pines water system.

WHEREAS, after the completion of the Lino Lakes water system a more reliable water supply in both Lino Lakes and Circle Pines would result from the interconnection between the two communities' water systems.

SECTION 1. GENERAL CONDITIONS

1. In consideration of the covenants and agreements herein set forth, Circle Pines hereby grants to Lino Lakes permission and authority and Lino Lakes hereby agrees to construct, at its expense and to thereafter maintain and operate, a water system connection to the public water system of Circle Pines subject to all terms, conditions and provisions of this Agreement as hereinafter expressed.

2. Water flow recording meters shall be installed at the interconnection line for the purpose of measuring the flow from the Lino Lakes water system into the Circle Pines water system and the flow from the Circle Pines water system into the Lino Lakes water system. Lino Lakes shall be solely responsible for the construction and shall have ownership of the interconnection line, metering manhole and appurtenances of the water line between Circle Pines and Lino Lakes. Thereafter, Circle Pines shall be responsible for the operation and maintenance of water lines located within the corporate boundaries of Circle Pines and Lino Lakes shall be solely responsible for the operation and maintenance of water lines located within the corporate boundary lines of Lino Lakes. The cost of maintenance of the metering manhole shall be shared equally between the two cities.

SECTION 2. CHARGES.

Each of the meters installed pursuant to this Agreement

shall be read at the end of each calendar quarter. The city with the greatest net flow will bill the other city, by the 10th of the month following the end of the calendar quarter, for the amount due based upon such excess flow. The charge for such excess capacity shall be made at the same rate that Circle Pines bills its customers within Circle Pines, or whichever City has the lowest rate. Payments shall be made on or before the 20th day of the month following the end of the quarter.

SECTION 3. WATER STANDARDS AND CONSTRUCTION.

1. Lino Lakes and Circle Pines agree that they shall exercise reasonable care to prevent toxic or harmful substances from contaminating the water supply of either party. Each city's water supply shall provide clean, safe, potable water. On a yearly basis each city shall supply the other city with copies of yearly analytical test data from the Minnesota Dept. of Health, Division of Environmental Health. In addition, on a yearly basis, each city shall supply test results from a recognized testing lab, whose analyses were performed by EPA or other recognized standard procedures. There shall be results provided for hardness, manganese, iron and volatile organics. If either city allows volatile organics to be discharged into the water system, such items shall be eliminated by the responsible city. Failure to comply with this section shall be grounds for immediate termination of the water exchange system.

2. The designated place of connection of the water system of Circle Pines with the water system of Lino Lakes is designated and described on Exhibit A. Neither city shall expand the water system within its city except within those areas shown on Exhibit A without notifying the other party hereto. In the event either party feels the expansion of the water system within the other city's boundaries will adversely impact its ability to supply water to its residents, it may elect to terminate this Agreement upon thirty (30) days notice.

3. All watermain construction within Circle Pines or Lino Lakes shall meet all of the specifications and requirements of the cities which are currently in effect at the date of this Agreement. Copies of such specifications shall be supplied by each city and are incorporated in this Agreement by reference. Neither party shall substantially change the specifications for any parts of the water system which would be interconnected between the cities without the notification of the other.

SECTION 4. INDEMNIFICATION.

Each party agrees to indemnify the other and save the other harmless from any and all claims or demands for damages arising out of or which may result from the water supply pursuant to this Agreement, and from the use, installation, maintenance and repair of its facilities as set forth in this Agreement.

SECTION 5. TERMINATION.

In addition to the termination provisions in Section 3, either city shall have the right to cancel and annul this Agreement on account of any violation of the terms and conditions of this Agreement by the other city by first giving thirty (30) days written notice to the other party of such violation and a failure to correct the violation within said thirty (30) day period of time. Either city shall have the right to cancel and annul this Agreement, without cause, by first giving two (2) years written notice to the other party of such intent to cancel this Agreement. In the event of any cancellation under this Agreement, no further payments shall be due hereunder, except obligations arising prior to the effective date of termination. Upon such effective date of termination, the connection between the water system of Lino Lakes and the water system of Circle Pines shall immediately be disconnected.

SECTION 6. INSPECTION.

1. The City Engineer of Lino Lakes or any employee authorized by the City Council of Lino Lakes shall be permitted, at the expense of Lino Lakes, to inspect the construction, as well as the operation, of the water system in Circle Pines at any reasonable time to see that same is being constructed and operated according to the plans and specifications and operated in compliance with acceptable municipal practice and that the

Agreement herein contained is being complied with insofar as reasonably necessary to protect the City of Circle Pines.

SECTION 7. EFFECTIVE DATE OF THIS AGREEMENT.

This Agreement shall take effect and be in force after the date of execution of the same by the proper officers of Circle Pines and Lino Lakes, pursuant to a resolution of the governing bodies of the municipalities, accepting and agreeing to abide and be bound by the terms, provisions and conditions hereof and authorizing such execution.

CITY OF CIRCLE PINES

CITY OF LINO LAKES

UTILITIES COMMISSION

By Andrew Debus  
Utilities Chairman

By Bruce B. Bunn  
Mayor

By James W. Kineth  
City Clerk

By Marilyn H. Anderson  
Clerk

**ADDENDUM TO THE WATER USE AGREEMENT  
BETWEEN THE CITY OF LINO LAKES AND  
THE CITY OF CIRCLE PINES  
DATED JUNE 13, 1986**

**WHEREAS; the City of Lino Lakes and the City of Circle Pines entered into an agreement on June 13, 1986, for interconnection of the two water systems; and**

**WHEREAS; the City of Lino Lakes has requested a modification to this agreement to expand the service area and the City of Circle Pines has agreed to this expansion;**

**NOW, THEREFORE, it is hereby agreed that the agreement dated June 13, 1986, shall be modified as follows:**

- 1. The service area for Lino Lakes shall include the area within the MUSA as determined by the Metropolitan Council of Governments.**
- 2. The City of Lino Lakes will begin preparation of plans and specifications, obtain right-of-way and award construction contracts for an elevated storage reservoir after 1000 connections are made to the Lino Lakes water system.**
- 3. The City of Lino Lakes will have an elevated storage reservoir in operation before 1200 connections are made to the Lino Lakes water system.**
- 4. The City of Lino Lakes will share in the proposed maintenance contract for the existing Circle Pines elevated storage reservoir. The estimated cost of this maintenance is \$100,000.00.**

**Payback shall be based on a life expectancy of 10 years and an annual interest rate of 7%.**

**Payment shall be on a quarterly basis and shall be based on a percentage determined by dividing the total connections to the Lino Lakes water system by the total connections to the combined water system of Lino Lakes and Circle Pines.**

- 5. The City of Lino Lakes will pay a prorated share of the depreciation for the Circle Pines elevated storage reservoir. The annual depreciation is \$8,000.00.**

**Payment shall be on a quarterly basis and shall be based on a percentage determined by dividing the total connections to the Lino Lakes water system by the total connections to the combined water system of Lino Lakes and Circle Pines.**

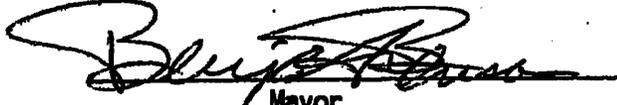
This amendment shall terminate after Lino Lakes has constructed and placed an elevated storage reservoir in operation.

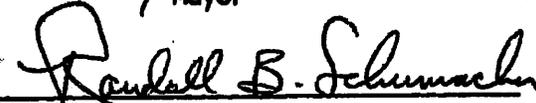
CITY OF CIRCLE PINES

  
\_\_\_\_\_  
Utility Chair

  
\_\_\_\_\_  
City Administrator

CITY OF LINO LAKES

  
\_\_\_\_\_  
Mayor

  
\_\_\_\_\_  
City Administrator

AGREEMENT BETWEEN THE CITY OF BLAINE AND  
THE CITY OF CIRCLE PINES' UTILITIES  
COMMISSION FOR THE INSTALLATION AND OPERATION  
OF A WATER SYSTEM INTERCONNECT FOR EMERGENCY  
USE THEREOF.

This Agreement made and entered into this 17th  
day of February, 1977, by and between the City of  
Blaine, and the Utilities Commission for the City of Circle Pines;

WHEREAS, the City of Blaine and the City of Circle  
Pines are adjoining municipalities;

WHEREAS, in times of emergencies it would be  
advantageous for either the City of Blaine or the City of  
Circle Pines to be able to purchase water from the other  
municipality; and

WHEREAS, the City of Blaine is willing to install  
and maintain an interconnect between the water systems for  
the City of Blaine and the City of Circle Pines;

NOW, THEREFORE, it is mutually agreed between the  
parties hereto, as follows:

1. The City of Blaine shall install and maintain  
an interconnect between the water supplies for the City of  
Blaine and the City of Circle Pines;

2. That said interconnect shall be located between  
the six inch (6") water main presently located on the south  
side of North Road, which is a part of the water system for  
the City of Circle Pines, and the eight inch (8") water main  
on the north side of North Road, which is a part of the water  
system for the City of Blaine;

3. That said interconnect shall consist of a six  
inch (6") water main with a six inch (6") flange tube meter  
(150#), complete with a forward and reverse totalizer in U.S.

Gallons, and a six inch (6") butterfly valve and valve box;

4. That the six inch (6") flange tube meter (150#) shall be installed by the City of Blaine, and entirely at its expense, in a standard manhole designed expressly for this purpose by the City of Blaine, and the City of Blaine shall assume the entire expense for said design and installation;

5. That the interconnect shall be used only in such situations which are deemed to be an emergency situation by representatives from both the City of Blaine and the City of Circle Pines, and such representatives shall be either the City Managers or authorized agent, Superintendents for the Water Departments, or their designated agents.

6. After the emergency situation has ceased to exist the interconnect shall be returned to its neutral position wherein no water shall be transferred between the water supplies for the City of Blaine and the City of Circle Pines;

7. Any water transferred from the water system of either the City of Blaine or the City of Circle Pines to the other municipality shall be charged against and paid for by the receiving municipality at a rate of \$ .30 per one thousand (1,000) gallons received;

8. The term of this agreement shall be for a period of one (1) year from the date first written above, the month and day of which shall be the automatic renewal date, and shall be automatically renewable for the same term unless either party hereto serves upon the other party a written notice of cancellation at least ninety (90) days prior to the automatic renewal date;

9. The City of Blaine shall assume, protect, indemnify and hold the City of Circle Pines and the Utilities

Commission for the City of Circle Pines harmless from and against any and all claims or suits of any kind whatsoever which arise out of or occur in connection with the installation, existence, or operation of said interconnect. This indemnification, and hold harmless agreement shall not include any claims or suits of any kind whatsoever which arise out of or occur in connection with use, distribution or storage of water by the City of Circle Pines.

This agreement shall become effective and binding upon the approval of the Utilities Commission for the City of Circle Pines and the City Council for the City of Blaine.

CITY COUNCIL FOR CITY OF BLAINE

BY: Earl C. Rapp  
AND: Robert C. Elliott

UTILITIES COMMISSION FOR CITY  
OF CIRCLE PINES

BY: Andrew Debas  
AND: W. D. Dammheim Sr.  
4/28/77

# BLAINE - CIRCLE PINES WATER SYSTEMS INTERCONNECT

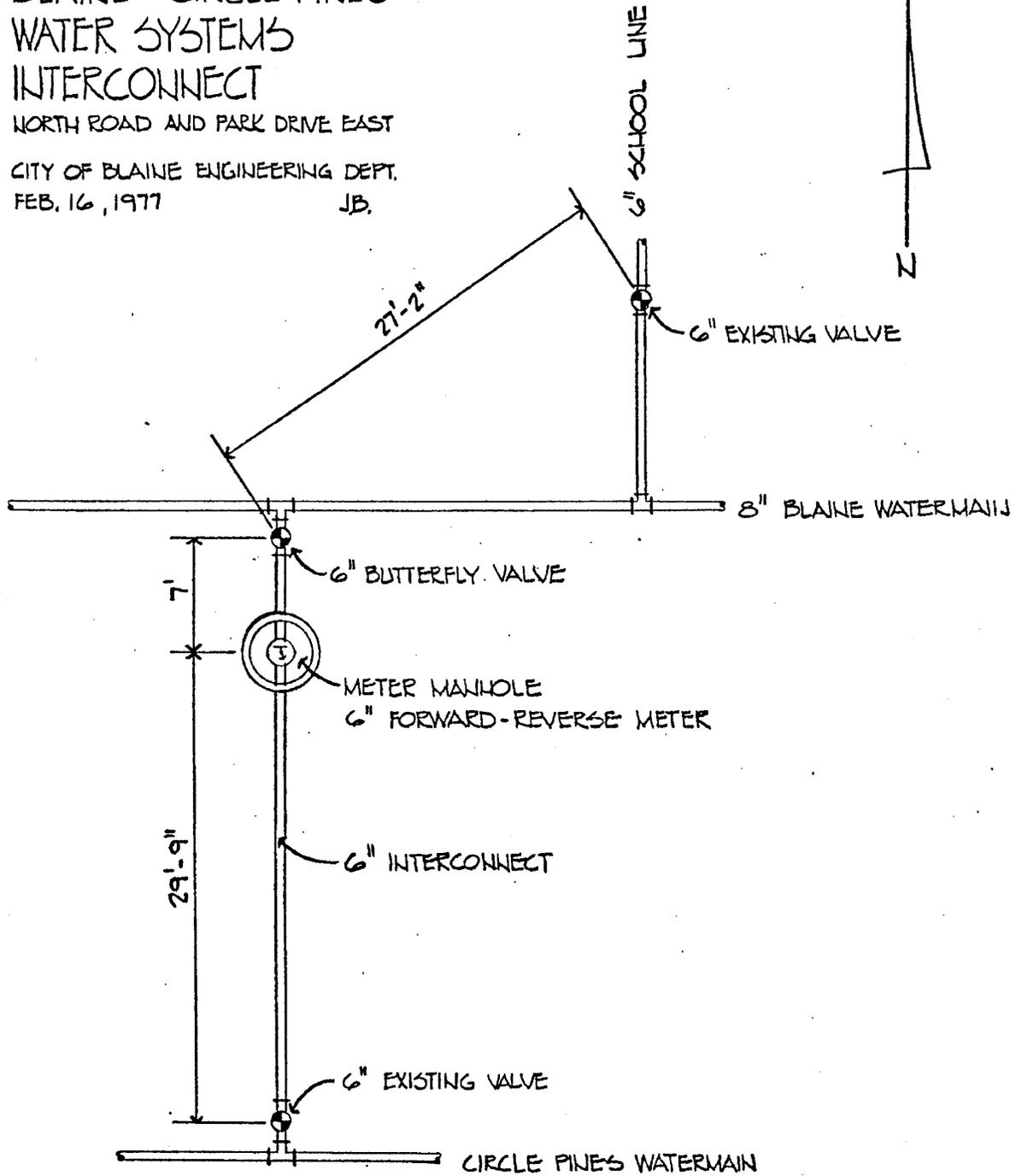
NORTH ROAD AND PARK DRIVE EAST

CITY OF BLAINE ENGINEERING DEPT.

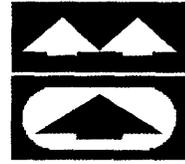
FEB. 16, 1977

J.B.

SCALE: 1" = 10'



**Appendix 7: Municipal Critical Water Deficiency Ordinance**



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## **WATER EMERGENCY RESPONSE PLAN**

*Centennial Utilities  
City of Circle Pines*

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## **PURPOSE**

Centennial Utilities operates the Circle Pines water system as a municipal utility. Its public water system ID is 1020013. Primary contacts for information about the operation and facilities are available through the City Administrator and/or the Public Works Superintendent. Both can be reached at the main utilities phone number, 763-784-6751. Centennial Utilities provides water to a population slightly over 5,000 individuals. It provides that water through groundwater sources, two wells, and in addition, it provides treatment of the water for manganese and iron through a water filtration plant, and has a 500,000 gallon elevated storage tank. The water system also has water interconnects in four locations for provision of water from, and to other communities.

The purpose of the Emergency Plan is to provide guidance to individuals involved in response and reaction to potential emergency events on the Centennial Utilities water system. The plan lays out specific responses to a number of potential scenarios, so responding personnel can appropriately access the situation and provide appropriate responses.

## **SYSTEM SPECIFIC INFORMATION**

Attached to this plan are distribution maps with locations of key interconnects, as well as, well treatment and tower facility locations. Appropriate control valve information is also provided.

## **GOALS OF THIS PLAN**

Water is essential to the safety and health of the population it serves. The continuous provision of water as a life safety element is an important ongoing function of the water system. Potential threats to that include, the failure of the distribution system, and the distribution of contaminated water, as well as, the release of hazardous materials, especially chlorine, and the collapse of structures, such as the water tower.

Fire suppression also relies on the ongoing provision of water. Fire suppression capabilities related to the water distribution system should be maintained or restored as soon as possible after a disaster.

## **PUBLIC HEALTH NEEDS**

Water is essential to life and health. As a general guideline, public health needs require the provision of drinking water to residential settings within 72 hours after an emergency. Although the Centennial Utilities system provides water it is primarily to residential settings, its commercial restaurants and other facilities also mandates that the restoration of water service occur within 72 hours as those business' cannot function long without potable water for drinking, waste disposal, cooking, etc. The water in these

commercial structures are also necessary for fire suppression, so reestablishment of potable water to commercial areas is also a priority.

### **ROLES AND RESPONSIBILITIES**

The City Administrator, or his designee, is the designated individual responsible for preparation and ongoing revisions to the Water Emergency Response Plan. The City Administrator is also responsible for the conduct of training and tabletop exercises, to assure that operating personnel are appropriately prepared to implement the Water Emergency Response Plan.

The primary individual who has responsibility for the review of any incident is the on-call individual for the utility system. It is that individual's responsibility to receive the initial information, make an assessment according to plan guidelines, and contact appropriate internal and external individuals, so the appropriate response can be made.

### **COMMUNICATION PROCEDURES**

Appropriate and timely communications is essential during emergency. Please see the Appendix A for the internal notification list, Appendix B for external notification list and Appendix C, public/media notification.

The essential purpose for contacting individuals on the internal notification list is to make sure that the appropriate level of decision makers are available to ensure, to the extent possible, continuation of provision of potable water.

The external contact list is primarily to be utilized to provide additional resources, such as police and fire, to respond to the emergency and for the protection of the water system. Review the specific threat responses, as it will give you guidance as to the agencies that require contact.

Appendix C, distribution to the public/media, will be performed by the City Administrator or his designee.

### **PERSONNEL SAFETY**

Protecting health and safety of staff, and individuals in the community, is a key priority during an emergency. In general, the existing Safety Manual and Safety Policies are inclusive of emergency responses. The primary hazard of the Centennial Utilities water system is the release of chlorine. A specific emergency response plan is in place for chlorine leaks. A copy is included for reference in Appendix D. In addition, natural disaster or physical assault on facilities may result in structural, electrical or other hazards. Employees must evaluate the safety of the situation prior to entering a scene or taking corrective action. Preservation of human life, whether it is employee or adjacent residents, is the highest priority.

## **ALTERNATE WATER SOURCES**

Alternate water sources are available from surrounding communities by use of interconnects with the City of Blaine, City of Lexington, City of Lino Lakes, and the City of Shoreview. In certain circumstances, due to a regional event, water may not be available through these interconnections. It is also important to evaluate whether the use of interconnections may exaggerate or compound the problem. In circumstances where additional water cannot be provided through interconnections it will be necessary to provide potable water by use of tanker trucks from appropriate sources. To the extent that potable water can be provided from our system by appropriate public health notification, such as boiling water, that is also an accepted method of provision of water in those circumstances. In addition, sprinkling restrictions and other requirements should be put in place to limit the consumption of water.

## **REPLACEMENT EQUIPMENT AND CHEMICAL SUPPLIES**

Generally redundancy is built into the Circle Pines water system. The use of interconnect further backstops the system. Since chlorine is the primary chemical for disinfection, backup methods of chlorinating the city water, if the water filtration plant is inoperable, will be provided.

## **PROPERTY PROTECTION**

It is important to protect water facilities, equipment and vital records so restoration operations can occur once a major event has occurred. Primary responsibility of on-site personnel is to secure and protect essential water facilities. Existing access control should limit access to the sites. To the extent that it is not limiting access, additional control procedures must be put in place, typically utilizing law enforcement personnel. In coordination with law enforcement personnel, it may be necessary to establish a larger security parameter following a major event. In addition, it is important to utilize the expertise of law enforcement personnel to use appropriate evidence procedures in the event of a malicious or terrorist attack on the water system.

The key structures that need to be protected from forcible entry are the water tower, water filtration plant, well #2, and well #3.

## **WATER SAMPLING AND MONITORING**

Water sampling and monitoring is an integral part of our existing water utility operation. That responsibility to sample and monitor is elevated during emergency response to assure that water supply is safe for public consumption and use. In a major emergency it will be important to coordinate the appropriate sampling procedures with the Minnesota Department of Health. The specific threat will identify what is being tested and the appropriate laboratory for such testing. The senior utility person on-site will be responsible for determining what samples are taken, how they are transported, and determining what laboratory to send them to. Individuals with the appropriate expertise

to interpret and understand the laboratory result will be sought to determine the implication of the results.

**APPENDIX A**  
**Internal Notification List**

### Internal Notification List

#### City Administration

	<u>Day</u>	<u>Night</u>	<u>Cell</u>
James Keinath, City Admin.	763-231-2605	763-786-4414	763-238-1218
Chandra Peterson, Asst. City Administrator	763-231-2611	651-765-6091	

#### City Shop Personnel

	<u>Day</u>	<u>Night</u>	<u>Cell</u>
Rich Lavell	763-784-6751	763-792-0341	612-723-9623
Tim Thompson	763-784-6751	763-780-4525	612-723-4686
Alan Hammill	763-784-6751	651-674-4267	612-741-6964
Jim Sorenson	763-784-6751	651-481-4925	612-716-6782
Dave Corder	763-784-6751	952-926-2404	612-723-1733

#### Pager

612-534-2790

**APPENDIX B**  
**External Contact List**

### Agency Contact List

<u>Agency Name</u>	<u>Agency Service</u>	<u>Phone Number #1</u>	<u>Phone Number #2</u>
MN Duty Officer	Point of Contact	651-649-5451	1-800-422-0798
FBI-Mpls. Office		612-376-3200	
Environmental Protection Agency		1-800-424-8802	
Nat'l Capital Poison Control Center		1-800-222-1222	
Nat'l Weather Center- Hutchinson		952-361-6708	
Anoka County Civil Defense		911	763-427-1212

### Local Emergency Response Contact List

<u>Agency Name</u>	<u>Agency Service</u>	<u>Phone Number #1</u>	<u>Phone Number #2</u>
Centennial Lakes Police		911	
Centennial Fire Dept.		911	
Qwest	Telephone		
Connexus	Power	763-323-2660	763-323-2600
Xcel Energy	Power	800-895-1999	
United Hospital	Medical	651-241-8755	651-241-8000
Mercy Hospital	Medical	763-236-7144	763-236-6000
City of Blaine	Interconnect Water	763-785-6165	763-785-6700
City of Lino Lakes	Interconnect Water	651-982-2440	651-982-2400
City of Shoreview	Interconnect Water	651-490-4660	651-784-3629
City of Lexington	Interconnect Water	763-784-6849	763-784-2792

## **APPENDIX C**

### **Example Notification Forms**

## **Example Boil Water Notice**

### **WARNING BOIL YOUR WATER BEFORE USING**

#### **The City of Circle Pines water is contaminated with [fecal coliform/E. coli]**

[Fecal coliform or E. coli] bacteria were found in the water supply on [November 5]. These bacteria can make you sick and are a particular concern for people with weakened immune systems.

#### **What should I do?**

- **DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST.** Bring all water to a boil, let it boil for ten minutes, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food until further notice. Boiling kills bacteria and other organisms in the water.
- Fecal coliform and E. coli are bacteria whose presence indicates that the water may be contaminated with organisms that can cause illness in humans. These organisms can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
- Organisms in drinking water are not the only cause of the symptoms above. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers.

#### **What happened? What is being done?**

The water distribution system was contaminated with fecal coliform. We are working with law enforcement and the public health department to investigate/resolve this issue. We are currently increasing the chlorination levels at the treatment plant as well as at the chlorine booster stations throughout the system. In addition, we are evaluating all available information and conducting tests to confirm the extent of the contamination of the system. We will inform you when tests show no bacteria and you no longer need to boil your water. We anticipate resolving the problem within the next 48 hours.

For more information, please contact [Joseph Smith] at [555-555-6789]. General guidelines on ways to lessen the risk of infection by microbes are available from the EPA Safe Drinking Water Hotline at 1-800-426-4794 and [the Public Health Department Hotline at 1-800-123-4567].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand.

## Example Do Not Drink Notice

### WARNING

### DO NOT DRINK THE WATER

**[Cyanide] found in the City of Circle Pines water supply on [October 10th]**

**Bottled water can be obtained at [Islington Station High School and Penn Road High School 24 hours per day].**

#### What should I do?

- Do NOT drink the water.
- Symptoms associated with cyanide include dry mouth, itchy throat, headache, sweating, flushed skin, muscle rigidity, fever, confusion, lethargy, seizures, loss of consciousness, coma, and death.
- If you or someone you know exhibits any of these symptoms, immediately contact your health care provider. In addition, please notify the public health department at 1-800-123-4567.

#### What happened? What is being done?

On October 10th, the water distribution system was contaminated with cyanide. We are working with law enforcement and the public health department to investigate/resolve this issue. We have tested the water in various parts of the distribution system to verify the extent of the cyanide contamination. Based on these tests, we have isolated the portion of the system located north of Aspen Street and east of River Road. Everyone in this portion of the system **should not drink the water**. We have implemented additional security procedures to protect the system against further contamination. Additional information will be provided 24 hours/day on Channel 57- the local government television channel.

For more information, please contact [Joseph Smith] at [555-555-6789]. More information is also available from the EPA Safe Drinking Water Hotline at 1-800-426-4794 and [the Public Health Department Hotline at 1-800-123-4567].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand.

This notice is being sent to you by [City of Rolling Brook Water System]. State Water System ID#[50005]. Date distributed: [October 10, 2003]

## Example Do Not Use Notice

### WARNING

### DO NOT USE THE WATER

**[Lyonelle Water System] water is contaminated with [parathion]**

Bottled water can be obtained at [Murray High School and  
Central High School 24 hours per day].

Parathion was found in the water supply on [November 14]. This chemical can make you sick and may result in death.

#### What should I do?

- DO NOT USE THE WATER. You should *not* use the water for drinking, making ice, brushing teeth, washing dishes, washing clothes, bathing, food preparation, or watering lawns. Bottled water should be used for all of the above necessities until further notice.
- Parathion is a chemical usually used to kill insects. It can cause constriction of the pupils, blurred vision, muscle and abdominal cramps, excessive salivation, sweating, nausea, vomiting, dizziness, headaches, convulsions, diarrhea, weakness, labored breathing, wheezing, and unconsciousness. Exposure can even lead to death.
- If you or someone you know exhibits any of these symptoms, immediately contact your health care provider. In addition, please notify the public health department at 1-800-123-4567.

#### What happened? What is being done?

The water distribution system was contaminated with parathion. We are working with law enforcement and the public health department to investigate/resolve this issue. We have tested the water in various parts of the distribution system to verify the extent of the parathion contamination. Based on these tests, we have isolated the portion of the system located north of Lincoln Avenue and east of Maple Road. Everyone in this portion of the system **should not use the water**. We have implemented additional security procedures to protect the system against further contamination. Additional information will be provided 24 hours/day on Channel 57- the local government television channel.

For more information, please contact [Joseph Smith] at [555-555-6789]. More information is also available from the EPA Safe Drinking Water Hotline at 1-800-426-4794 and [the Public Health Department Hotline at 1-800-321-4567].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand.

This notice is being sent to you by [Lyonelle Water System]. State Water System ID# [90008]. Date distributed: [November 14, 2003]

# **APPENDIX D**

## **Action Plans**

## *Water System Contamination\**

### **Threat Warning Stage**

Threat Warning Received	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Notify appropriate supervisor</li> <li>• Record and document all information pertaining to the threat warning</li> <li>• Do not disturb site if the threat warning could be a possible crime scene</li> <li>• Return to normal operations if no further action is required (i.e., the threat warning can be explained)</li> <li>• Begin the "Threat Decision Process" if the threat warning cannot be explained</li> </ul>
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### **Threat Decision Process Stage**

Is the Threat Possible? (Stage 1)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Notify local law enforcement</li> <li>• Notify State Drinking Water Primacy Agency</li> <li>• Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement</li> <li>• Initiate basic precautionary measures:             <ol style="list-style-type: none"> <li>1. Alert staff and personnel about threat warning</li> <li>2. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage</li> </ol> </li> </ul>
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If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.

Is the Threat Credible? (Stage 2)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Activate notification and personnel safety portions of ERP</li> <li>• Evaluate whether the threat is credible in consultation with assisting agencies</li> <li>• Visually inspect physical evidence and determine whether there is a change in normal system operating parameters (i.e., chlorine residuals, turbidity, odor, color, pH, etc.)</li> <li>• Conduct actions and testing as recommended by monitoring and sampling experts</li> </ul>
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If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat been Confirmed" stage.

Has the Incident Been Confirmed? (Stage 3)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Initiate full ERP activation</li> <li>• Follow State Incident Command System</li> <li>• Isolate portion of system or backflush</li> <li>• Shut down system if obvious or confirmed contamination warrants</li> <li>• Issue public notice and issue follow-up media press releases</li> <li>• Continue sampling and water monitoring</li> <li>• Assess need to remediate storage tanks, filters, sediment basins, solids handling, etc.</li> </ul>
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**Structural Damage/Physical Attack to Water System or Facility(ies)\***

**Threat Warning Stage**

Threat Warning Received	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Notify appropriate supervisor</li> <li>• Record and document all information pertaining to the threat warning</li> <li>• Do not disturb site if the threat warning could be a possible crime scene</li> <li>• Return to normal operations if no further action is required (i.e., the threat warning can be explained)</li> <li>• Begin the "Threat Decision Process" if the threat warning cannot be explained</li> </ul>
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**Threat Decision Process Stage**

Is the Threat Possible? (Stage 1)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Notify local law enforcement</li> <li>• Notify State Drinking Water Primacy Agency</li> <li>• Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement</li> <li>• Initiate basic precautionary measures:             <ol style="list-style-type: none"> <li>1. Alert staff and personnel about threat warning</li> <li>2. Heighten security at critical facilities</li> <li>3. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage</li> </ol> </li> </ul>
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*If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.*

Is the Threat Credible? (Stage 2)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Activate notification and personnel safety portions of ERP</li> <li>• Physically secure water system facilities</li> <li>• Evaluate whether the threat is credible in consultation with assisting agencies</li> </ul>
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*If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat been Confirmed" stage.*

Has the Incident Been Confirmed? (Stage 3)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Initiate full ERP activation</li> <li>• Follow State Incident Command System</li> <li>• Deploy damage assessment team</li> <li>• Isolate damaged facility from rest of water system</li> <li>• Coordinate alternative water supply, as needed, or consider alternate (interim) treatment schemes</li> <li>• Issue public notice and issue follow-up media press releases</li> <li>• Repair damaged facilities</li> <li>• Assess need for additional protection/security measures</li> </ul>
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## *Cyber Attack on SCADA or Operational Computer System\**

### **Threat Warning Stage**

Threat Warning Received	<u>Special actions and notifications to be taken:</u> <ul style="list-style-type: none"> <li>• Notify appropriate supervisor</li> <li>• Record and document all information pertaining to the threat warning</li> <li>• Do not disturb site if the threat warning could be a possible crime scene</li> <li>• Return to normal operations if no further action is required (i.e., the threat warning can be explained)</li> <li>• Begin the "Threat Decision Process" if the threat warning cannot be explained</li> </ul>
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### **Threat Decision Process Stage**

Is the Threat Possible? (Stage 1)	<u>Special actions and notifications to be taken:</u> <ul style="list-style-type: none"> <li>• Notify local law enforcement</li> <li>• Notify State Drinking Water Primacy Agency</li> <li>• Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement</li> <li>• Initiate basic precautionary measures:               <ol style="list-style-type: none"> <li>1. Alert staff and personnel about threat warning</li> <li>2. Temporarily shut down SCADA system and go to manual operation using established protocol</li> <li>3. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage</li> </ol> </li> </ul>
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*If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.*

Is the Threat Credible? (Stage 2)	<u>Special actions and notifications to be taken:</u> <ul style="list-style-type: none"> <li>• Activate notification and personnel safety portions of ERP</li> <li>• Continue manual operation using established protocol</li> <li>• Consider whether to isolate source water</li> <li>• Consider whether to shut down system and provide alternate water</li> <li>• Evaluate whether the threat is credible in consultation with assisting agencies</li> <li>• Conduct actions/testing recommended by monitoring and sampling experts</li> </ul>
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*If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat been Confirmed" stage.*

Has the Incident Been Confirmed? (Stage 3)	<u>Special actions and notifications to be taken:</u> <ul style="list-style-type: none"> <li>• Initiate full ERP activation</li> <li>• Follow State Incident Command System</li> <li>• Continue manual operation, source water isolation, or system shut down and alternate water supply, as appropriate</li> <li>• Issue public notice and issue follow-up media press releases</li> <li>• Make copy of all system information to preserve evidence</li> <li>• With law enforcement assistance, check for implanted backdoors and other malicious code before restarting SCADA system</li> <li>• Install safeguards before restarting SCADA system</li> <li>• Bring SCADA system up and monitor system</li> <li>• Assess/implement additional precautions for SCADA system</li> </ul>
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## Hazardous Chemical Release from Water System Facility(ies)\*

### Threat Warning Stage

Threat Warning Received	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Notify appropriate supervisor</li> <li>• Record and document all information pertaining to the threat warning</li> <li>• Do not disturb site if the threat warning could be a possible crime scene</li> <li>• Return to normal operations if no further action is required (i.e., the threat warning can be explained)</li> <li>• Begin the "Threat Decision Process" if the threat warning cannot be explained</li> </ul>
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### Threat Decision Process Stage

Is the Threat Possible? (Stage 1)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Notify local law enforcement</li> <li>• Notify State Drinking Water Primacy Agency</li> <li>• Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement</li> <li>• Initiate basic precautionary measures:             <ol style="list-style-type: none"> <li>1. Alert staff and personnel about threat warning</li> <li>2. Post full-time operations personnel at the chemical treatment areas of the facility</li> <li>3. Verify that monitoring, leak detection, and personal protection equipment are fully operational</li> <li>4. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage</li> </ol> </li> </ul>
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*If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.*

Is the Threat Credible? (Stage 2)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Activate notification and personnel safety portions of ERP</li> <li>• Physically secure water system facilities and specifically the chemical treatment areas of the facility</li> <li>• Identify potentially hazardous chemical(s) to appropriate assisting agencies</li> <li>• Based on Risk Management program and ERP, evaluate potential extent of public evacuation or shelter in place order</li> <li>• Evaluate whether the threat is credible in consultation with assisting agencies</li> </ul>
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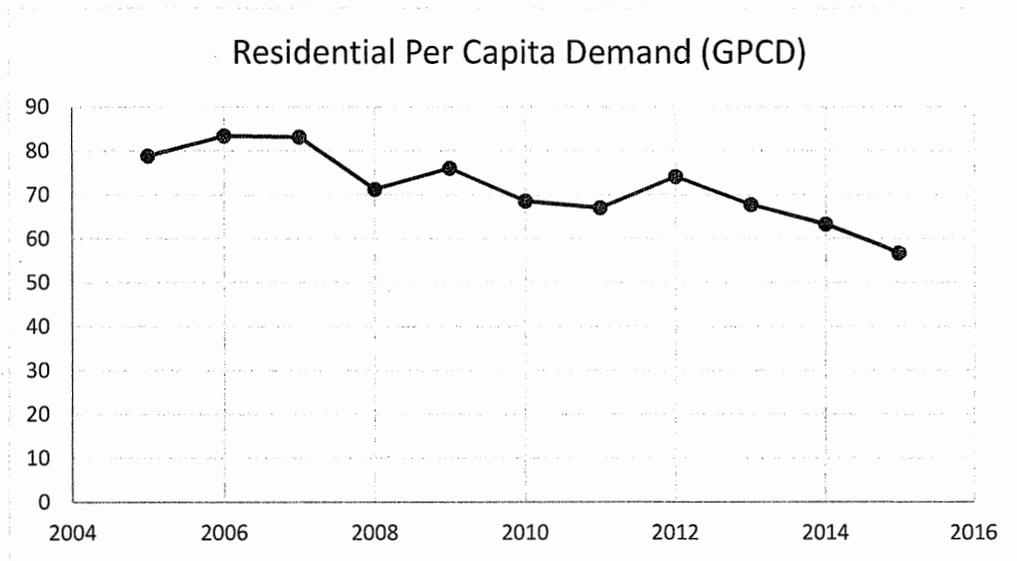
*If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat Been Confirmed" stage.*

Has the Incident Been Confirmed? (Stage 3)	<p><u>Special actions and notifications to be taken:</u></p> <ul style="list-style-type: none"> <li>• Initiate full ERP activation</li> <li>• Follow State Incident Command System</li> <li>• Determine extent/concentration of chemical release and deploy damage assessment team</li> <li>• Turn off chemical treatment equipment and isolate chemical treatment areas from rest of water system</li> <li>• Depending on extent and concentration of release, issue evacuation or shelter in place order per Risk Management Program and ERP</li> <li>• Coordinate alternative water supply, as needed, or consider alternate (interim) treatment schemes</li> <li>• Issue public notice and issue follow-up media press releases</li> <li>• Repair damaged facilities</li> <li>• Assess need for additional protection/security measures</li> </ul>
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## Appendix 8: Graph Annual per Capita Water Demand

## Annual Per Capita Water Demand

Year	Residential Per Capita Demand (GPCD)
2005	78.8
2006	83.4
2007	83.1
2008	71.2
2009	76
2010	68.5
2011	67
2012	74.1
2013	67.7
2014	63.3
2015	56.7
Avg. 2010-2015	71.80



## Appendix 9: Water Rate Structure

## Centennial Utilities Rate & Fee Schedule

### Water Rates and Fees

Residential Meter Size	Monthly Flat Rate	Effective Date
Less than 1.5"	\$7.50	1/1/10
Without AMR	\$30.00	9/1/12
1.5 Meter	\$8.50	1/1/10
2" Meter	\$12.50	1/1/10
3" Meter	\$13.00	1/1/10
4" Meter	\$18.00	1/1/10
6" Meter	\$21.00	1/1/10

### Volumetric Water Rates Based on Monthly Usage

RESIDENTIAL (with 1 meter)			APARTMENT/COMMERCIAL / TH 4+		
Tier	Rate per 1,000	Effective Date	Tier	Rate per 1,000	Effective Date
0 – 6,000	\$1.90	1/1/16	0 – 6,000	\$1.90	1/1/16
6,001 – 12,000	\$2.20	1/1/16	6,001 – 12,000	\$2.20	1/1/16
12,001 – 24,000	\$2.55	1/1/16	12,001 – 24,000	\$2.55	1/1/16
24,001+	\$3.45	1/1/16	24,001 +	\$3.45	1/1/16

Commercial Bulk Water Sales

\$800 deposit +\$25 per month fee+  
\$2.00/1,000 Gallons

Water Reconnection Fee

Standard labor rates apply

Water Access Charge

\$1800 per residential equivalency (REC)

Water Access Charge-Filtration Plant

\$1450 per residential equivalency (REC)

New Residential Water Connection Charge

\$100 + 5.00 surcharge +WAC

New Commercial Water Connection Charge

\$100 + 5.00 surcharge +WAC

Connection to Residential Repair

\$100 + 5.00 surcharge

Connection to Commercial Repair

\$100 + 5.00 surcharge

## Sewer Rates and Fees

RESIDENTIAL					APARTMENT/COMMERCIAL				
Tier	Monthly Flat Fee	Effective Date	Rate per 1,000	Effective Date	Tier	Per REC Monthly Fee	Effective Date	Rate Per 1,000	Effective Date
0 – 6,000	\$11.00	1/1/16	\$3.80	1/1/15	0 – 6,000	\$20.00	1/1/16	\$3.80	1/1/15
6,001 – 12,000	\$11.00	1/1/16	\$4.09	1/1/15	6,001 – 12,000	\$20.00	1/1/16	\$4.09	1/1/15
12,001 – 24,000	\$11.00	1/1/16	\$4.48	1/1/15	12,001 – 24,000	\$20.00	1/1/16	\$4.48	1/1/15
24,001 +	\$11.00	1/1/16	\$4.80	1/1/16	24,001 +	\$20.00	1/1/16	\$4.80	1/1/16

Local Sewer Access Charge (SAC)	\$1,500 per residential equivalency (REC)
New Residential Sewer Connection Charge	\$100 + 5.00 surcharge +SAC
New Commercial Sewer Connection Charge	\$100 + 5.00 surcharge +SAC
Connection to Residential Repair	\$100 + 5.00 surcharge
Connection to Commercial Repair	\$100 + 5.00 surcharge

### Storm Sewer Rates and Fees

Rate Class	Monthly Flat Fee	Effective Date
Residential/Commercial	\$6.50/residential equivalency (REC)	1/1/15

### Natural Gas Rates and Fees

Type of Service	Distribution Rates	Effective Date
Residential	.285/ccf*	1/1/13
Commercial/No Service	.255/ccf*	1/1/13
Commercial/Service	.285/ccf*	1/1/13
Small Volume Interruptible	Set Monthly	
Large Volume Interruptible	Set Monthly	
Municipal/State	.225/ccf	1/1/13

Meter Fees	Monthly Fee	Effective Date
Residential	\$10.50	1/1/16
Commercial		
Less than 800/ccf	\$20.00	1/1/13
800 up to 2,000/ccf	\$45.00	1/1/13
2,000 up to 5,000/ccf	\$75.00	1/1/13
5,000/ccf plus	\$100.00	1/1/13
BPI per unit	\$50.00	1/1/13
Small Volume Interruptible	\$125.00	1/1/13
Large Volume Interruptible	\$200.00	1/1/13
Municipal/State	\$18.00	1/1/13

\*Customers who did not pay the per foot installation charge for a natural gas service line will pay \$4.285 for the first ccf and the listed rate for every ccf thereafter.

Natural gas operating funds in a deficit cash position on December 31 will have added to their distribution rate a surcharge of \$0.03/ccf for residential customers and \$0.01/ccf for all other customer types.

Franchise fees will be shown as a separate line item on the gas portion of the bill. The amount collected will be a direct pass through of the amount charged by the customers' city.

Purchased gas costs will be billed as a pass through cost, which rate is to be set monthly.

The rates listed for the above services are not designed to guarantee continuous service.

**Installation Fees**

Circle Pines - \$450 first 40 feet plastic lines, \$8 per foot over 40 feet  
 Franchise Areas – Recovered in rates  
 Frost Charges - \$10 per foot all areas

Labor Rate .5 Hour \$53.00 1 Hour 106.00  
 There is a one-half hour minimum and charges will be billed to the nearest one-quarter hour. After hours: \$154.50/hour with a two-hour minimum (\$309.00) After hours rates apply from 9 p.m. to 7 a.m. Monday – Thursday, and after 3:30 p.m. Friday until 7 a.m. Monday.

Reconnection/Non-Delinquent .5 Hour Labor Charge

Disconnect/Reconnection Charge 10% of the balance that is due. After normal working hours (8 a.m. to 4:30 p.m.) 1 hour labor charge at above rates plus 10% of the balance that is due.

**Garbage Rates – Effective January 1, 2016**

Container Size	Monthly Rate	Senior Rate/Income Driven
35 Gallon	\$8.80	\$7.90
64 Gallon	\$12.45	\$11.20
96 Gallon	\$17.45	\$15.70

Garbage Disconnection fee \$15 see policy 17

**Recycling Rate** – Effective January 1, 2016

Monthly Rate \$3.25

Senior Monthly Rate \$2.90

**Yard Waste**

Seasonal Weekly Pickup \$85.00

**Miscellaneous Charges**

NSF Charge \$30

**Revision: 01-2016**  
**Effective: January 1, 2016**

Appendix 10: Section 615 Regulating the Operation of Public Water System

**610.20 Additional Connection Charge.** Any person that does not connect to the municipal sanitary sewer system within 12 months after said sanitary sewer service is deemed available by action of the Utilities Commission, may be required to pay, in addition to all other charges enumerated above or by resolution of the Utilities Commission, the service connection charge imposed on the City by the Metropolitan Waste Control Commission, plus any additional charges set by the Utilities Commission.

**SECTION 615 - REGULATING THE OPERATION OF PUBLIC WATER SYSTEM**

**615.01 Lawn Sprinkling Restrictions.** The use of the municipal water system for lawn sprinkling and/or gardens shall be regulated as provided in this section. The sprinkling of lawns will be restricted to odd/even each year from June 1 through August 31. All properties with addresses that end with an odd number may be sprinkled only on odd numbered days, and properties with addresses that end with an even number may be sprinkled only on even numbered days. No sprinkling shall occur on any day between the hours of 10:00 AM and 7:00 PM. This section applies only to those individuals drawing water for sprinkling from the city supply.

**615.02 Additional Restrictions.** In the case of a severe shortage the City Administrator, subject to review of the Utilities Commission, is authorized to impose additional restrictions to provide for the safe operation of the municipal water supply.

**615.03 Violation.** No person shall cause water to be used in violation of the provisions of this Section.

**SECTION 620 - SEWERS AND DRAINS**

**620.01 Definitions.** Unless the context otherwise indicates, the following terms have the meanings stated:

Subd. 1 Sewage Works. All facilities for collecting, pumping, treating and disposing of sewage.

Subd. 2 Sewage. A combination of the water carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface and storm waters as may be present.

Subd. 3 Sewer. A pipe or conduit for carrying sewage.

Subd. 4 Public Sewer. A sewer owned or controlled by public authority, and available for public use.

Subd. 5 Combined Sewer. A sewer receiving both surface runoff and sewage.

Subd. 6 Sanitary Sewer. A sewer which carries sewage and to which storm, surface and ground waters are excluded and not intentionally admitted.

Subd. 7 Industrial Wastes. Liquid wastes from industrial processes as distinct from sanitary sewage.

Subd. 8 Building Drain. The piping of a drainage system inside the walls of a building and within five (5) feet outside the inner face of the building wall which receives the discharge from soil, waste, and other drainage pipes inside the walls and conveys such discharge to the building sewer outside.

Subd. 9 Building Sewer. The extension of the building drain to the public sewer or other place of disposal.

Subd. 10 District. North Suburban Sanitary Sewer District, or where appropriate its Board of Trustees or an authorized representative or employee of the District.

Subd. 11 Municipality. Any city, village, town, district, or other governmental unit having powers of a municipality under law.

Subd. 12 Street. Highway, road, alley, or other public thoroughfare.

## **620.02 Use of Public Sewers Required.**

Subd. 1 Sewage and Industrial Waste. It is unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner upon any public or private property within the District, or in any area under and

## Appendix 11: Implementation Checklist

## Implementation Checklist

Continue to enforce lawn sprinkling restrictions. City Code Section 615	Ongoing
Continue to replace water main as street construction projects continue	Ongoing, Every two years
Continue ongoing maintenance on wells, treatment plant and hydrants	Ongoing
Continue providing "know the flow" education program	Ongoing

Appendix 12: City of Circle Pines Ordinance 154 Regulating nonessential water usage upon critical water deficiency as authorized by Minn. Stat. §103G.291, subd. 1 and 2

CITY OF CIRCLE PINES  
COUNTY OF ANOKA  
STATE OF MINNESOTA

ORDINANCE NO. 154  
(Second Series)

The City Council of the City of Circle Pines ordains:

**SECTION 1.** The City Council of Circle Pines hereby adds Section 616 Regulating Nonessential Water Usage Upon Critical Water Deficiency to the City Code, to read as follows:

**Section 616-AN ORDINANCE regulating nonessential water usage upon critical water deficiency as authorized by Minn. Stat. § 103G.291, subd. 1 and 2.**

**616.01 Purpose.**

This ordinance establishes water conservation restrictions; and the plan will be in effect at any time the governor declares by executive order a critical water deficiency, pursuant to Minnesota Statutes section 103G.291.

**616.02 Definitions.**

*City Administrator* means the person assigned duties pursuant pursuant to Minn. Stat. § 412.601 - 412.751

*Department* means the city water department.

*Emergency* means the declaration of a critical water deficiency by the governor.

*Irrigation* means the watering of shrubs, trees, sod, seeded areas, gardens, lawns, or any other outdoor vegetation, except outdoor vegetation utilized for agricultural purposes.

*Notification to public* means notification through local media, including interviews and issuance of news releases.

*Public water supplier* means the city or other entity that owns, manages, or operates a public water supply, as defined in Minn. Stat. § 144.382, subdivision 4.

*Reclaimed water* means water collected from rooftops, paved surfaces, or other collection devices and all water utilized more than once before re-entering the natural water cycle.

*Water recirculation system* means any system which enables a user to reuse water at least once prior to returning the water to the natural water cycle.

**616.03 Application.**

(a) This ordinance applies to all customers of public water suppliers who own or control water use on any premises.

(b) No person shall make, cause, use, or permit the use of water received from a public water supply for residential, commercial, industrial, governmental, or any other purpose in any manner contrary to any provision in this ordinance.

(c) Mandatory emergency conservation measures shall be implemented based upon the declaration of a critical water emergency by the governor.

**616.04 Declaration of critical water deficiency.**

Upon the declaration of a critical water deficiency by the governor, the public water supplier shall immediately post notice of the emergency declaration at the usual meeting place of the city council, or the official city bulletin board. The city shall provide notification to the public as quickly as possible or through established water supply plans emergency response plans or procedures.

**616.05 Mandatory emergency water conservation measures.**

Upon declaration of a water emergency and notification to the public, the following mandatory restrictions upon nonessential water use shall be enforced:

- (1) Outdoor irrigation of yards, gardens, golf courses, parklands, and other non-agricultural land, except for those areas irrigated with reclaimed water, is prohibited.
- (2) Washing or spraying of sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas with water from any pressurized source, including garden hoses, except to alleviate immediate health or safety hazards, is prohibited.
- (3) The outdoor use of any water-based play apparatus connected to a pressurized source is prohibited.
- (4) Restaurants and other food service establishments are prohibited from serving water to their customers, unless water is specifically requested by the customer.
- (5) Operation of outdoor misting systems used to cool public areas is prohibited.
- (6) The filling of swimming pools, fountains, spas, or other exterior water features is prohibited.
- (7) The washing of automobiles, trucks, trailers, and other types of mobile equipment is prohibited, except at facilities

equipped with wash water recirculation systems, and for vehicles requiring frequent washing to protect public health, safety, and welfare.

**616.06 Variances.**

The City Administrator or their designee, is authorized to grant variances to this ordinance where strict application of its provisions would result in serious hardship to a customer. A variance may be granted only for reasons involving health or safety. An applicant may appeal the denial of a variance within five (5) days of the decision by submitting a written appeal to the City Administrator. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final.

**616.07 Violation.**

(a) Violations shall be determined and cited by the City Administrator or his/her designee. A violator may appeal the citation within five (5) days of its issuance by submitting a written appeal to the City. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final. Violators may be granted an administrative waiver if evidence is provided that equipment failure was the cause of the violation. A letter from a qualified vendor or equipment invoice will be required to show proof of equipment failure.

(b) Upon discovery of a first violation, the violator shall be issued, either personally or by mail, a warning letter that sets forth the violation and which shall describe the remedy and fines for future violations.

(c) Upon subsequent violations at the same location, the violator shall be issued, either personally or by mail, a citation that sets forth the violation and shall describe the remedy.

Fines shall be added to the monthly water bill of the owner or current occupant of the premises where the violation occurred. The imposition of the fine shall in no way limit the right of the City to pursue other legal remedies.

**616.08 Enforcement.**

The City Administrator or his/her designee is authorized to designate city employees or law enforcement personnel to enforce the provisions of this ordinance.

**616.09 Severability.**

If any provision of this ordinance or the application of any provision to a particular situation is held to be invalid by a

court of competent jurisdiction, the remaining portions of the ordinance and the application of the ordinance to any other situation shall not be invalidated.

**616.10 Effective date.**

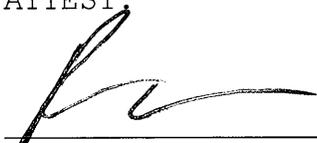
The effective date is usually stated in the following manner:

**SECTION 2.** This ordinance shall be effective upon passage and official or summary publication.

Adopted this 28th day of February 2017, by the Circle Pines City Council.

  
\_\_\_\_\_  
Dave Bartholomay, Mayor

ATTEST:

  
\_\_\_\_\_  
Patrick Antonen, City Administrator

First Reading: February 28, 2017

Second Reading: Waived

Published: Quad Community Press, March 7, 2017

(SEAL)

## Chapter 4: Water Resources

Chapter 4 contains information regarding the Sanitary Sewer, Surface Water Management and Water Supply Plan.

### Sanitary Sewer

#### 1. INTRODUCTION

##### Purpose

The Sanitary Sewer Plan describes the existing sanitary sewer system, projects future wastewater flows, and proposes improvements to satisfy future conditions. The City is responsible for local wastewater collection, while the Metropolitan Council provides regional collection and treatment. Accordingly, the City uses this Plan to evaluate its local collection facilities, and the Metropolitan Council uses it to evaluate its regional collection and treatment facilities.

##### Community Forecasts

As shown in the table below, the Circle Pines population will not exceed 5,280, households will not exceed 2,180, and employment will not exceed 800 by the year 2040. Circle Pines is a fully developed community and will not require significant changes to the sanitary sewer system in the next 20 years.

**Table 1. Community Forecasts**

	<b>2020</b>	<b>2030</b>	<b>2040</b>
<b>Sewered Population</b>	5,000	5,200	5,300
<b>Sewered Households</b>	2,100	2,160	2,200
<b>Sewered Employment</b>	900	950	1,000
<b>Unsewered Household</b>	1	1	1

Because the City is not expecting significant increase in the projected population, households, or employment, the projected increase in wastewater flow is not significant enough to require changes to the existing sanitary sewer system. Any new development is anticipated to occur as redevelopment of areas that are already served by the sanitary sewer system.

## 2. EXISTING SANITARY SEWER SYSTEM

### Summary

The City of Circle Pines sanitary sewer system includes 18 miles of gravity sewer, 501 manholes, 3 lift stations, and 0.6 miles of forcemain. The system has been divided into four districts, and further into sixteen sub-districts, for the purposes of capacity analysis. The existing sanitary sewer system and the sanitary sewer districts are shown in **Figures 4-1** and **4-2**.

The system collects and conveys the City’s wastewater to Metropolitan Council Environmental Services (MCES) Meter M205. From there, the wastewater flows through the MCES regional system to the MCES Metropolitan Wastewater Treatment Plant (WWTP) located southeast of St. Paul on the Mississippi River. The Metropolitan WWTP has a capacity of 251 MGD, provides advanced secondary treatment with chlorination/dechlorination, and discharges treated effluent to the Mississippi River. It also generates energy from the residual biosolids for in-plant use.

### Gravity Sewer

The City’s gravity sewers consist of 8-inch to 15-inch diameter polyvinyl chloride (PVC) pipe, vitrified clay pipe (VCP), and cured-in-place pipe (CIPP). A summary of the trunk gravity sewers (greater than 8-inch diameter) is provided below.

**Table 2. Trunk Sewers**

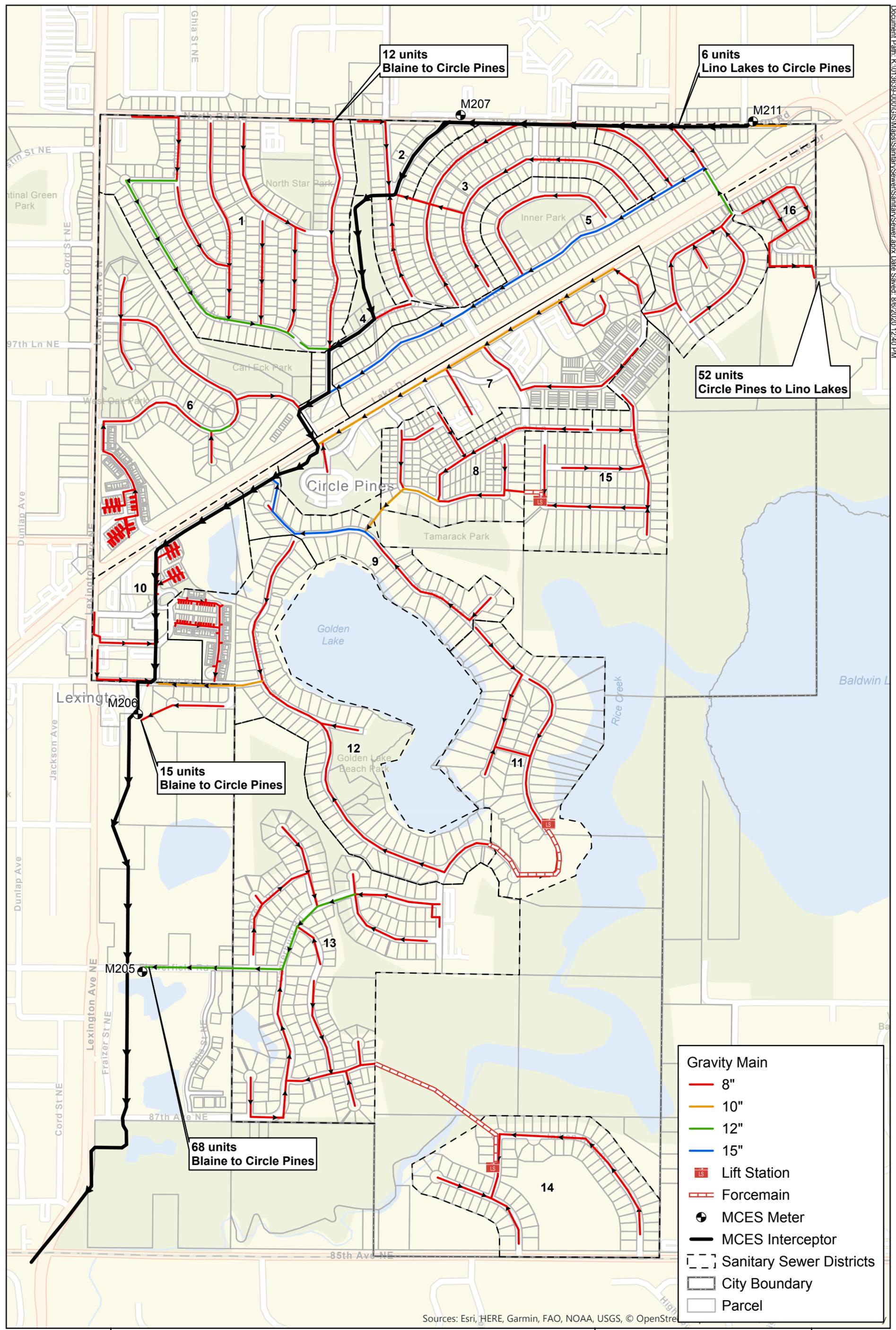
District	Sub-District	Trunk Location	Diameter	Capacity (gpm)
North	1	Stardust Blvd	12"	750
	5	East Rd	15"	1,120
Central	7	Lake Dr	10"	520
	8	Tamarack Park	10"	570
	9	Golden Lake Rd	15"	1,120
	12	Woodland Rd	10"	520
South	13	Flowerfield Rd	12"	750

### Lift Stations

The City’s sanitary sewer system includes three (3) lift stations, as summarized below.

**Table 3. Lift Stations**

No.	Name	Year Constructed	Firm Pumping Capacity (gpm)
1	E Golden Lake LS	2016	110
2	Hillcrest LS	1983	175
3	Indian Hills LS	1987	220



**Gravity Main**

- 8"
- 10"
- 12"
- 15"

**LS** Lift Station

**—** Forcemain

**⊕** MCES Meter

**—** MCES Interceptor

**- - -** Sanitary Sewer Districts

**▭** City Boundary

**▭** Parcel

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors

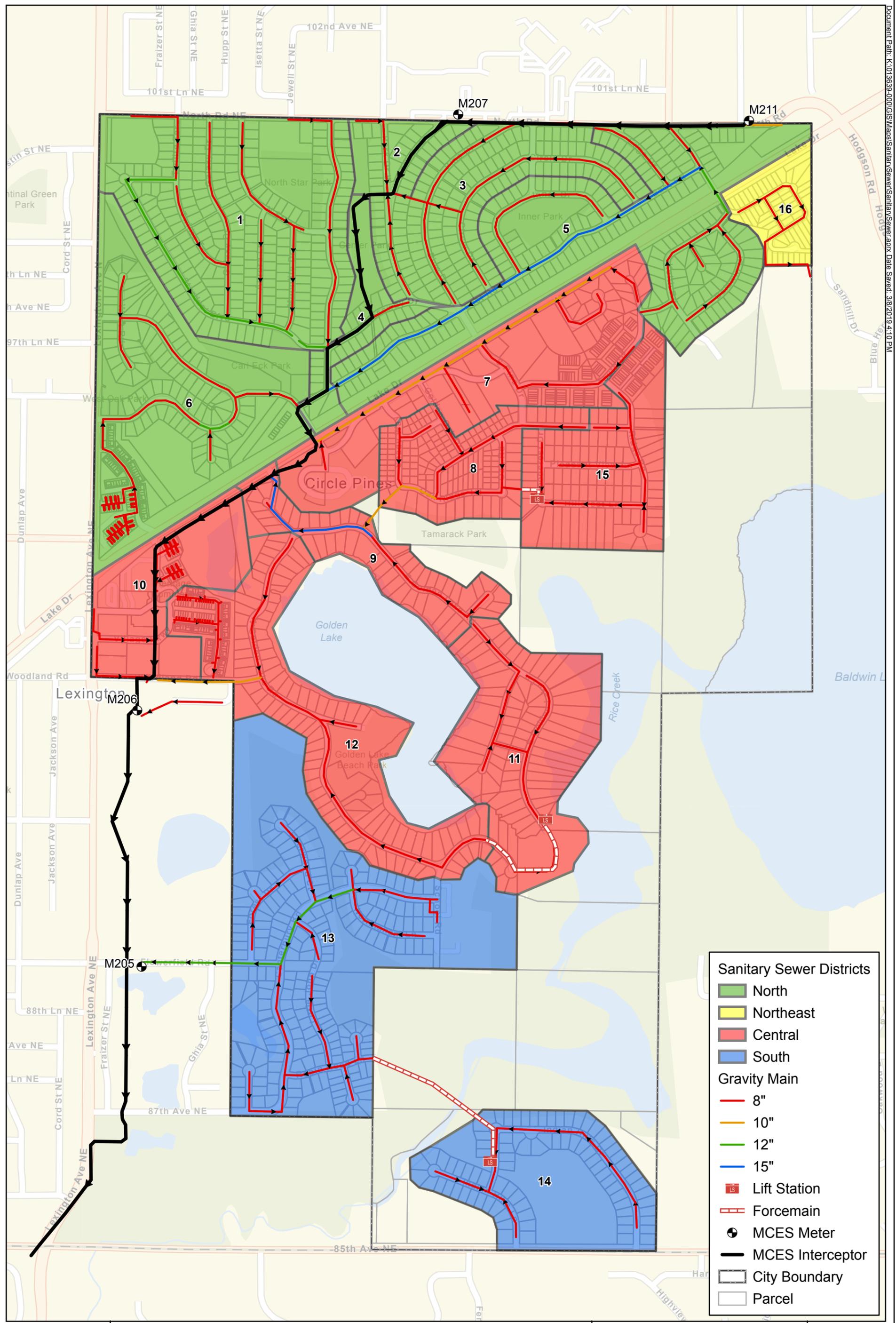
**Figure 4-1. Existing Sanitary Sewer System**  
 Comprehensive Sanitary Sewer Plan  
 City of Circle Pines, MN

N

0 800 Feet

1 inch = 800 feet





**Sanitary Sewer Districts**

- North
- Northeast
- Central
- South

**Gravity Main**

- 8"
- 10"
- 12"
- 15"

Lift Station

Forcemain

MCES Meter

MCES Interceptor

City Boundary

Parcel

**Figure 4-2. Sanitary Sewer Districts**  
 Comprehensive Sanitary Sewer Plan  
 City of Circle Pines, MN

N

0 800 Feet

1 inch = 800 feet



**Historical Wastewater Flows**

The total per capita wastewater flow was calculated from MCES flow meter data from 2014-2018 and from populations interpolated based on the Metropolitan Council 2015 System Statement Forecasts for the City. The average total per capita wastewater flow from 2014-2018 was 65 gallons per capita per day.

**Table 4. Historical Wastewater Flows**

<b>Year</b>	<b>Annual Flow (MG)</b>	<b>Average Daily Flow (MGD)</b>	<b>Total Per Capita Flow (gpcd)</b>
2014	132	0.361	72
2015	119	0.327	65
2016	128	0.349	69
2017	109	0.298	59
2018	113	0.309	62

*MG = million gallons; MGD = million gallons per day; gpcd = gallons per capita per day*

**Individual Sewage Treatment Systems**

There is one individual sewage treatment system (ISTS) within the City of Circle Pines which serves a private residence and has no known issues. The City manages permitting, inspection, and cleaning recordkeeping for this ISTS. The location of this system is shown in **Figure 4-3**. The City Code requiring filling of existing ISTS and connection to the public collection system is excerpted below.

*610.10 Existing Septic Tanks to be Filled.*

*Upon applying for a permit to connect to the municipal sanitary sewer system, the applicant shall agree when applicable to pump out the contents of any cesspool or septic tank then located on this property and to refill same with noncombustible and non-deteriorating fill to the lot level. The owner or his/her agent shall have such septic tank and/or cesspool pumped and filled within one year from the time that said sewer connection is completed.*

*620.02 Use of Public Sewers Required.*

*Subd. 3 Construction of Sewage Disposal Facilities. Except as herein and under this Section of any municipality, it is unlawful to construct or maintain any privy, privy vault, septic tank, cesspool or other facilities intended or used for the disposal of sewage, or the disposal of any other type waste which pollute any waters of the state within the District.*

**Intercommunity Flows**

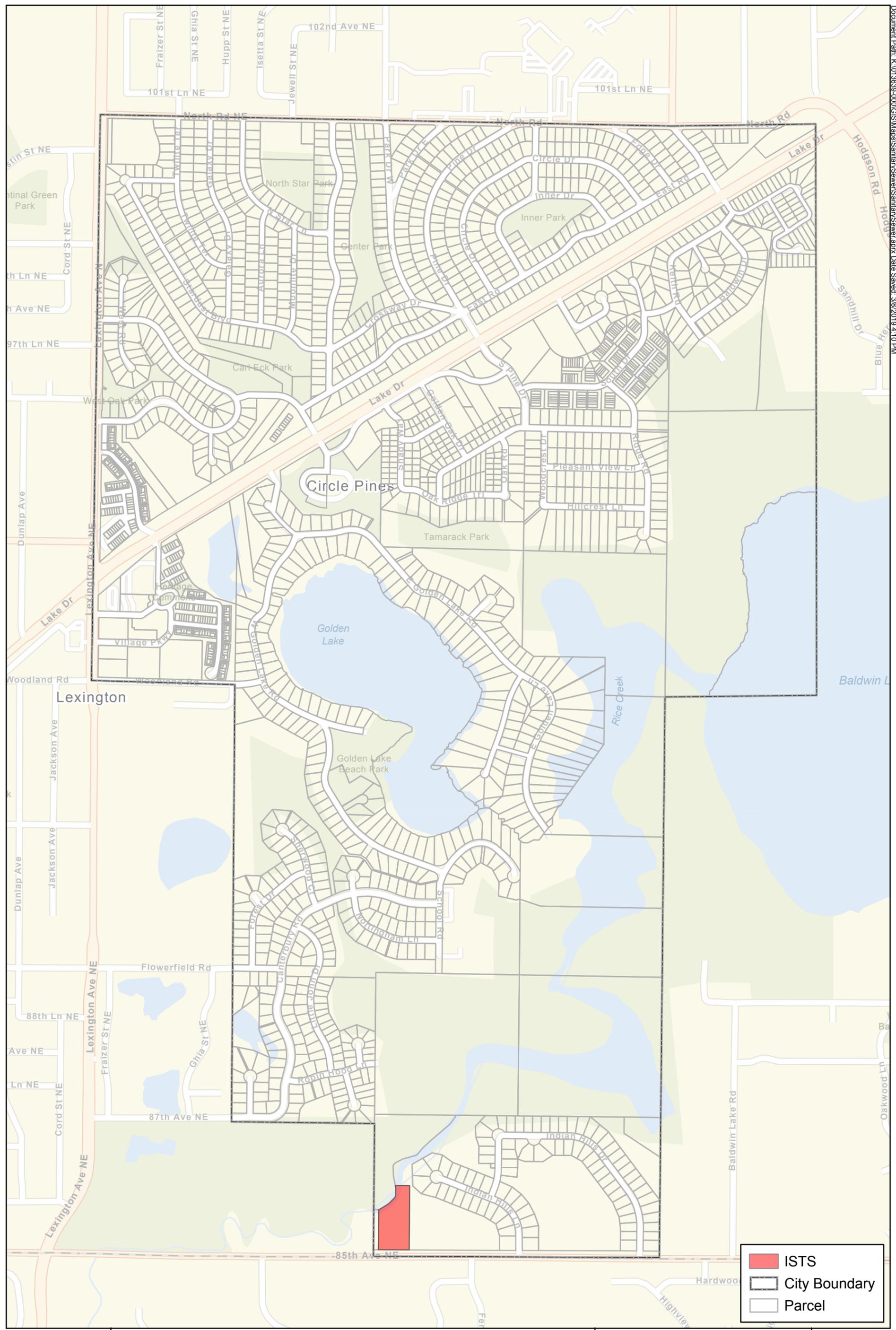
The City of Circle Pines has Joint Powers Agreements and Utility Agreements for several intercommunity sanitary sewer services with neighboring communities. Copies of these agreements are included in the Appendix. The intercommunity flows include:

- 52 single-family units in the Pine Hollow development discharge from Circle Pines to Lino Lakes. Lino Lakes bills Circle Pines for this service.
- 6 single-family units along North Road discharge from Lino Lakes to Circle Pines. Circle Pines bills the property owners directly for this service.
- 68 townhomes in the Weston Woods on Rice Creek Addition discharge from Blaine to Circle Pines. Centennial Utilities bills the property owners directly for this service.

- 12 single-family units in the Ellies Cove development discharge from Blaine to Circle Pines. Centennial Utilities bills the property owners directly for this service.
- 15 single-family units along 92nd Circle discharge from Blaine to Circle Pines. Circle Pines bills the property owners directly for this service.

**Community Treatment Systems**

There are no public or private community treatment system within the City of Circle Pines. All properties within the City are served by the public collection system or by individual sewage treatment systems.



	ISTS
	City Boundary
	Parcel



**Figure 4-3. Individual Sewage Treatment Systems**  
 Comprehensive Sanitary Sewer Plan  
 City of Circle Pines, MN

N

0 800  
 Feet  
 1 inch = 800 feet



### 3. FORECASTS AND CAPACITY ANALYSIS

#### Forecasts

The community forecasts for the City of Circle Pines are provided above in **Table 1**. The entire City is sewered and served by MCES Meter M205 and Interceptor 4-NS-523, with the exception of one ISTS. All projected growth will be served by the same MCES facilities.

#### Methodology

The City’s existing land use designations were used to estimate existing wastewater flows. These flows were then calibrated to equal the average community-wide metered flow from 2014-2018. Future flows were estimated based on areas within the City that are expected to develop or redevelop and the wastewater flow assumptions in **Table 5**. Standard MCES peak hourly flow factors for sanitary sewer design were applied to calculate future peak hourly flows.

**Table 5. Assumed Wastewater Flow by Land Use Type**

Land Use	Average Daily Flow
Single Family Residential	180 gpd/unit
Medium Density Residential	1,440 gpd/acre
Multifamily Residential	3,600 gpd/acre
Mixed Use (50% Multifamily, 50% Commercial)	2,200 gpd/acre
Commercial, Industrial	800 gpd/acre
Institutional	600 gpd/acre
Parks, Open Space, ROW, Water	None

#### Trunk Sewer Capacity

The projected peak hourly flow and residual capacities in the City’s trunk gravity sewers are listed below. The peak hourly flows listed include the flow from upstream sub-districts and lift stations. All trunk gravity sewers are projected to have adequate capacity through the year 2040.

**Table 6. Trunk Sewers**

Trunk Location	Diameter	Capacity (gpm)	2040 Peak Hourly Flow (gpm)	Residual Capacity (gpm)
Stardust Blvd	12"	750	107	643
East Rd	15"	1,120	80	1,040
Lake Dr	10"	520	139	381
Tamarack Park	10"	570	233	337
Golden Lake Rd	15"	1,120	256	864
Woodland Rd	10"	520	178	342
Flowerfield Rd	12"	750	315	435

**Lift Station Capacity**

The projected peak hourly flow and residual capacities in the City’s lift stations are listed below. All lift stations are projected to have adequate capacity through the year 2040.

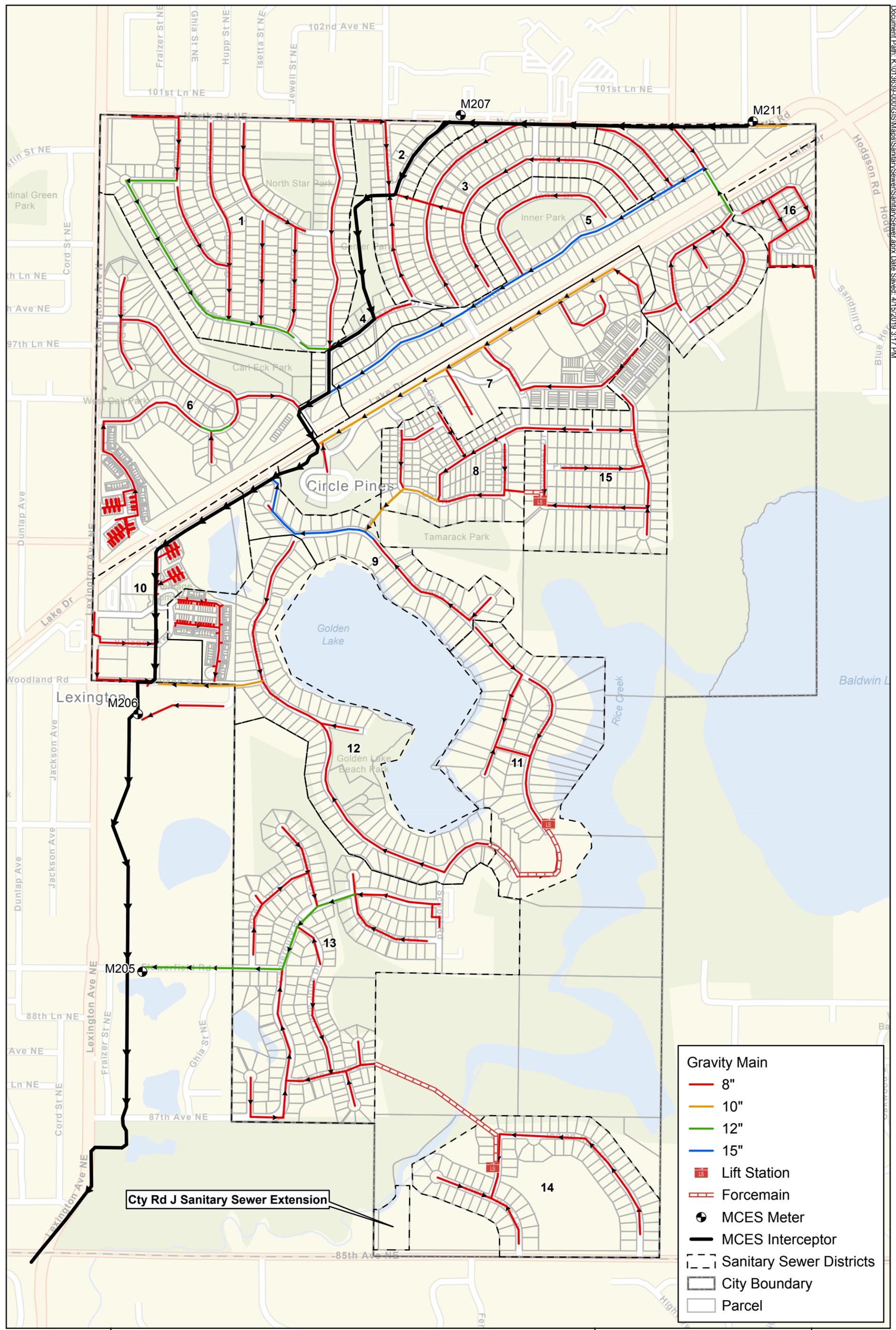
**Table 7. Lift Stations**

No.	Name	Firm Pumping Capacity (gpm)	2040 Peak Hourly Flow (gpm)	Residual Capacity (gpm)
1	E Golden Lake LS	110	29	81
2	Hillcrest LS	175	50	125
3	Indian Hills LS	220	39	181

**Proposed Improvements**

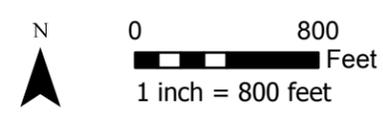
The proposed sanitary sewer system improvements are shown in **Figure 4-4**. Because the City is fully built out, few significant sanitary sewer system improvements are needed to serve forecasted growth and redevelopment.

The Land Use Plan identifies an opportunity for development of two parcels on the southern boundary of the City along County Road J. These parcels are partially isolated from the existing system by wetlands, and there are a few options for extending sanitary sewer service to this area. They can be served by (1) a gravity extension from Indian Hills Lane in Sanitary Sewer District 14 with insulation or fill, (2) a new lift station discharging to Sanitary Sewer District 14, or (3) a gravity extension from the City of Shoreview sanitary sewer system in Fernwood Street. Prior to development of this site, it is recommended that a feasibility study be completed to determine the most practical and cost-effective solution for extending service to that location.



- Gravity Main**
- 8"
  - 10"
  - 12"
  - 15"
- LS** Lift Station
- Force Main**
- MCES Meter**
- MCES Interceptor**
- Sanitary Sewer Districts**
- City Boundary**
- Parcel**

**Figure 4-4. Proposed Sanitary Sewer System**  
 Comprehensive Sanitary Sewer Plan  
 City of Circle Pines, MN



## 4. INFLOW AND INFILTRATION

### Introduction

Inflow and Infiltration (I/I) refers to water entering the sanitary sewer system from unintended sources. The water is typically clear, that is, not requiring treatment at the same level as wastewater. Inflow is runoff from rain events that drains directly into the sanitary sewer from such sources as storm sewer cross connections, foundation drains, sump pumps, and open manholes. Infiltration refers to groundwater that enters the sewer system through open pipe joints, leaking manhole walls, and cracked or broken pipe.

Inflow generally appears as a dramatic spike in the sewer flow during and immediately after a rain or snow melt event. The duration is generally short and the peak flow high. Oftentimes, inflow will result in short-term system backups that can flood basements and occasionally rise out of manholes.

Infiltration is also highlighted during rain and snow melt events, however, the rise in flow is delayed and flow rates can remain elevated for quite some time. The delay in rising flow rates is due to the time required for rainwater to filter through the ground to the sanitary sewer. This filtering both reduces the peaks and prolongs the duration of the high flows.

If left unchecked, I/I create additional cost for communities for a number of reasons. First, treating water that is already clean creates unnecessary chemical and electrical costs. Second, the dilution of the wastewater reduces the efficiency of the treatment process, making it more difficult to meet pollutant elimination regulations. Third, treatment plants and sanitary sewers must be made larger to handle the peak flows that can surge to the treatment plant after runoff events. It is more cost effective to eliminate sources of I/I than it is to expand infrastructure to collect and treat it.

MCES establishes annual I/I goals for each community discharging wastewater to its regional collection system based on average flows, adjustments for community growth, and I/I mitigation peaking factors.

### **I/I Reduction Strategy**

Removing I/I from the sanitary sewer system requires a continuing program of replacement, inspections, maintenance, and repairs. The sanitary sewer system is no different than other infrastructure types. As with streets, every year the condition of the sewer system degrades. Cracks form, joints leak, and infiltration increases. If the existing system is left alone, it will only continue to deteriorate and become worse.

The I/I Reduction Program will consist of televising each main line every ten years, on a rotating schedule, to determine the repairs needed to eliminate the I/I from the area. Typical inspections will be manhole inspections. Typical repairs will include pressure grouting of pipe and manholes, slip lining of pipe, structural lining of manholes, and installation of chimney seals on manhole adjusting rings.

Of particular importance is the last item, installation of chimney seals. Because of the freeze thaw cycles in Minnesota, the adjusting rings (the area between the cast iron frame and the precast manhole wall) are especially susceptible to cracks and I/I. Typically, the joints between the rings, frame and manhole wall are made of mortar which does not have a great deal of flexibility. During freeze/thaw cycles, the castings move up and down with the roadway, cracking the mortar joints and opening an I/I pathway. "Chimney seals" are one type of flexible rubber gasket that can be installed around the inside or outside of the manhole. They flex with the ground during freeze/thaw cycles and remain watertight. There are several types of these flexible products available to address the variable conditions and uses in a collection system.

Reducing I/I also includes eliminating clearwater sources from private properties. The City Code prohibiting the discharge of clearwater to the sanitary sewer system is excerpted below. The City will pursue an ordinance requiring the disconnection of existing foundation drains, sump pumps, and roof leaders from the sanitary sewer system within six months of the adoption of this plan.

*620.03 Public Sewers; Unpolluted Waters Prohibited.  
Subd. 1 Prohibited Discharges. No person shall discharge or cause to be discharged, directly or indirectly, to any sanitary sewer any of the following: storm water, surface water, groundwater, roof runoff, subsurface drainage, cooling water, or unpolluted industrial process waters.*

**Existing I/I Analysis**

The existing sanitary sewer system is made up of approximately 18 miles of gravity sewer, 501 manholes, 3 lift stations, and 0.6 miles of forcemain. There are also approximately 1.9 miles of MCES trunk sewer within the City. Approximately 40% of the housing in the City was constructed before 1970. The only I/I evaluation of the pre-1970 era housing has been the televising of the lateral connection to the main.

The amount of clearwater flow generated within the City was estimated by calculating the average annual and peak month I/I rates, equal to the average wastewater flow minus the base wastewater flow, using data from 2014-2018. The average flow, both annual and monthly, was calculated from MCES meter data. The peak month flow was determined for each year from 2014-2018, and then those peak month flows were averaged to give the value listed in **Table 8**. The base flow was approximated as the minimum daily flow within each year.

The City’s metered flow is calculated using data from four meters: M205 – (M206 + M207 + M211). Because the City’s meter formula is based on data from three other meters in other communities (Lexington, Blaine, and Lino Lakes), its data is susceptible to errors and irregularities from all of these metersheds and the intermediary regional collection system. Therefore, the data presented below should be considered qualitative in nature, rather than an exact quantification of I/I within Circle Pines.

**Table 8. Estimated I/I Rate**

Average Flow	0.33 MGD
Peak Month Flow	0.40 MGD
Base Flow	0.18 MGD
Average Annual I/I Rate	0.15 MGD (45%)
Peak Month I/I Rate	0.22 MGD (55%)

*MGD = million gallons per day*

It is also important to note that the City began a Street Reconstruction Program in 2008 that incorporated the replacement of all utilities, including sanitary sewer mains. The projects occur every other year and will continue until 2020. As shown in **Table 9**, significant investment has been made in the sanitary sewer system from 2014-2018, when this flow data was collected. Therefore, the full impact of these improvements has not yet been metered and is not reflected in the I/I rates listed in **Table 8**. In other words, it is expected that actual current I/I rates are lower than those above given the improvements made in recent years.

**I/I Work Completed**

The City completes regular street and utility improvement projects, typically every other year. These projects include pipe replacement, manhole replacement, casting adjustments, chimney seals, lining, and televising. The sanitary sewer costs for the projects completed in the last ten years are listed in **Table 9**. The City invests approximately \$300,000 dollars each year in sanitary sewer improvements, which will lead to a long-term reduction of I/I.

**Table 9. I/I Reduction Work**

<b>Year</b>	<b>Project</b>	<b>Cost</b>
2008	West Golden Lake Rd Improvements	\$389,371
2010	2010 Street Reconstruction	\$332,103
2012	2012 Street Reconstruction	\$341,572
2014	2014 Street Reconstruction	\$687,403
2015	2015 Mill and Overlay Improvements	\$59,780
2016	2016 Street and Utility Improvements	\$521,394
2018	2018 Street and Utility Improvements	\$837,862
2018	2018 Partial Street Reconstruction	\$15,969

With the televising completed during the street and utility improvement projects, the City is able to view the condition of the private service lateral connections to the public sewer mains and identify any issues. The City will explore additional activities for I/I reduction from private sources, such as sump pump inspections, smoke testing, and service lateral televising.

**I/I Cost Effectiveness**

It is important to consider the cost effectiveness of the annual program described above. I/I reduction programs have varied effectiveness in reducing I/I rates. Some very successful programs have significantly reduced the amount of I/I in the sewer systems. However, it is also common for there to be very little actual reduction in I/I flow. That is not to say that these programs were not successful, just that all of the potential I/I sources could not be immediately identified and rehabilitated. The I/I defects that are rehabilitated will reduce treatment costs, but additional previously-unidentified sources may become active, suggesting that the removal was not completely effective.

Infiltration, as opposed to inflow, is very difficult to remove because the groundwater can enter any crack in manholes, sewer pipes, joints, and service lines. When one crack is repaired, the water may enter through another one further upstream. Each repair makes it more difficult for water to enter, but it is impossible to completely eliminate all infiltration.

On the other hand, if nothing is done in terms of maintenance and repair, pipes and manholes will continue to deteriorate, increasing the amount of groundwater entering the system. So, while the volume of I/I may or may not decrease with annual maintenance, I/I certainly will not increase as quickly as it would if nothing had been done.

Therefore, while a definitive answer to the question of how much I/I will be removed from the sewer system cannot be answered, the cost effectiveness of both the annual maintenance and sump pump removal programs are inherent. The annual maintenance program is needed as much for future I/I prevention as it is for current I/I reduction. No programs for I/I reduction will ever eliminate all of the clearwater from the sanitary sewer system.

**5. CAPITAL IMPROVEMENTS**

The City is fully built out, so the sanitary sewer capital improvements primarily consist of maintaining the existing infrastructure. As mentioned previously, the City will televise all sanitary sewer pipes once every ten (10) years on a rotating schedule. At a televising cost of \$1.30 per linear foot, with a 10% contingency and 25% indirect costs, this equates to an annual investment of approximately \$18,000.

**Table 10. Sanitary Sewer Capital Improvements**

<b>Year</b>	<b>Project</b>	<b>Estimated Cost</b>
2019	SCADA System Upgrades	\$12,000
	Sewer Service Truck	\$58,000
	I/I Reduction	\$10,000
2020	Sewer Jetter Truck	\$300,000
2023	I/I Reduction	\$10,000
TBD	Cty Rd J Sanitary Sewer Extension	TBD*

*\*Pending feasibility study.*

**6. SUMMARY AND RECOMMENDATIONS**

In summary:

1. The City of Circle Pines has an existing sanitary sewer system made up of approximately 18 miles of gravity sewer, 501 manholes, 3 lift stations, and 0.6 miles of forcemain. There are also approximately 1.9 miles of MCES trunk sewer within the City.
2. The City has made significant investments to replace and rehabilitate the sanitary sewer system in the last ten years, which is expected to result in a reduction of I/I.
3. The City will continue I/I reduction efforts with an annual program to identify and reduce I/I sources. It is recommended that the annual I/I Reduction Program include televising, inspection, and repair of approximately 10% of the sanitary sewer system each year.
4. The City will continue to maintain the existing sanitary sewer system via the improvements listed in **Table 10**. Because the City is fully built out, no major improvements to the sanitary sewer system are required.

**JOINT POWERS AGREEMENT**  
**BETWEEN THE CITY OF CIRCLE PINES**  
**AND**  
**CITY OF LINO LAKES**

THIS AGREEMENT is made as of July 11, 2005 between the City of Circle Pines, Minnesota, a municipal corporation ("Circle Pines") and the City of Lino Lakes, Minnesota, a municipal corporation ("Lino Lakes").

**RECITALS**

- A. By virtue of a Planning Commission resolution (Resolution 04-01), adopted on June 14, 2004 Circle Pines has granted preliminary plat approval for a 52 unit single-family housing development known as Pine Hollow (the Development) to be located on approximately a 12 acre parcel adjacent to Lino Lakes. In order to access the Metropolitan Council wastewater interceptor, the wastewater flow from the Development needs to move through the sanitary sewer lines of Lino Lakes. The owner of the Development, Ryland Homes (Ryland) and Circle Pines have requested that Lino Lakes allow wastewater from the Development to connect to and flow through the sanitary sewer lines of Lino Lakes. Lino Lakes is willing to allow such flows to occur on the terms and conditions hereinafter set forth.
- B. Lino Lakes owns and maintains sanitary sewer facilities adjacent to certain parcels located in Circle Pines. The facilities have the capacity to provide sanitary sewer service to Pine Hollow development.
- C. It is desire of the parties, the Cities of Lino Lakes and Circle Pines, through this agreement, to provide for sanitary sewer services to the Pine Hollow Development by Lino Lakes.
- D. Minnesota Statutes, Section 471.59, provides that two or more governmental units, by agreement entered into through action of their governing bodies, may jointly or cooperatively exercise any power common to the contracting parties or any similar powers, including those which are the same except for the territorial limits within which they exercised.

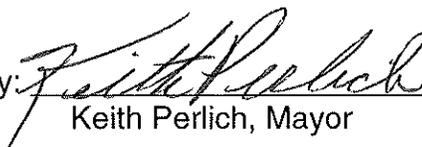
**AGREEMENT**

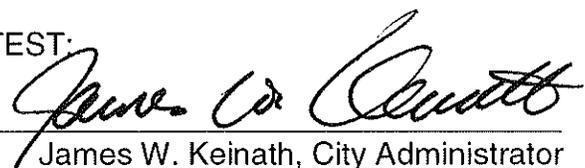
Based upon the foregoing recitals, Circle Pines and Lino Lakes agree as follows.

1. Lino Lakes shall allow wastewater from the Development to connect to and flow through sanitary sewer lines owned and maintained by Lino Lakes, in accordance with the Utility Plan, Pine Hollow Grading, Utility and Streets, dated September 13, 2004.
2. Circle Pines shall maintain all sanitary sewer lines constructed within the Development and any adjacent lands in Circle Pines. Lino Lakes shall maintain all sanitary sewer lines located in Lino Lakes (except interceptors owned by the Metropolitan Council) through which the wastewater generated by the Development or adjacent lands flows. Each city shall maintain its sanitary sewer lines at its own cost and expense.
3. Circle Pines shall provide Lino Lakes with the most current water meter readings no later than five (5) days following the months of March, June, September and December. Lino Lakes will bill Circle Pines for all wastewater flows determined by the meter readings. Billing to Circle Pines at the rate the Metropolitan Council bills Lino Lakes for wastewater plus ten percent (10%).
4. Payments are due to the City of Lino Lakes utility department within thirty (30) days of the billing date.
5. This agreement shall become effective upon its execution by Circle Pines and Lino Lakes.
6. This agreement is effective only for the Development as approved by Planning Commission Resolution 04-01 and the Utility Plan as referenced in item one. No flows in excess of the flows generated by the Developments approval shall be allowed to enter the City of Lino Lakes sanitary sewer system.
7. This agreement may not be amended unless agreed to in writing by both Circle Pines and Lino Lakes.

IN WITNESS WHEREOF the parties have executed this Agreement as of the day above first written.

CITY OF CIRCLE PINES

By:   
Keith Perlich, Mayor

ATTEST:  
By:   
James W. Keinath, City Administrator

CITY OF LINO LAKES

By:   
John Bergeson, Mayor

ATTEST:

By:   
Gordon Heitke, City Administrator

**CITY OF LINO LAKES**  
**RESOLUTION NO. 05-95**

**RESOLUTION APPROVING A JOINT POWERS AGREEMENT BETWEEN THE CITY  
OF CIRCLE PINES AND CITY OF LINO LAKES FOR THE PINE HOLLOW  
DEVELOPMENT**

WHEREAS, Minnesota Statutes, Section 471.59, authorizes political subdivisions to enter into Joint Power Agreements; and

WHEREAS, the parties of this agreement consider it mutually desirable to provide sanitary sewer services to the Pine Hollow Development by Lino Lakes; and

WHEREAS, Circle Pines has provided documentation of ownership of parcel in Lino Lakes which provides service to Circle Pines; and

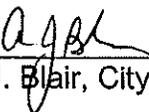
WHEREAS, Grading and restoration of the previous park including paving of the trail shall be completed by August 5, 2005.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LINO LAKES, MINNESOTA:

1. Hereby approves the Joint Powers Agreement between the City of Circle Pines and City of Lino Lakes for the Pine Hollow Development and authorizes Mayor and City Clerk to sign the agreement.

Adopted by the City Council this 11<sup>th</sup> day of July, 2005.

  
\_\_\_\_\_  
John J. Bergeson, Mayor

  
\_\_\_\_\_  
Ann J. Blair, City Clerk

JOINT POWERS AGREEMENT  
BETWEEN THE CITY OF CIRCLE PINES  
AND  
CITY OF LINO LAKES

THIS AGREEMENT is made as of January 23<sup>rd</sup>, 2008 between the City of Circle Pines, Minnesota, a municipal corporation ("Circle Pines") and the City of Lino Lakes, Minnesota, a municipal corporation ("Lino Lakes").

RECITALS

- A. The cities are interested in formalizing cross community water and sewer connections along North Road.
- B. Circle Pines owns and maintains water main and sanitary sewer facilities adjacent to certain parcels located in Lino lakes. The Metropolitan Council – Environmental Services also owns and maintains sewer lines. These facilities have the capacity to provide water and sanitary sewer service to Lino Lakes residents on or near North Road.
- C. It is desire of the parties, the Cities of Lino Lakes and Circle Pines, through this agreement, to provide for water and sanitary sewer services to residents in the North Road area in Lino Lakes.
- D. Minnesota Statutes, Section 471.59, provides that two or more governmental units, by agreement entered into through action of their governing bodies, may jointly or cooperatively exercise any power common to the contracting parties or any similar powers, including those which are the same except for the territorial limits within which they exercised.
- E. This agreement is effective retroactive to January 1, 1996. All previous charges will be billed at the yearly utility rates in effect at the time of consumption/use.

AGREEMENT

Based upon the foregoing recitals, Circle Pines and Lino Lakes agree as follows.

1. Circle Pines shall allow water and sewer usage from approved Lino Lakes residents on or near North Road to flow through water mains and sanitary sewer lines owned and maintained by Circle Pines.

2. Circle Pines shall maintain all municipal water mains and sanitary sewer lines constructed within North Road and any adjacent lands in Circle Pines. Lino Lakes shall maintain all water meters within Lino Lakes. Sanitary Sewer lines owned by the Metropolitan Council Environmental Services will be maintained by the Metropolitan Council Environmental Services.
3. Lino Lakes shall read the water meters on a quarterly basis and shall provide Circle Pines with the most current water readings no later than five days following the months of March, June, September and December. Lino Lakes will pay Circle Pines for all water and wastewater flows determined by the meter readings. Payment for sewer to Circle Pines shall be 110% the rate billed to Circle Pines by the Metropolitan Council. Circle Pines will receive a monthly base charge plus its current rate per 1,000 gallons for all water flows, as well as periodic increases in the rate per 1,000 gallons. Circle Pines will communicate its rates annually to Lino Lakes within fifteen days of establishment of such rate. Lino Lakes will retain any water fees over and above those paid to Circle Pines.
4. Circle Pines and Lino Lakes agree to indemnify, defend, and hold harmless the other from any claims, causes of action, damages, loss, cost or expenses, including reasonable attorney's fees, resulting from or relating to the actions of each City, its officers, agents or employees in the execution of the duties outlined in this agreement. Under no circumstances, however, shall a party be required to pay on behalf of itself or each other, any amount in excess of the limits of liability established in Minnesota Statutes Chapter 466 applicable to any one party. The limits of liability of each City may not be added together to determine the maximum amount of liability for each City.
5. City SAC and WAC fees shall apply for the City providing service.
6. This agreement shall become effective upon its execution by Circle Pines and Lino Lakes.
7. This agreement is effective only for the North Road Area
8. This agreement may not be amended unless agreed to in writing by both Circle Pines and Lino Lakes.
9. This agreement shall terminate upon the mutual agreement in writing by Circle Pines and Lino Lakes.

IN WITNESS WHEREOF the parties have executed this Agreement as of the day above first written.

CITY OF CIRCLE PINES

By: Dave Bartholomay  
Dave Bartholomay, Mayor

ATTEST:

By: James W. Keinath  
James W. Keinath, City Administrator

CITY OF LINO LAKES

By: John Bergeson  
John Bergeson, Mayor

ATTEST:

By: Gordon Heitke  
Gordon Heitke, City Administrator

**UTILITY AGREEMENT BETWEEN  
THE CITY OF BLAINE AND THE CIRCLE PINES UTILITIES  
FOR  
CONNECTION OF BLAINE PROPERTY TO CIRCLE PINES  
SANITARY SEWER**

**WESTON WOODS ON RICE CREEK ADDITION**

**THIS AGREEMENT** made and entered into this 10 day of July, 2014, by and between the City of Blaine and the Circle Pines Utilities, DBA Centennial Utilities,

**WITNESSETH:**

**WHEREAS**, the City of Blaine and the City of Circle Pines are adjoining municipalities;

**NOW, THEREFORE**, it is mutually agreed between the parties hereto as follows:

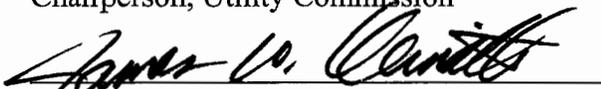
1. Connections to the Centennial Utilities sanitary sewer system shall be made pursuant to Centennial Utilities specifications and details.
2. Cost of making connections to the sanitary sewer system shall be the responsibility of the developer and/or lot owner, and all connection fees, including Sewer Availability Charge (SAC), shall be paid to the Centennial Utilities.
3. Sanitary sewer billings shall be by Centennial Utilities. Rates charged shall not be in excess of rates charged to similar properties within the City of Circle Pines.

**IN WITNESS WHEREOF**, the parties of this Agreement have hereunto set their hands on the dates written below.

CENTENNIAL UTILITIES



Chairperson, Utility Commission

  
Jim Keinath, City Administrator

Pursuant to Utility Commission authorization granted on the 18th day of June, 2014.

CITY OF BLAINE



Tom Ryan, Mayor



Clark Arneson, City Manager

Pursuant to Blaine City Council authorization granted on the 10th day of July, 2014.

**UTILITY AGREEMENT BETWEEN  
THE CITY OF BLAINE AND CIRCLE PINES UTILITIES FOR  
CONNECTION OF BLAINE PROPERTY TO CIRCLE PINES  
SANITARY SEWER, WATER, AND NATURAL GAS**

**ELLIES COVE**

**THIS AGREEMENT** made and entered into this 20<sup>th</sup> day of Sept., 2017 by and between the City of Blaine and Circle Pines Utilities, DBA Centennial Utilities.

**WITNESSETH:**

**WHEREAS**, the City of Blaine and the City of Circle Pines are adjoining municipalities.

**NOW, THEREFORE**, it is mutually agreed between the parties hereto as follows:

1. Connections to the Centennial Utilities sewer system, water system and natural gas system shall be made pursuant to Centennial Utilities specifications and details.
2. Cost of making connections to the sanitary sewer system, water system, and natural gas system shall be the responsibility of the developer and/or lot owner, and all connection fees, including Sewer Availability Charge (SAC) and Water Availability Charge (WAC), shall be paid to the Centennial Utilities.
3. Sanitary sewer, water and natural gas billings shall be by Centennial Utilities. Rates charged shall not be in excess of rates charged to similar properties within the City of Circle Pines.

**IN WITNESS WHEREOF**, the parties of this Agreement have hereunto set their hands on the dates written below.

**CENTENNIAL UTILITIES**



Ed Erchul, Chair – Utility Commission

Pursuant to Utility Commission  
Authorization granted on the 20<sup>th</sup> day of  
September, 2017.



Patrick Antonen, City Administrator

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## Chapter 4: Water Resource

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### Surface Water

#### 1. EXECUTIVE SUMMARY

##### 1.1. Surface Water Management Plan Purpose

The City of Circle Pines Surface Water Management Plan (plan, City plan, local plan, SWMP) is a local management plan that meets the requirements of Minnesota Statutes 1038.235, Minnesota Rules 8410, and the Rice Creek Watershed District (RCWD) Watershed Management Plan (adopted January 4, 2010, and amended November 9, 2016). Minnesota Statute 103B.201 states that the purposes of the water management programs are to:

- Protect, preserve, and use natural surface and groundwater storage and retention systems;
- Minimize public capital expenditures needed to correct flooding and water quality problems;
- Identify and plan for means to effectively protect and improve surface and groundwater quality;
- Establish more uniform local policies and official controls for surface and groundwater management;
- Prevent erosion of soil into surface water systems;
- Promote groundwater recharge;
- Protect and enhance fish and wildlife habitat and water recreational facilities; and
- Secure the other benefits associated with the proper management of surface and groundwater.

The Circle Pines Surface Water Management Plan addresses these purposes.

##### 1.2. Water Resource Management Responsibilities and Related Agreements

Well Head Protection Plan was approved by the Minnesota Department of Health on April 16, 2008. Future agreements could include joint powers agreements between the City and Watershed Management Organizations having jurisdiction within its boundaries, agreements between the City and adjoining communities, or agreements with other governmental units or private parties.

The City of Circle Pines is responsible for construction, maintenance, and other projects in or along the City's stormwater management systems (i.e., ponds, pipes, channels) that are not considered part of RCWD's public drainage system. Table 6.1 of this plan addresses the City of Circle Pine's stormwater system maintenance plans.

The City of Circle Pines is the LGU authority for the Wetland Conservation Act (WCA) and RCWD Rule F. The City has also assumed LGU permitting authority for stormwater management, erosion and sediment control, and floodplain alterations from RCWD in 2016. A copy of the MOU is found in *Appendix I*. Permitting reference documents can be found in *Appendix J*.

##### 1.3. Executive Summary

- Section 1.0 Executive Summary provides background information and summarizes the plan contents.
- Section 2.0 Land and Water Resource Inventory presents information about the topography, geology, groundwater, soils, land use, public utilities, surface waters, hydrologic system and data, and the drainage system.
- Section 3.0 Agency Cooperation describes the City's ordinances and other governmental controls and programs that affect water resources.
- 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 program elements and discusses the responsibilities, priorities and financial considerations associated with the implementation program.

### 1.3.1. Background

The City of Circle Pines (population 4,918) is located in Anoka County in the seven county Twin Cities metropolitan area (**Figure 1**). It is about 17 miles north of downtown St. Paul and covers approximately two square miles. Circle Pines is positioned between the City of Blaine to the north, City of Lino Lakes to the east, City of Lexington to the west, and Shoreview to the south. Interstate 35W runs north-south just outside the northwestern boundary of the City.

Circle Pines is located entirely within the Rice Creek Watershed District (RCWD). The RCWD regulates development impacts on water resources. This plan addresses the rules and regulations put forth by the Rice Creek Watershed District.

Water from the northern portion of Circle Pines generally drains westerly to County Ditch 53-62. This County Ditch conveys water southwest into Golden Lake which leads to the Golden Lake Wetland Treatment System. The City has utilized this treatment system to remove phosphorus. Water discharging from Golden Lake moves south to Rice Creek and leaves the City to the southwest. **Figure 5** shows the drainage patterns within the City.

Water from the northeast corner of Circle Pines drains to the south into Baldwin Lake and Rice Lake. Baldwin Lake outlets to Rice Creek. The southern portion of Circle Pines drains directly to Rice Creek, which then conveys water to the south leaving the City just north of the County line.

The City of Circle Pines is essentially fully developed (**Figure 3- Existing Land Use**). The City has land use practices that include residential, commercial and industrial development, as well as designated park and open space areas and public recreational areas.

### 1.3.2. Summary of Goals, Problems, and Potential Solutions

#### 1.3.2.1. Goals

Section 5 of the Circle Pines plan outlines the City's goals and policies pertaining to water management. The goals are as follows:

- **Water Quantity and Quality.** Limit public capital expenditures that are necessary to control excessive volumes and rates of runoff. Maintain or improve the quality of water in lakes, streams or rivers within or immediately downstream of the City of Circle Pines.
- **Recreation, Fish and Wildlife Resources.** Protect and enhance recreational facilities and fish and wildlife habitat.
- **Enhancement of Public Participation and Education.** Educate and inform the public on pertinent water resource management issues and increase public participation in water management activities.

- Groundwater. To manage surface water runoff to the degree necessary to provide groundwater recharge and to prevent groundwater contamination.
- Wetlands. The City will protect wetlands in conformance with the requirements of the Wetland Conservation Act of 1991.
- Erosion and Sediment Control. To prevent erosion and sedimentation to the maximum reasonable extent.
- Shoreland Management Requirements. To protect shoreland areas within the City in accordance with the DNR.
- Financing. Minimize public capital expenditures.

### 1.3.2.2. Summary of Problems and Issues

**Section 4** of this plan presents a detailed assessment of the water management related problems and issues in the City of Circle Pines. Some of the problems and issues identified include:

- Methods for funding projects and programs as well as partnering opportunities.
- Water quality in Golden Lake, Baldwin Lake, Rice Creek, Rice Lake, Upper Mississippi River and other public waters that provide recreational opportunities.
- Soil erosion in Ditch 53-62
- Importance of maintaining the City's stormwater management system.
- City's near full development condition makes it difficult for the City to provide additional treatment of stormwater runoff.
- Continued development of community education programs regarding water resource management.
- Importance of Capital Improvement Plan (CIP) and implementation program to adequately address identified problems.
- Importance of future NPDES stormwater permit requirements.

### 1.3.2.3. Summary of Implementation Section

Section 6 of this plan presents the implementation program for the City of Circle Pines, which includes defining responsibilities, prioritizing, and listing the program elements. Table 6-1 outlines the projects, programs, and studies that have been identified to address the problem areas contained in this Plan

## 2. LAND AND WATER RESOURCE INVENTORY

### 2.1. Topography and Geology

The topography of Circle Pines is generally flat with minor undulation. The most significant topographical change is present in the valley that runs through the center of the City that connects Baldwin Lake and Golden Lake. Most of the City's surface water drains southerly through this valley into Ramsey County.

The City of Circle Pines has 2-foot contour interval topographic maps that cover the entire City and are based on 2012 LIDAR (Light Detection and Ranging) data. Additional available mapping includes various Circle Pines development plans and the Minnesota USGS 10-foot contour interval topographic map.

The Anoka County Geologic Atlas, part of the Minnesota Geologic Survey, provides more information on the areas bedrock and surficial geology as well as quaternary and bedrock hydrogeology.

### 2.2. Climate and Precipitation

The climate within the Minneapolis/St. Paul metropolitan area is described as a humid continental climate with moderate precipitation, wide daily temperature variations, warm humid summers and cold winters. The total average annual precipitation in this area is approximately 30 inches, of which approximately one-third occurs in the months of June, July and August. The annual snowfall average is about 56 inches and is equivalent to approximately 5.6 inches of water.

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. It has been adopted by RCWD in their respective stormwater management rules. Table 2.1 lists rainfall frequencies for Circle Pines.

**Table 2.1 Atlas 14 Rainfall Frequencies**

<b>Recurrence Interval (Years)</b>	<b>24-hr Rainfall Depth (in)</b>	<b>Probability of Occurring Each Year</b>
<b>1</b>	<b>2.4</b>	<b>99%</b>
<b>2</b>	<b>2.5</b>	<b>50%</b>
<b>5</b>	<b>3.5</b>	<b>20%</b>
<b>10</b>	<b>4.2</b>	<b>10%</b>
<b>25</b>	<b>5.3</b>	<b>4%</b>
<b>50</b>	<b>6.2</b>	<b>2%</b>
<b>100</b>	<b>7.2</b>	<b>1%</b>

This data was derived from the Atlas 14 report produced by the National Oceanic and Atmospheric Administration (NOAA). Additional climatological information for the area can be obtained from the State Climatologist website at <http://climate.umn.edu/>.

### 2.3. Soils

The Anoka Sandplain dominates the physical geography of the City. This region is known for its flat to slightly undulating topography, sandy soils, and shallow water table. More information about soils can be obtained from the Soil Survey of Anoka County. **Figure 2** shows the hydrologic soil groups within Circle Pines.

Infiltration capacities of soils affect the amount of direct runoff resulting from rainfall. The higher the infiltration rate for a given soil, the lower the runoff potential. Conversely, soils with low infiltration rates produce high runoff volumes and high peak discharge rates. According to the soil survey, most of the underlying soils in the City of Circle Pines are classified as A soils with moderate to high infiltration rates. However, there is a significant portion of the City covered in D soils, which are not recommended for infiltration. In addition, the soil survey also shows a significant area where the amount of land alteration has resulted in a soil classification of urban soils. These urban soils have high variability in runoff rates due to the amount of cut and fill that took place during development.

Since the City of Circle Pines is at full development, limited land grading will occur within the City in the future.

### 2.4. Land Use

The City of Circle Pines designation by the Metropolitan Council is that of a "developed community" meaning that over 85 percent of the community is developed. Circle Pines is almost fully developed with less than one percent of its usable land area still vacant, all of which consists of underutilized small lots and parcels less than one-third of an acre. Residential land uses comprise 39% of all of the city's useable land. Commercial development occupies 2% of the City's land area, and 4% is occupied by institutional uses. Parks and open space occupy 29%, while water occupies 11 % of the City's total land area. The remaining 15% of land in the City of Circle Pines is used for right-of way. The existing and future land uses in Circle Pines are shown on **Figure 3** and **Figure 4**, which are located in *Appendix A*. 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. Circle Pines has a vast network of regional open space which covers much of the southeast portion of the City. This regional open space acts as an important buffer between development and local waterbodies. 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. Circle Pines expects very little change in land use.

Due to the lack of available land, the City of Circle Pines intends to focus its efforts on redevelopment opportunities to maximize land where possible by implementing appropriate densities (5 units plus in developed areas with access to amenities). Redevelopment has taken place in the City of Circle Pines with the Lake and Lexington Redevelopment, Pine Hollow Development, Fire Barn Development, and the Pine Manor Development. These projects collectively served the need for single-family housing, townhomes, mixed-use buildings, and senior apartments.

### 2.5. Public Utilities

Circle Pines is completely within the Metropolitan Urban Service Area. Sanitary sewer and water service is provided throughout the city. The Circle Pines sanitary sewer system consists of approximately 21 miles of sewer mains, 500 manholes, and three lift stations. Circle Pines handles its wastewater on a metropolitan level and is incorporated into the Metro Wastewater Treatment Plant located in St. Paul Minnesota. The Metropolitan Plant is the largest in the state of Minnesota, serving 1.8 million users with a maximum capacity of 251 million gallons per day. Since sanitary sewer is available in the City, the City will not allow installation of new individual sewage treatment systems where public sewer service is already located.

Storm sewers, ditches, curbs, and gutters provide drainage for the City. The individual watershed maps (**Figure 5** in *Appendix A*) show the City's stormwater system of pipes, channels and ponds. Future street maintenance and redevelopment will likely dictate the extension or reconstruction of the storm drainage system

**2.6. Surface Waters**

**Figure 5** and **Figure 6** in *Appendix A* show the major water resources, watersheds, and drainage patterns in the City of Circle Pines. These figures also identify the DNR-protected lakes and wetlands located throughout the City. The following table lists the DNR-protected lakes and wetlands within the City.

**Table 2.2 DNR Waterbodies**

DNR ID#	Waterbody Name	DNR ID#	Waterbody Name
45P	Golden Lake	13P	Baldwin
41P	Unnamed	592 W	Unnamed

Wetland Conservation Act of 1991 (WCA)-Local Government Units (LGUs) are responsible for administering the rules. The intent of the WCA is to promote no net loss of wetlands. In the past, the Rice Creek Watershed District (RCWD) was the LGU responsible for administering the WCA in the City of Circle Pines. The City has since adopted RCWD Rule F and became the LGU responsible for administering the WCA rules. In 2016, the City was granted LGU permitting authority for Stormwater Management (Rule C), Erosion and Sediment Control (Rule D), and Floodplain Alteration (Rule E). A copy of the MOU can be found in the Appendices.

**2.6.1. Water Quality Data**

Water quality data for the City has been obtained from the Minnesota Pollution Control Agency (MPCA) Environmental Data Access site (**Figure 9**). This database is utilized by participating agencies to compile water quality testing data and is almost entirely used for the storage of water quality parameters. Water quality monitoring information/data and monitoring locations can be found at the MPCA's Environmental Data Access site at <http://www.pca.state.mn.us/index.php/water/water-monitoring-and-reporting/water-monitoring-and-reporting.html>. **Figure 9** shows water quality monitoring locations within the City.

**2.6.2. Impaired Waters**

The MPCA lists the following water bodies located within or near the City as being impaired:

- Golden Lake (ID - 02-0045-00) is listed as impaired by the MPCA due to nutrients/eutrophication and mercury. Golden Lake was added to the impaired waters list by the MPCA in 2010.
- Baldwin Lake (ID - 02-0013-00) is listed as impaired by the MPCA due to nutrients/eutrophication. Baldwin Lake was added to the impaired waters list by the MPCA in 2010.
- Rice Lake (ID -02-0008-00) is listed as impaired by the MPCA due to nutrients/eutrophication. Rice Lake was added to the impaired waters list by the MPCA in 2009.
- Lower Rice Creek (ID -02-0041-00) is listed as impaired by the MPCA due to aquatic macroinvertebrate bioassessments and E. coli. Lower Rice Creek was added to the impaired waters list by the MPCA in 2009.
- Middle Rice Creek (ID - 02-0013-00) is listed as impaired by the MPCA due to aquatic macroinvertebrate bioassessments and fishes bioassessments. Middle Rice Creek was added to the impaired waters list by the MPCA in 2010.
- Upper Mississippi River (ID - 070010206) is listed as impaired for mercury in fish tissue and fecal coliform. The Upper Mississippi River was added to the impaired waters list by the MPCA in 1998. A TMDL for bacteria was approved in 2016.

The locations of these impaired water bodies are shown on the water resource problem areas map, **Figure 7**, which can be found in *Appendix A*.

In addition to the water bodies listed above, the City is upstream of Lake Pepin, which is listed as impaired for excess nutrients. The City will be required to implement the TMDL plans for this water body once complete.

### 2.6.3. Floodplain

The City of Circle Pines has adopted a floodplain management ordinance. A copy of this regulation can be found on the City's website and in *Appendix C*. This ordinance generally regulates developments, land alterations and uses within each of the floodway, flood fringe, and general floodplain districts. The current ordinance requires that the lowest entry of a house be no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that result from designation of a floodway. However, the RCWD requires the lowest entry of the house to be greater than: 2-feet above the 100-year flood elevation and 1-foot above the emergency overflow. **Figure 8** in *Appendix A* shows the FEMA floodplain boundaries for the City.

The City also regulates floodplain development as part of the LGU Permitting Authority granted by RCWD through their Rule E. This permitting process is independent of the FEMA permitting process.

The City also has in place a Stormwater Management Ordinance, which is provided as an appendix to this plan and can be found in *Appendix D*.

The Federal Emergency Management Agency (FEMA) completed the map modernization process for its Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) to identify flood risk within Anoka County in July 2013. FEMA released updated maps for Anoka County in December 2015. A copy of the updated FIS and FIRMS can be obtained online through the FEMA Map Service Center at <https://msc.fema.gov/portal>.

#### **2.6.4. Intercommunity Flows**

The RCWD District Wide Modeling Program outlines the existing intercommunity flows in its district wide modeling program summary. The City of Circle Pines is committed to maintaining these flow rates under full buildout and will regulate development to ensure compliance with the CFS discharge rate. The City's adopted ordinances will ensure that these flows will be maintained. Table 2.3 below is an excerpt from the summary report showing these existing flows.

**Table 2.3 Intercommunity Flows**

Discharging City	Receiving City	Watercourse	Peak Flows (cfs)			
			2-Year 24-Hour Rainfall	10-Year 24-Hour Rainfall	100-Year 24-Hour Rainfall	100-Year 10-Day Snowmelt
Circle Pines	Blaine	Rice Creek	122	305	784	1256

**2.7. Groundwater**

Various agencies are responsible for groundwater management and protection. The DNR regulates groundwater usage rate and volume as part of its charge to conserve and use the waters of the state. For example, suppliers of domestic water to more than 25 people or applicants proposing a use that exceeds 10,000 gallons per day or 1,000,000 gallons per year must obtain a water appropriation permit from the DNR. Many of the agencies charged with regulating water usage are currently involved in assessing and addressing concerns of water usage. When and where feasible the City of Circle Pines will work with the associated agencies to be good stewards of water resources. The Minnesota Department of Health (MOH) is the official state agency responsible for addressing all environmental health matters, including groundwater protection. For example, the MOH administers the well abandonment program and regulates installation of new wells. The MPCA administers and enforces laws relating to pollution of the state's waters, including groundwater. The Minnesota Geological Survey provides a complete account of the state's groundwater resources. RCWD serves an advisory capacity with regard to groundwater protection and use. Its role is limited to cooperating and assisting the DNR, MOH and MPCA in their groundwater protection efforts.

The City's municipal well field consists of 2 wells ranging from 270 to 321 feet deep. These wells draw from the Quaternary Buried Artesian and Jordan-St. Lawrence aquifers.

The City of Circle Pines supports efforts to delineate, protect, and manage the recharge areas of the regional groundwater aquifers of the Twin Cities basin and believes this can be best accomplished at the regional/metropolitan level. The City has completed its Wellhead Protection Plan as of April 16, 2008. Groundwater appropriations are shown in **Figure 12. Figure 13** in **Appendix A** outlines the DWSMA sensitivity areas.

Anoka County has statutory responsibilities for groundwater management. The Current Anoka County Water Resources Management Report was adopted in October of 2014. The City of Circle Pines will work and coordinate with Anoka County to protect and enhance water resources within the City.

For areas of vulnerability, the City will incorporate the guidance developed by the MDH on evaluating proposed stormwater infiltration projects in vulnerable source water protection areas and also the guidance located within the Minnesota Stormwater Manual on designing infiltration BMPs while protecting groundwater. This will be of a particular concern in areas where infiltration is being considered in soils suitable for rapid infiltration adjacent to municipal and private wells.

**2.8. Hydrologic System and Data**

The City of Circle Pines is entirely within the RCWD watershed district. **Figure 5** in **Appendix A** is an index map showing all of the major drainage areas in the City. The major drainage areas are:

Baldwin Lake, County Ditch 53-62, Golden Lake, and Rice Creek. Each area is discussed in more detail below. Stormwater runoff rate and volume controls will be required to be in conformance with Watershed and State requirements.

With the additional precipitation data provided by Atlas 14, the City may choose to complete additional risk assessments for specific problem areas dependent upon funding.

### **2.8.1. Baldwin Lake Drainage Area**

The Baldwin Lake Drainage Area is located in the northeastern portion of the City. **Figure 5 in Appendix A** shows the specific location of the Baldwin Lake Drainage Area. The Baldwin Lake Drainage Area discharges into Rice Creek and into the City of Blaine. The 235-acre subwatershed is broken up into minor watersheds and includes ponding areas. Rice Creek is the dominant feature of this watershed.

### **2.8.2. County Ditch 53-62**

The 298-acre County Ditch 53-62 Drainage Area is located north of Lake Drive and extends north and west to the city boundaries. **Figure 5 in Appendix A** shows the specific location of the County Ditch 53-62 Drainage Area. These include lands that drain into Long Lake, downstream of Pike Lake. The Long Lake Drainage Area discharges into the Rice Creek Drainage Area.

### **2.8.3. Golden Lake Drainage Area**

The Golden Lake Drainage Area is located in the west central part of Circle Pines. This 169 acre subwatershed includes the lands that drain into Golden Lake and is upstream of the Rice Creek Drainage Area. The Golden Lake Drainage Area discharges into the Rice Creek Drainage Area.

### **2.8.4 Rice Creek Drainage Area**

The Rice Creek Drainage Area is located in the southern portion of Circle Pines extending north through the center of the City to Lake Drive. **Figure 5 in Appendix A** shows the specific location of the 537 acre Rice Creek Drainage Area as well as the Rice Lake Drainage Area in the northeast corner of the City which feeds into Baldwin Lake.

## **2.9. Natural Communities and Rare Species**

The Minnesota DNR produces the Minnesota County Biological Survey (MCBS) identifying natural communities and rare species. Completed in 1994, the Anoka County survey identifies where evidence indicates the presence of rare plants and animals. The survey shows no natural plant communities or rare species within the Circle Pines city limits. However, a rare animal was indicated on an island of Baldwin Lake just outside the city limits. The survey identified the original vegetation of Circle Pines as mostly oak openings and barrens, which consist of scattered trees and groves of oaks of scrubby form with some brush and thickets. The entire City of Circle Pines has been categorized according to the Minnesota Land Cover Classification System (MLCCS). **Figure 10 in Appendix A** shows a map of the MLCCS as classified.

## **2.10. NPDES Phase II**

The City of Circle Pines is required to have a Municipal Separate Storm Sewer System (MS4) permit through the MPCA's National Pollutant Discharge Elimination System (NPDES) Phase II Program. MS4s designated by rule are urban areas with populations over 10,000 or urban areas with populations greater than 5,000 with the potential to discharge to valuable or polluted waters. Permits for construction sites greater than one acre will also be required as part of Phase II.

As an MS4, the City will, as required, implement the following six minimum control measures:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Each of these measures is outlined and described in Section 6: Implementation, under Table 6.1. For more information on the MS4 Permit requirements refer to [www.pca.state.mn.us](http://www.pca.state.mn.us). Refer to **Appendix B** for a copy of the City's MS4 SWPPP (Storm Water Pollution Prevention Plan).

### 2.11. Water Resource Problem Areas

Water resource problem areas were identified through information obtained from City Staff, residents, and other agencies. Each site was analyzed and potential solutions to address the problems were developed as detailed in Section 4. Refer to **Figure 7** in **Appendix A** for the location of site-specific problem areas. The following is a list of some of the water resource problem areas within the City:

- Flooding and rate control issues at various locations
- Backyard drainage issues at various locations
- Water levels in landlocked basins
- Erosion and sedimentation of channels and creeks
- Deterioration of old corrugated metal pipe culverts
- Impaired surface waters: Golden Lake, Baldwin Lake

### 3. AGENCY COOPERATION

There are a number of local, state, and federal agencies that have rules and regulations related to water resource management. The City recognizes the roles of these other agencies and will cooperate, coordinate, and when possible partner with these 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 Creek Watershed District [www.ricecreek.org](http://www.ricecreek.org)
- Anoka Conservation District <http://www.anokaswcd.org/>
- Anoka County <https://www.anokacounty.us/>
- Minnesota Pollution Control Agency [www.pca.state.mn.us](http://www.pca.state.mn.us)
- Minnesota Department of Health [www.health.state.mn.us](http://www.health.state.mn.us)

- Board of Water and Soil Resources [www.bwsr.state.mn.us](http://www.bwsr.state.mn.us) and the Wetland Conservation Act [www.bwsr.state.mn.us/wetlands/wca/index.html](http://www.bwsr.state.mn.us/wetlands/wca/index.html)
- Minnesota Department of Natural Resources [www.dnr.state.mn.us](http://www.dnr.state.mn.us)
- US Army Corps of Engineers <http://www.usace.army.mil/>
- Minnesota Department of Agriculture [www.mda.state.mn.us](http://www.mda.state.mn.us)
- US Fish and Wildlife Service [www.fws.gov](http://www.fws.gov)
- Minnesota Environmental Quality Board [www.eqb.state.mn.us](http://www.eqb.state.mn.us)
- Metropolitan Council [www.metrocouncil.org](http://www.metrocouncil.org)

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 [www.pca.state.mn.us/water/stormwater/stormwater-manual.html](http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html).

#### 4. ASSESSMENT OF PROBLEMS AND ISSUES

Outlined below is an assessment of existing and potential water resource-related problems that are known at this time. These problems have been identified based on an analysis of the land and water resource data collected during the preparation of this plan and through information provided by the City, its residents, and the watershed organizations. A description of any existing or potential problem within the City has been listed and potential future corrective actions have been incorporated into an implementation plan. Refer to **Figure 7** in *Appendix A* for the location of many of the problem areas discussed below.

##### Problems & Corrective Actions

#### 4.1. Financing and Partnerships

*Problem 4.1.A.* The City of Circle Pines is unable to completely fund the implementation of TMDL projects solely from the City's Stormwater Utility Fund.

*Corrective Action 4.1.A* The City will continue to develop a partnership with the RCWD as well as other state and regional agencies in an effort to secure important grant dollars for TMDL implementation.

*Problem 4.1.B* The Golden Lake TMDL was adopted by the EPA on September 30, 2009 and received by the MPCA Commissioners Office on October 5, 2009. Currently the RCWD Stormwater CIP, completed in 2010, does not include Golden Lake restoration efforts.

*Corrective Action 4.1.B* The City of Circle Pines will collaborate with the RCWD as they begin to update their Stormwater CIP to include Golden Lake restoration efforts and levy funds for implementation projects.

#### 4.2. Water Quality Problems

*Problem 4.2.A* Degradation of water quality in Golden Lake. Additionally, Golden Lake has an approved TMDL for nutrients.

*Corrective Action 4.2.A* The City will operate and maintain a Golden Lake Wetland Treatment System and a lake aeration system in Golden Lake. The City will participate in the implementation of the TMDL for Golden Lake. The City will also develop and implement a plan to provide treatment for stormwater runoff prior to discharge to Rice Creek, Golden Lake, County Ditch 53-62, and Baldwin Lake where reasonable and practical to do so. The City will work with the Watershed District and/or upstream communities to improve the quality of water resources. The City of Circle Pines is currently partnering with Anoka Conservation District to design and construct an iron-enhanced sand filter for treatment prior to Golden Lake.

*Problem 4.2.B* RCWD prioritization of Golden Lake TMDL implementation efforts.

*Corrective Action 4.2.B* The City encourages the RCWD to reprioritize their funding to make the Golden Lake TMDL of the highest priority to allow its completion to take place as soon as possible.

*Problem 4.2.C* Rice Creek is listed as impaired water for biota.

*Corrective Action 4.2.C* The City will assist other partners in the implementation of the TMDL. The City will operate and maintain the Golden Lake Wetland Treatment System and lake aeration system. The City will work with RCWD and/or upstream communities to improve the quality of water resources.

*Problem 4.2.D* A TMDL was recently completed for the Upper Mississippi River to address the water quality standard for E. coli.

*Corrective Action 4.2.D* The Upper Mississippi River TMDL addresses reducing E. coli loading for different stream reaches in the metro area, including Rice Creek. The City continues to educate its residents on the importance of cleaning up after their pets to reduce pollutants entering the stormwater system. The City also has in place an ordinance requiring adequate disposal of animal waste from on public and private property. BMPs that are constructed will continue to provide some removal of E. coli prior to stormwater discharge into receiving water bodies. The City continues to administer a goose management plan of trapping geese around Golden Lake to reduce goose waste.

*Problem 4.2.E* The City of Circle Pines was assigned a categorical wasteload allocation (WLA) for Rice Lake and Baldwin Lake as regulated under the NPDES permit. These WLAs were approved as part of the Lino Lakes Chain of Lake Nutrient TMDL.

*Corrective Action 4.2.E* The City will continue to meet the requirements of the MS4 permit. The City will also continue to enforce RCWD Rules C and D as the LGU permitting authority to ensure that water quality requirements are being met for new and re-development. Areas to maximize stormwater treatment will be identified as development occurs.

### **4.3. Flooding or Stormwater Rate Control Concerns between the City of Circle Pines and Adjoining Communities**

*Problem 4.3.A* High flow rates and high water levels in Rice Creek, the Rice Creek Chain of Lakes, and County Ditch 53-62 have been noted.

*Corrective Action 4.3.A* The City will work with the Rice Creek Watershed District to manage flooding and rate control concerns experienced within the City. Mitigation and flood control work will be completed as deemed necessary and feasible by the City of Circle Pines.

### **4.4. Impacts of Water Quantity or Quality Management Practices on Recreational Opportunities**

*Problem 4.4.A* The City has experienced impacts to recreational opportunities in Golden Lake as the result of either water quantity or quality impacts including sedimentation, excessive algae growth, and variation in water levels.

*Corrective Action 4.4.A* The City will continue work toward the completion of the Golden Lake TMDL and associated programs. The City will also continue to work with the Watershed District to improve water quality in Ditch 53-62.

#### **4.5. Impacts of Stormwater Quality on Fish and Wildlife Resources**

*Problem 4.5.A* The City has experienced impacts to fish and wildlife resources due to pollution and sediment loading in Golden Lake.

*Corrective Action 4.5.A* The City will continue to operate and implement the Golden Lake restoration project and will work with the Watershed District to maintain the wetland treatment system for improving the water quality in County Ditch 53-62.

#### **4.6. Impacts of Soil Erosion on Water Quality and Water Quantity**

*Problem 4.6.A* In the past, soil erosion, particularly upstream in the City of Blaine, has degraded the quality of water in Ditch 53-62 with sediment loads which are then transferred to Golden Lake. The City of Blaine has addressed this issue to the extent necessary and does require new development to meet Watershed District standards.

*Corrective Action 4.6.A* The City will periodically inspect and remove sediment in the wetland treatment system to improve the water quality in Ditch 53-62 before entering Golden Lake. The Rice Creek Watershed District and upstream communities will be responsible for control of the upstream erosion problem.

#### **4.7. The Adequacy of Programs to Maintain Water Level Control Structures**

*Problem 4.7.A* The City has a program to maintain water level control structures

*Corrective Action 4.7.A* The City will implement the stormwater system maintenance program outlined in the City's Stormwater Management Plan. This system maintenance includes the annual inspection of the Golden Lake outlet/dam and periodic inspection of debris deposition and cleaning of deposition.

#### **4.8. The Adequacy of Capital Improvement Programs to Correct Problems relating to Water Quality**

*Problem 4.8.A* The City currently has limited funding sources available but will also attempt to secure grant funding through available programs to assist in funding some activities.

*Corrective Action 4.8.A* Stormwater funds and special assessment funding are not adequate to implement the studies, programs and capital improvements outlined in this plan. The City must apply for grants to fund the implementation of capital improvements identified in this management plan. The City may establish a fund for stormwater system maintenance.

Given the amount of fees that Circle Pines' residents have paid in taxes to the RCWD over the past 10 years, the City looks forward to collaborating with RCWD to fund more projects that will have a direct benefit to its residents. The City would be willing to collaborate with RCWD to identify the specific need for additional grant funding from the watershed and to identify feasible projects.

#### **4.9. Impact of Land Use Practices and Development on Water Resource Issues**

*Problem 4.9.A* The City of Circle Pines is near full development and contains varying topography with the presence of many different soil classifications. These conditions can make it difficult for the City to implement stormwater management BMPs to efficiently meet watershed requirements on a site by site basis.

*Corrective Action 4.9.A* The City will investigate opportunities to implement water quality and volume reduction BMPs during future reconstruction projects. In areas where project specific BMPs will be unfeasible, the City will look into completing regional water quality improvement projects, such as water reuse BMPs, to help meet future stormwater management requirements. The City would be interested in collaborating with RCWD to help identify opportunities for stormwater reuse.

*Problem 4.9.B* The majority of the City is served by a sanitary sewer collection system that conveys sanitary sewage to a treatment plant. However, there is one subsurface sewage treatment system (SSTS) in operation within the City.

*Corrective Action 4.9.B* The City will continue to work with the County to ensure that the SSTS remains in compliance and encourage connection to City sewer when feasible.

*Problem 4.9.C* The City of Circle Pines currently has a volume debit with RCWD of -24,623 cubic feet.

*Corrective Action 4.9.C* The RCWD Board of Managers took two actions regarding volume bank system debits:

1. Debit or credit could be addressed or utilized in non-public linear projects;
2. Cities could address debit using nonvolume control practices, with water quality treatment volume calculated in accordance with the current rule methodology.

The City will consider potential projects to address this debit as part of future street reconstruction and redeveloping areas, where feasible and cost effective. The City will coordinate with RCWD as potential sites become available for appropriate stormwater BMPs.

#### **4.10. Education Program**

*Problem 4.10.A* The City of Circle Pines recognizes the need for water resource education programs to increase public awareness of water resource management and improve the quality of stormwater runoff.

*Corrective Action 4.10.A* The City of Circle Pines will continue to provide educational content and opportunities to residents, businesses, developers, and others. These efforts may include regular notices in the City's monthly newsletter, articles in the local paper, postings on the City website, and flyers in the utility bill. The City may work with Rice Creek Watershed District to improve the efficiency of educational efforts and reduce duplication. Educational topics may include but are not limited to:

- Wetland buffers
- Yard/Pet waste management
- Illicit discharge to stormwater
- Utility Easements
- Stormwater Basin Function
- Controlling invasive species

#### **4.11. Identification of Potential Problems which are Anticipated in the Next 20 Years.**

*Problem 4.11.A* Inspecting and maintaining existing stormwater infrastructure throughout the City.

*Corrective Action 4.11.A* The City of Circle Pines is responsible for maintenance of its stormwater system in conformance with the MPCA's MS4 Program. This includes maintenance of pipes, constructed ponds, lakes, wetlands, ditches, swales, and other drainage ways. Proper maintenance will ensure that the stormwater system continues to provide the necessary flood control and water quality treatment.

Refer to **Appendix B** for a copy of the City SWPPP. Other units of government are responsible for maintaining the stormwater systems under their control.

For Example:

- Anoka County is responsible for maintaining storm sewer catch basins and leads in the county roads; however, the City is responsible for maintaining the trunk storm sewer lines.
- RCWD is responsible for maintaining the function of the District's public drainage system.
- Owners of private stormwater facilities are responsible for maintaining their facilities in proper condition, consistent with the original performance design standards. Responsibilities include removal and proper disposal of all settled materials from ponds, sumps, grit chambers, and other devices, including settled solids. The City/RCWD may inspect private stormwater facilities and notify the owners of needed cleaning and repairs.

*Problem 4.11.B* Increase in accumulation of debris and material on City Streets.

*Corrective Action 4.11.B* The City will continue to sweep debris and salt from City streets. More information regarding street sweeping activities can be found in the SWPPP in **Appendix B**.

*Problem 4.11.C* Future changes in peak water elevation at storage areas and/or critical road crossings within the City.

*Corrective Action 4.11.C* At this time, RCWD modeling did not identify specific areas within Circle Pines that are at risk for flooding due to future land use changes. The City will collaborate with RCWD to mitigate any potential flooding identified in future modeling efforts.

#### **4.12. Availability and Adequacy of Existing Technical Information to manage Water Resources**

*Problem 4.12.A* Atlas 14 (updated precipitation probability information) was recently released by NOAA (National Oceanic and Atmospheric Administration).

*Corrective Action 4.12.A* The City has adopted Atlas 14 to replace TP-40 (existing precipitation probability information). The City will continue to update its policies, codes, ordinances, and other appropriate documents as necessary.

*Problem 4.12.B* The City has completed a wetland inventory but has not completed a City-wide wetland classification to assess the quality of all wetlands within the City.

*Corrective Action 4.12.B* The City will investigate completing a City-wide MnRAM (Minnesota Routine Assessment Method) assessment to determine the functions and values of each wetland.

Until this City-wide study is complete, the City will continue to perform a MnRAM assessment on a site by site basis as required by development or construction activity that is impacting wetlands.

*Problem 4.12.C* The City has mapped the majority of its storm sewer system. As new and redevelopment projects are completed, the storm sewer GIS database needs to continually be updated.

*Corrective Action 4.12.C* The City will annually update its storm sewer GIS database to incorporate recent projects and associated storm sewer improvements.

*Problem 4.12.D.* The City needs to utilize the most up-to-date data and hydrologic modeling to ensure plan reviews are completed properly.

*Corrective Action 4.12.D* The RCWD has completed watershed-wide hydraulic and hydrologic models that includes the City of Circle Pines as part of their District-wide Modeling Program. These models include SWMM models for public drainage systems into Rice Creek, direct drainage into Rice Creek, water quality models, Future Conditions Modeling, and a HEC-RAS model for Rice Creek. The City is responsible for the use of the RCWD's models and concurs with model assumptions. The City understands that District models are continually evolving, and the City is subject to conditions for use of the model, including accepting the responsibility for model outputs.

The City intends to use the models for assessment of floodplain alterations as part of Rule E, peak rate requirements and intercommunity flows for Rule C, project design and permitting, identification of flood prone areas, and for sizing stormwater infrastructure. When the City requires use of District Models, a license agreement will be signed. When this occurs, the City will regularly coordinate with the RCWD to data-share any updated component of the models.

## **5. GOALS AND POLICIES**

### **5.1. General**

The goals and policies in the City of Circle Pine's Local Surface Water Management Plan are consistent with the goals of the Rice Creek Watershed District (RCWD) while meeting the more specific and changing needs of the City. The goals of this plan were established in accordance with the guidelines contained in Minnesota Statutes 1038 and Minnesota Rules 8410. Furthermore, each goal has several corresponding policies. These goals and policies provide for future development and redevelopment while minimizing surface water problems and enhancing the environment. These goals and policies are subject to conformance with current Watershed District policies and standards.

With the adoption of RCWD Rule C, D, E, and F by reference in 2016, the City of Circle Pines is currently the permitting authority for areas within its jurisdictional boundary within the RCWD. Execution of an MOU between the RCWD and City of Circle Pines was completed to transfer rule authority in 2016. The City currently administers RCWD Rules C, D, E, and F. The City adopts and enforces the most recent RCWD Rules, which can be found at [www.ricecreek.org](http://www.ricecreek.org). Additional goals and policies of the City are contained throughout this section.

A general goal of the City is to cooperate, collaborate, and partner with other entities, such as the Watershed District and the MPCA as much as possible as the City implements this plan.

Cooperation, collaboration, and partnering results in projects that are less likely to conflict with the goals of the affected entities, are better able to meet long-term goals, and are generally more cost-effective.

In addition to the goals and policies outlined below, the City will annually review and update its Storm Water Pollution Prevention Plan (SWPPP) to effectively manage its stormwater system and be in conformance with the NPDES MS4 Program. Refer to **Appendix B** for the most recent version of the City SWPPP.

The City of Circle Pines had previously designated the Rice Creek Watershed District (RCWD) as the Local Governmental Unit (LGU) responsible for wetland management within its jurisdictional boundaries. However, with the execution of an MOU between the RCWD and the City, the City has obtained the ability to assume LGU responsibilities in conformance with Minnesota Rules Chapter 8420 as developed by the Board of Water and Soil Resources on June 26, 2018.

**5.2. Water Quality**

**5.2.1. Limit public capital expenditures that are necessary to control excessive volumes and rates of runoff.**

**5.2.2. Policies**

1. Circle Pines will develop Comprehensive Stormwater Management Plans (CSMP) for required treatment as an alternative approach to meeting the requirements of RCWD Rule C, sections 6 and 7. The RCWD is required to approve any CSMP.
2. Any development or redevelopment within the City of Circle Pines will be required to manage stormwater in conformance with the policies and content of the City's Comprehensive Stormwater Plan, the Rice Creek Watershed District rules, and all previous agreements the City has entered into for stormwater management.
3. The design of all major stormwater storage facilities shall attempt to accommodate a 100-year critical duration storm event. These facilities include lakes, ponds, and their outlets. New storm sewer systems shall be designed to accommodate a 10-year critical duration event.
4. For new development and redevelopment, future stormwater runoff rates must be less than or equal to the existing runoff rates for the critical 2-year, 10-year, and 100-year events.
5. Any new development or redevelopment within the City will require a minimum building opening of 2-ft above the anticipated 100-year high water elevation. However, if this 2-ft freeboard requirement is considered a hardship, the standard could be lowered to 1-ft if the developer can demonstrate the following:
  - i. That within the 2-ft freeboard area, stormwater storage is available which is equal to or exceeds 50% of the stormwater storage currently available in the basin below the 100-year elevation.
  - ii. That a 25% obstruction of the basin outlet over a 24-hour period would not result in more than 1-ft of additional bounce in the basin.
  - iii. An adequate overflow route from the basin is available that will provide assurance 1-ft of freeboard will be maintained for the proposed low building opening.

Freeboard	Regional Flood Elevations		Detention Basins, Wetlands & Stormwater Ponds		Infiltration and Biofiltration Basins			Rain Gardens
	100 -yr	EOF	100-yr	EOF	Bottom	100-yr	EOF	EOF
Low Floor	2.0 ft	1.0 ft	0.0 ft	NA	0.0 ft	NA	NA	NA
Low Entry	NA	NA	2.0 ft	1.0 ft	NA	2.0 ft	1.0 ft	.5 ft
Groundwater	NA	NA	0.0 ft	0.0 ft	3.0 ft	NA	NA	3.0 ft

6. The City will require setting minimum basement floor elevations to an elevation that meets the following criteria:
  - i. Basement floor elevations adjacent to landlocked basins will be required to be 2-ft higher than the highest water level of either the 10-day snowmelt event or back-to-back 100 year, 24-hour rainfalls.
  - ii. The basement floor elevation will be 2-ft above the elevation of any known historic high groundwater elevations for the area. Information on historic high groundwater

- elevations can be derived from any reasonable sources including piezometers, soil borings, percolation tests, etc.
- iii. The basement floor elevation will be 2-ft above the 100-year high water elevation for the area unless it can be demonstrated that the basement floor will be 1-ft above the highest anticipated groundwater elevation that could result from the high surface water elevations during a 100-year critical duration rainfall event. The impact of high surface water elevation on groundwater elevations in the vicinity of the structure can take into consideration that site's distance from the flood plain area, the soils, the static groundwater table and historic water elevations in the area.
  - v. Certified surveys verifying the permitted low floor elevations are required to issue a certificate of occupancy.
7. Wetlands will be protected within the City boundaries to assure that the value of wetlands in relation to their surface water quantity benefits are not significantly impacted by development. As stated in the City's Stormwater Management Ordinance, impacts on wetlands shall be in compliance with the Wetlands Conservation Act, and managed in accordance with RCWD Rule F which the City adopts by reference.
  8. It is the intention of the City to utilize natural ponding areas such as wetlands for the impoundment and treatment of surface water runoff in accordance with RCWD rules, as well as State and local laws and with policies outlined in the Stormwater Management Plan only if it can be shown that the functions and values of the wetland will not be adversely affected by excavation, substantially increased sediment load, tributary area, or water level fluctuations. These natural ponding areas are preferred over impoundments constructed in upland areas.
  9. The City may provide an outlet to landlocked basins, provided that the following can be demonstrated:
    - i. The 10-day, 100-year average runoff rate will not increase.
    - ii. The downstream flood profile will not be significantly impacted by increased discharge rates or volumes.
    - iii. Wetlands will not be dewatered (unless exempt as per the Wetland Conservation Act and Watershed District Rules).
    - iv. The stormwater storage volume below the outlet elevation is at least equal to the runoff generated from back-to-back 100 year, 24-hour rainfall events.
  10. The City will require compensatory storage equal to the storage losses resulting from floodplain fill. The City will, in accordance with RCWD Rule E, allow for a one-time fill of 10 cubic yards.
  11. The City will encourage the use of Best Management Practices (BMP'S) to promote infiltration of precipitation such as the use of grass swales and parking lot size reduction.
  12. Infiltration of the first 1.1 inch of runoff is required for all projects, except public linear projects from the new impervious surface area created by the new projects where there are A and B soils and where previous or existing land uses are appropriate for infiltration. Infiltration of the first  $\frac{3}{4}$  inch of runoff will be required for public linear projects. For Water Quality Treatment Standard infiltration requirement equations see RCWD Rule C.6.
  13. Flood fringe encroachment within shoreland areas associated with public waters is not allowed except for in conformance with RCWD Rule E.3, and subsequent DNR regulations.
  14. The RCWD requires easements for open channel systems which are a variable width measured perpendicular to the direction of flow, to include the open channel itself and all areas within 16.5 feet from the top of the ditch bank.

15. For compensatory storage in wetland basins not wholly contained within a developer's property, compensatory live storage equal to or greater than the increased volume of runoff resulting from development will be required to protect downstream landowners and prevent the incremental volume and rate increased resulting from wetland fill. As such, the City adopts by reference RCWD Rule F.
  
16. The City will continue to implement the City of Circle Pines Local Surface Water Management Plan, as well as work with the County, Rice Creek Watershed District, bordering municipalities, DNR, and SWCD to maintain the tangible and intrinsic values of natural storage retention systems within the City.

### **5.3. Water Quality**

#### **5.3.1. Goal**

Maintain or improve the quality of water in lakes, streams, and wetlands within or immediately downstream of the City of Circle Pines.

#### **5.3.2. Policies**

1. Circle Pine's water quality program seeks to replenish wetlands and lakes with clean water and maintain base flow in streams by letting runoff absorb into the ground.
2. Circle Pines requires that stormwater infiltration facilities include sufficient water quality pretreatment to preserve the function of these facilities.
3. Circle Pines will develop Comprehensive Stormwater Management Plans for required treatment as an alternative to meeting RCWD Rules C.6 and C.7 for individual permits. These plans will be allowed in defined areas, and only as deemed appropriate to meet the intent of providing regional planning within Resource Areas of Concern. The RCWD is required to approve any CSMP.
4. The City incorporates by reference the "Minnesota Stormwater Manual" for the use and design of stormwater management Best Management Practices (BMP's). This manual can be viewed at [www.pca.state.mn.us/water/stormwater/stormwater-manual.html](http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html).
5. The City has developed a stormwater drainage system maintenance plan. This plan was developed to assure that the retention/treatment basin clean out and maintenance was addressed to the extent that is feasible and practical and to meet the requirements of the NPDES permit. The goal of this plan is to assure that the City's retention and treatment basins will have the capability to retain and treat stormwater in future years and includes TMDL requirements for phosphorus.
6. The City will adopt the Minnesota Pollution Control Agency "Individual Wastewater Treatment System Regulations" within three months of Stormwater Management Plan approval to ensure the two individual systems in the City located at 4573 County Road J and 4571 County Road J stay in compliance.
7. The City's preferred method to achieve desired water quality standards, specifically for TMDL requirements for phosphorus, as well as total suspended solids (TSS) reduction is through its volume management policies.
8. The design and construction of all new stormwater conveyance systems, and modifications to existing stormwater conveyance systems, must be designed to meet NURP water quality standards.
9. For stormwater discharged to slightly and least susceptible wetlands, storm water must be treated to remove 75% of the sediment.
10. The City of Circle Pines will sweep the streets at least two (2) times annually. Furthermore, future purchases of street sweeping units will give consideration to street

- sweepers which have the greatest ability to remove nutrients from the streets within the community.
11. The City will encourage homeowners with properties adjacent to water resources to establish a vegetative buffer strip at the shoreline. This strip should consist of legumes or other perennial grasses to limit erosion and nutrient transport across the buffer strip.
  12. The City has completed an MS4 permit which outlines the maintenance requirements of its stormwater system. This plan has been developed to assure that the retention/treatment basin clean out and maintenance will be addressed to the extent that is feasible and practical.
  13. The City will develop and implement a water quality monitoring program capable of establishing that the stormwater treatment basins constructed within the City are not only designed to NURP standards, but also meet the anticipated design removal efficiencies based on actual monitoring of the system. This program will be carried out to the extent deemed necessary and reasonable by the Circle Pines City Council. The City will keep the RCWD informed of all water quality monitoring program updates.
  14. For areas within the City that are redeveloping, projects that create or reconstruct 10,000 square feet or more of impervious surface will require a permit. This does not include public linear projects. For public linear projects, a permit is required to create 10,000 square feet or more of impervious surface through multiple phases or connected actions of a single complete project, as defined by the District, within a Resource of Concern Drainage Area.
  15. Flood fringe encroachment within shoreland areas associated within public waters is not allowed except for in conformance with RCWD Rule E.3, and subsequent DNR regulations.
  16. Any new development or redevelopment shall show sufficient drainage and ponding easements over hydrologic features such as floodplains, storm sewers, ponds, ditches, swales, wetlands, and waterways.
  17. All new and redeveloped stormwater management structures and facilities shall be maintained in perpetuity either through dedication of the facilities to the City through an easement or through a maintenance agreement between the landowner and the City.
  18. The City will partner with the Anoka Conservation District (ACD) to design and construct an iron-enhanced sand filter adjacent to Golden Lake to remove nutrients from runoff prior to entering Golden Lake.
  19. The City will continue to work with the Anoka Conservation District (ACD), Rice Creek Watershed District (RCWD), and MPCA (NPDES program) to implement Best Management Practices.

## **5.4. Runoff Management and Flood Control**

### **5.4.1 Goal**

Limit public capital expenditures that are necessary to control excessive volumes and rates of runoff.

### **5.4.2. Policies**

1. Any development or redevelopment within the City of Circle Pines will be required to control runoff to the extent necessary to be consistent with this plan.
2. Areas located within RCWD's Flood Management Zone one shall provide peak rate control for the 2, 10, and 100 year 24-hour rainfall events beyond the existing condition

- peak rate by reducing the peak rate to less than 80% of the existing condition. This requirement does not apply if the project is a Public Linear Project.
3. The design of all major stormwater storage facilities shall attempt to accommodate a critical duration event with a 1 % chance of occurrence in any given year. These facilities include lakes, ponds, and their outlets. New storm sewer systems shall be designed to accommodate a critical duration event with a 10% chance of occurrence in any given year.
  4. Any new or redevelopment within the City will be required to meet the low floor and low entry freeboard requirements as shown in Table 5.1 of this LSWMP.
  5. Wetlands will be protected within the City boundaries to assure that the value of wetlands in relation to their surface water quantity benefits are not significantly impacted by development.
  6. The City will be allowed to discharge water from landlocked basins provided that the rates and volumes of water discharged from the area will be limited to the maximum extent reasonable taking into consideration downstream impacts, and complies with RCWD Rule C.5(e).
  7. The City will require compensatory storage equal to the storage losses resulting from floodplain fill. All floodplain permitting activities shall be subject to the respective flood sector requirements as assigned by Rice Creek Watershed District.
  8. Development that results in the creation of impervious surfaces must explicitly address use of best management practices (BMPs) to first limit the loss of pervious area; and second, to:
    - a. infiltrate runoff which does occur from impervious areas to the extent feasible considering site-specific conditions and/or
    - b. reuse runoff for irrigation and other appropriate uses
  9. All new and redeveloped stormwater management structures and facilities shall be maintained in perpetuity either through dedication of the facilities to the City through an easement or through a maintenance agreement between the landowner and the City. The City of Circle Pines prefers the development of municipal drainage system whenever possible to the development of private drainage systems shall attempt to accommodate existing drainage systems including tile lines. Existing drainage systems will be protected and drainage perpetuated.

## **5.5. Wetlands**

### **5.5.1. Goal**

The City of Circle Pines will protect and manage wetlands in conformance with the requirements of the Wetland Conservation Act of 1991.

### **5.5.2. Policies**

1. Policies in areas such as volume management and water quality reduce the degradation of wetlands which preserves them as areas of ground water recharge.
2. Through the completion of this Local Surface Water Management Plan, and adoption by Reference of RCWD Rule F, and execution of an MOU between the City and the permitting as outlined by RCWD Rule F.
3. Prior to any site development activities, the City will require a site inspection to identify the location and extent of any wetlands present. The proponent of the site development shall have the burden of providing to the City a report showing the onsite inspection and delineation of all wetland areas by a qualified consultant. If any wetland encroachment is

proposed, wetland values and impacts will be evaluated on a case by case basis in conformance with the rules associated with the Wetland Conservation Act of 1991 and those of the Watershed District. A functions and values assessment utilizing MnRAM will be required for all proposed wetland alterations. For any alteration of a wetland not regulated by WCA, a functions and values assessment must be completed. If it is determined that the functions and values of the wetland will be diminished, replacement must be at a 1:1 ratio.

4. Any review of a proposed wetland encroachment will initially address the issue of avoidance. It will be the City's policy that prior to allowing any wetland encroachment; all reasonable attempts to avoid such alteration must be demonstrated. This avoidance review must also consider the reasonableness of the no build alternative.

## **5.6. Erosion and Sediment Control**

### **5.6.1. Goal**

Protect the capacity of the City's stormwater management system by preventing erosion and sedimentation from occurring and correcting existing erosion and sedimentation problems.

### **5.6.2 Policies**

1. Outlined in the City's Stormwater Management Ordinance, Circle Pines policies reduce runoff volume which prevents erosion in streams by preventing increases in stream flow. The City's Stormwater Management Ordinance has been updated to include Rice Creek Watershed District permitting rules, which includes sites under one acre.
2. Erosion and sedimentation control plans shall be reviewed and enforced by the City of Circle Pines for all new developments, redevelopments, and additions to existing sites. These plans shall conform to the general criteria set forth in the Minnesota Pollution Control Agency Division of Water Quality Document "Protecting Water Quality in Urban Areas", and Met Council's "Minnesota Urban Small Site BMP Manual".
3. The City will sweep the streets at least two (2) times annually. Furthermore, future purchases of street sweeping units will give consideration to street sweepers which have the greatest ability to remove nutrients from the streets within the community.
4. Erosion and sediment control plan must be submitted in accordance with RCWD rule D.2.a Measures must be installed prior to land altering activities and routinely inspected and maintained by the owner during the project until final turf and ground cover is established to a density of 70%. In addition, activity subject to a permit under rule D must conform to the standards of the NPDES construction general permit. The City's Stormwater Management Ordinance adopts RCWD's Rule D by Reference.

## **5.7. Groundwater**

### **5.7.1. Goals**

Protect the quality and quantity of groundwater resources.

### **5.7.2. Policies**

1. The City will promote and coordinate with other agencies the continuation of existing groundwater monitoring, inventorying, or permitting programs
2. The City encourages the development of spill prevention, control, and counter measure plans that are consistent with State and/or Federal regulations for industrial facilities within its borders and for its own facilities, as well.

3. The City will encourage preservation of wetlands, ponds, and parks to encourage infiltration of precipitation in areas where land use is not anticipated to adversely affect surface water runoff.
4. The City will cooperate with Anoka County Environmental Health Department to ensure that all unsealed or improperly abandoned wells within the watershed are properly sealed. Technical requirements for the abandonment of these wells will be in conformance with the Minnesota Department of Health Water Well Code.
5. The City will enforce its well head protection plan in accordance with State requirements.

## **5.8. Shoreland Management**

### **5.8.1. Goal**

Protect and enhance fish and wildlife habitat and recreational opportunities.

### **5.8.2. Policies**

1. The City will work with and support to the maximum extent practical the efforts of Minnesota Department of Natural Resources, the Army Corps of Engineers, the United States Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Watershed Districts, and other appropriate agencies in promoting public enjoyment and protecting fish, wildlife, and recreational resource values in the City.
2. Preserve wetlands that provide habitat for wildlife and spawning of fish.
3. The City will encourage land owners to maintain wetlands and open space areas for the benefit of wildlife.
4. The City has adopted by reference RCWD Rule F, and enforces its Stormwater Management Ordinance which requires that all impacts on wetlands be in compliance with the Wetland Conservation Act.

## **5.9. Education and Public Involvement**

### **5.9.1. Goals**

Increase public awareness, understanding and involvement in water and natural resource management issues.

### **9. 2. Policies**

1. The City will prepare and distribute a mailing to city residents a minimum of one time per year that provides information on pertinent water management issues. This mailing will provide an opportunity for residents to participate in watershed management activities.
2. The City will implement the public education requirements of NPDES Phase II. A copy of the description of the program to be implemented by the City is included in the MS4 SWPPP Application for Reauthorization located in Appendix B.
3. Coordinate education efforts with RCWD, ACD, Met Council and other agencies where appropriate.

## **5.10. Public Ditch Systems**

### **5.10.1. Goal**

Continue to work with the public ditch authorities to ensure systems are properly managed and maintained.

**5.10.2. Policies**

1. Work with the Rice Creek Watershed District to assure they adequately inspect, maintain and repair ACD 53-62 within the City.
2. The City of Circle Pines will maintain ditches in conformance with their MS4 permit, and City ordinances.

**6. Implementation Program**

**6.1. Implementation Program Components**

Table 6.1 contains a comprehensive list of the MS4 activities and projects, programs, and studies that make up the City of Circle Pines implementation program for the next 10 years (2018 through 2027). The City developed this program by evaluating the requirements in the MS4 permit (see MS4 SWPPP Application for Reauthorization in Appendix B), reviewing existing information (Section 2), identifying potential and existing problems (Section 4), developing goals and policies (Section 5), and then assessing the need for programs, studies or projects. The City estimated total costs, identified possible funding sources, and developed an approximate schedule to complete the implementation activities. It is anticipated these tables will be updated/revised on a yearly basis.

**6.2. Implementation Priorities**

The implementation components listed in Table 6.1 were prioritized to make the best use of available local funding, meet MS4 Permit requirements, address existing water management problems, and prevent future water management problems from occurring. Table 6.1 identifies which activities are MS4 Permit Requirements, MS4 Permit Requirements -within 12 months, Annual Requirements, or Capital Projects/Programs/Studies. The City's implementation plan reflects its responsibility to protect the public health, safety and general welfare of its citizens by addressing problems and issues that are specific to the City of Circle Pines.

**6.3 Financial Considerations**

The City plans to use funds generated from its Stormwater Utility as the primary funding mechanism for its implementation program including; maintenance, repairs, capital projects, studies, etc. If funds from this utility fee do not cover necessary costs, the City will consider adjusting the Stormwater Utility Fee as well as using general funds to cover associated costs. The City will continue to review the stormwater utility fee annually and adjust based on the stormwater related needs of the City and other funding mechanisms.

Although not proposed at this time, the City may consider using plan implementation taxes (MN Statutes 1038.241) in the future if general funds or stormwater utility funds are not sufficient to fund the projects. The City will also take advantage of grant or loan programs to offset project costs where appropriate and cost-effective.

**6.4 Plan Revision and Amendments**

The City may need to revise this Plan to keep it current. Any amendments that are made to the plan must be submitted to the RCWD and Metropolitan Council for review and approval before

adoption by the City. The City may amend this plan at any time in response to a petition by a resident or business. Written petitions for plan amendments must be submitted to the City Administrator. The petition must state the reason for the requested amendment, and provide supporting information for the City to consider the request. The City may reject the petition, delay action on the petition until the next full plan revision, or accept the petition as an urgent issue that requires immediate amendment of the plan. The City of Circle Pines may also revise/amend the plan in response to City-identified needs. This Plan is intended to be in effect for 10 years. The Plan will be revised/updated at that time, to the extent necessary.

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**LOCAL SURFACE WATER MANAGEMENT PLAN**

**FOR THE**

**CITY OF CIRCLE PINES, MINNESOTA**



**July 2018**

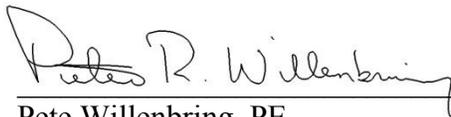
**Prepared By:**

**WSB & Associates, Inc.  
701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416  
763-541-4800  
763-541-1700 (Fax)**

## CERTIFICATION

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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 Registered Professional Engineer under the laws of the State of Minnesota.



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Pete Willenbring, PE  
Reg. No. 15998

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# SECTION 1

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## 1. EXECUTIVE SUMMARY

### 1.1. Surface Water Management Plan Purposes

The City of Circle Pines *Surface Water Management Plan* (plan, City plan, local plan, SWMP) is a local management plan that meets the requirements of Minnesota Statutes 103B.235, Minnesota Rules 8410, and the Rice Creek Watershed District (RCWD) *Watershed Management Plan (adopted January 4, 2010 and amended November 9, 2016)*. Minnesota Statute 103B.201 states that the purposes of the water management programs are to:

- Protect, preserve, and use natural surface and groundwater storage and retention systems;
- Minimize public capital expenditures needed to correct flooding and water quality problems;
- Identify and plan for means to effectively protect and improve surface and groundwater quality;
- Establish more uniform local policies and official controls for surface and groundwater management;
- Prevent erosion of soil into surface water systems;
- Promote groundwater recharge;
- Protect and enhance fish and wildlife habitat and water recreational facilities; and
- Secure the other benefits associated with the proper management of surface and groundwater.

The Circle Pines Surface Water Management Plan addresses these purposes.

### 1.2. Water Resource Management Responsibilities and Related Agreements

A Well Head Protection Plan was approved by the Minnesota Department of Health on April 16<sup>th</sup>, 2008. Future agreements could include joint powers agreements between the City and Watershed Management Organizations having jurisdiction within its boundaries, agreements between the City and adjoining communities, or agreements with other governmental units or private parties.

The City of Circle Pines is responsible for construction, maintenance, and other projects in or along the City's stormwater management systems (i.e., ponds, pipes, channels) that are not considered part of RCWD's public drainage system. Table 6.1 of this plan addresses the City of Circle Pine's stormwater system maintenance plans.

The City of Circle Pines is the LGU authority for the Wetland Conservation Act (WCA) and RCWD Rule F. The City has also assumed LGU permitting authority for stormwater management, erosion and sediment control, and floodplain alterations from RCWD in 2016. A copy of the MOU is found in **Appendix I**. Permitting reference documents can be found in **Appendix J**.

### 1.3. Executive Summary

The Circle Pines Surface Water Management Plan is divided into six sections:

- **Section 1.0 Executive Summary** provides background information and summarizes the

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plan contents.

- **Section 2.0 Land and Water Resource Inventory** presents information about the topography, geology, groundwater, soils, land use, public utilities, surface waters, hydrologic system and data, and the drainage system.
- **Section 3.0 Agency Cooperation** describes the City's ordinances and other governmental controls and programs that affect water resources.
- **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 program elements and discusses the responsibilities, priorities and financial considerations associated with the implementation program.

## 1.3.1. Background

The City of Circle Pines (population 4,918) is located in Anoka County in the seven county Twin Cities metropolitan area (**Figure 1**). It is about 17 miles north of downtown St. Paul and covers approximately two square miles. Circle Pines is positioned between the City of Blaine to the north, City of Lino Lakes to the east, City of Lexington to the west, and Shoreview to the south. Interstate 35W runs north-south just outside the northwestern boundary of the City.

Circle Pines is located entirely within the Rice Creek Watershed District (RCWD). The RCWD regulates development impacts on water resources. This plan addresses the rules and regulations put forth by the Rice Creek Watershed District.

Water from the northern portion of Circle Pines generally drains westerly to County Ditch 53-62. This County Ditch conveys water southwest into Golden Lake which leads to the Golden Lake Wetland Treatment System. The City has utilized this treatment system to remove phosphorus. Water discharging from Golden Lake moves south to Rice Creek and leaves the City to the southwest. **Figure 5** shows the drainage patterns within the City.

Water from the northeast corner of Circle Pines drains to the south into Baldwin Lake and Rice Lake. Baldwin Lake outlets to Rice Creek. The southern portion of Circle Pines drains directly to Rice Creek, which then conveys water to the south leaving the City just north of the County line.

The City of Circle Pines is essentially fully developed (**Figure 3 – Existing Land Use**). The City has land use practices that include residential, commercial and industrial development, as well as designated park and open space areas and public recreational areas.

## 1.3.2. Summary of Goals, Problems, and Potential Solutions

### 1.3.2.1. Goals

**Section 5** of the Circle Pines plan outlines the City's goals and policies pertaining to water management. The goals are as follows:

- **Water Quantity and Quality.** Limit public capital expenditures

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that are necessary to control excessive volumes and rates of runoff. Maintain or improve the quality of water in lakes, streams or rivers within or immediately downstream of the City of Circle Pines.

- **Recreation, Fish and Wildlife Resources.** Protect and enhance recreational facilities and fish and wildlife habitat.
- **Enhancement of Public Participation and Education.** Educate and inform the public on pertinent water resource management issues and increase public participation in water management activities.
- **Groundwater.** To manage surface water runoff to the degree necessary to provide groundwater recharge and to prevent groundwater contamination.
- **Wetlands.** The City will protect wetlands in conformance with the requirements of the Wetland Conservation Act of 1991.
- **Erosion and Sediment Control.** To prevent erosion and sedimentation to the maximum reasonable extent.
- **Shoreland Management Requirements.** To protect shoreland areas within the City in accordance with the DNR.
- **Financing.** Minimize public capital expenditures.

## 1.3.2.2. *Summary of Problems and Issues*

**Section 4** of this plan presents a detailed assessment of the water management related problems and issues in the City of Circle Pines. Some of the problems and issues identified include:

- Methods for funding projects and programs as well as partnering opportunities.
- Water quality in Golden Lake, Baldwin Lake, Rice Creek, Rice Lake, Upper Mississippi River and other public waters that provide recreational opportunities.
- Soil erosion in Ditch 53-62
- Importance of maintaining the City's stormwater management system.
- City's near full development condition makes it difficult for the City to provide additional treatment of stormwater runoff.
- Continued development of community education programs regarding water resource management.
- Importance of Capital Improvement Plan (CIP) and implementation program to adequately address identified problems.
- Importance of future NPDES stormwater permit requirements.

## 1.3.2.3. *Summary of Implementation Section*

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**Section 6** of this plan presents the implementation program for the City of Circle Pines, which includes defining responsibilities, prioritizing, and listing the program elements. **Table 6-1** outlines the projects, programs, and studies that have been identified to address the problem areas contained in this Plan.

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## 2. LAND AND WATER RESOURCE INVENTORY

### 2.1. Topography and Geology

The topography of Circle Pines is generally flat with minor undulation. The most significant topographical change is present in the valley that runs through the center of the City that connects Baldwin Lake and Golden Lake. Most of the City's surface water drains southerly through this valley into Ramsey County.

The City of Circle Pines has 2-foot contour interval topographic maps that cover the entire City and are based on 2012 LIDAR (Light Detection and Ranging) data. Additional available mapping includes various Circle Pines development plans and the Minnesota USGS 10-foot contour interval topographic map.

The Anoka County Geologic Atlas, part of the Minnesota Geologic Survey, provides more information on the areas bedrock and surficial geology as well as quaternary and bedrock hydrogeology.

### 2.2. Climate and Precipitation

The climate within the Minneapolis/St. Paul metropolitan area is described as a humid continental climate with moderate precipitation, wide daily temperature variations, warm humid summers and cold winters. The total average annual precipitation in this area is approximately 30 inches, of which approximately one-third occurs in the months of June, July and August. The annual snowfall average is about 56 inches and is equivalent to approximately 5.6 inches of water.

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. It has been adopted by RCWD in their respective stormwater management rules. Table 2.1 lists rainfall frequencies for Circle Pines.

**Table 2.1: Atlas 14 Rainfall Frequencies**

<b>Recurrence Interval (years)</b>	<b>24-hr Rainfall Depth (in)</b>	<b>Probability of Occurring Each Year</b>
1	2.4	99%
2	2.5	50%
5	3.5	20%
10	4.2	10%
25	5.3	4%
50	6.2	2%
100	7.2	1%

This data was derived from the Atlas 14 report produced by the National Oceanic and Atmospheric Administration (NOAA). Additional climatological information for the area can be obtained from the State Climatologist website at <http://climate.umn.edu/>.

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## 2.3. Soils

The Anoka Sandplain dominates the physical geography of the City. This region is known for its flat to slightly undulating topography, sandy soils, and shallow water table. More information about soils can be obtained from the Soil Survey of Anoka County. Figure 2 shows the hydrologic soil groups within Circle Pines.

Infiltration capacities of soils affect the amount of direct runoff resulting from rainfall. The higher the infiltration rate for a given soil, the lower the runoff potential. Conversely, soils with low infiltration rates produce high runoff volumes and high peak discharge rates. According to the soil survey, most of the underlying soils in the City of Circle Pines are classified as A soils with moderate to high infiltration rates. However, there is a significant portion of the City covered in D soils, which are not recommended for infiltration. In addition, the soil survey also shows a significant area where the amount of land alteration has resulted in a soil classification of urban soils. These urban soils have high variability in runoff rates due to the amount of cut and fill that took place during development.

Since the City of Circle Pines is at full development, limited land grading will occur within the City in the future.

## 2.4. Land Use

The City of Circle Pines designation by the Metropolitan Council is that of a “developed community” meaning that over 85 percent of the community is developed. Circle Pines is almost fully developed with less than one percent of its usable land area still vacant, all of which consists of underutilized small lots and parcels less than one-third of an acre. Residential land uses comprise 39% of all of the city’s useable land. Commercial development occupies 2% of the City’s land area, and 4% is occupied by institutional uses. Parks and open space occupy 29%, while water occupies 11% of the City’s total land area. The remaining 15% of land in the City of Circle Pines is used for right-of way. The existing and future land uses in Circle Pines are shown on Figure 3 and Figure 4, which are located in **Appendix A**. 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. Circle Pines has a vast network of regional open space which covers much of the southeast portion of the City. This regional open space acts as an important buffer between development and local waterbodies. 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. Circle Pines expects very little change in land use.

Due to the lack of available land, the City of Circle Pines intends to focus its efforts on redevelopment opportunities to maximize land where possible by implementing appropriate densities (5 units plus in developed areas with access to amenities). Redevelopment has taken place in the City of Circle Pines with the Lake and Lexington Redevelopment, Pine Hollow Development, Fire Barn Development, and the Pine Manor Development. These projects collectively served the need for single-family housing, townhomes, mixed-use buildings, and senior apartments.

## 2.5. Public Utilities

Circle Pines is completely within the Metropolitan Urban Service Area. Sanitary sewer and water service is provided throughout the City. The Circle Pines sanitary sewer system consists of

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approximately 21 miles of sewer mains, 500 manholes, and three lift stations. Circle Pines handles its wastewater on a metropolitan level and is incorporated into the Metro Wastewater Treatment Plant located in St. Paul Minnesota. The Metropolitan Plant is the largest in the state of Minnesota, serving 1.8 million users with a maximum capacity of 251 million gallons per day. Since sanitary sewer is available in the City, the City will not allow installation of new individual sewage treatment systems where public sewer service is already located.

Storm sewers, ditches, curbs, and gutters provide drainage for the City. The individual watershed maps (Figure 5 in **Appendix A**) show the City's stormwater system of pipes, channels and ponds. Future street maintenance and redevelopment will likely dictate the extension or reconstruction of the storm drainage system.

## 2.6. Surface Waters

**Figure 5** and **Figure 6** in **Appendix A** show the major water resources, watersheds, and drainage patterns in the City of Circle Pines. These figures also identify the DNR-protected lakes and wetlands located throughout the City. The following table lists the DNR-protected lakes and wetlands within the City.

**Table 2.2 DNR Waterbodies**

DNR ID #	Waterbody Name	DNR ID #	Waterbody Name
45P	Golden Lake	13P	Baldwin
41P	Unnamed	592W	Unnamed

Wetland Conservation Act of 1991 (WCA)—Local Government Units (LGUs) are responsible for administering the rules. The intent of the WCA is to promote no net loss of wetlands. In the past, the Rice Creek Watershed District (RCWD) was the LGU responsible for administering the WCA in the City of Circle Pines. The City has since adopted RCWD Rule F and become the LGU responsible for administering the WCA rules. In 2016, the City was granted LGU permitting authority for Stormwater Management (Rule C), Erosion and Sediment Control (Rule D), and Floodplain Alteration (Rule E). A copy of the MOU can be found in the Appendices.

### 2.6.1. Water Quality Data

Water quality data for the City has been obtained from the Minnesota Pollution Control Agency (MPCA) Environmental Data Access site (**Figure 9**). This database is utilized by participating agencies to compile water quality testing data and is almost entirely used for the storage of water quality parameters. Water quality monitoring information/data and monitoring locations can be found at the MPCA's Environmental Data Access site at <http://www.pca.state.mn.us/index.php/water/water-monitoring-and-reporting/water-monitoring-and-reporting.html>. **Figure 9** shows water quality monitoring locations within the City.

### 2.6.2. Impaired Waters

The MPCA lists the following water bodies located within or near the City as being impaired:

- Golden Lake (ID – 02-0045-00) is listed as impaired by the MPCA due to nutrients/eutrophication and mercury. Golden Lake was added to the impaired waters list by the MPCA in 2010.

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- Baldwin Lake (ID – 02-0013-00) is listed as impaired by the MPCA due to nutrients/eutrophication. Baldwin Lake was added to the impaired waters list by the MPCA in 2010.
- Rice Lake (ID -02-0008-00) is listed as impaired by the MPCA due to nutrients/eutrophication. Rice Lake was added to the impaired waters list by the MPCA in 2009.
- Lower Rice Creek (ID -02-0041-00) is listed as impaired by the MPCA due to aquatic macroinvertebrate bioassessments and E. coli. Lower Rice Creek was added to the impaired waters list by the MPCA in 2009.
- Middle Rice Creek (ID - 02-0013-00) is listed as impaired by the MPCA due to aquatic macroinvertebrate bioassessments and fishes bioassessments. Middle Rice Creek was added to the impaired waters list by the MPCA in 2010.
- Upper Mississippi River (ID – 070010206) is listed as impaired for mercury in fish tissue and fecal coliform. The Upper Mississippi River was added to the impaired waters list by the MPCA in 1998. A TMDL for bacteria was approved in 2016.

The locations of these impaired water bodies are shown on the water resource problem areas map, **Figure 7**, which can be found in **Appendix A**.

In addition to the water bodies listed above, the City is upstream of Lake Pepin, which is listed as impaired for excess nutrients. The City will be required to implement the TMDL plans for this water body once complete.

### 2.6.3. Floodplain

The City of Circle Pines has adopted a floodplain management ordinance. A copy of this regulation can be found on the [City's website](#) and in **Appendix C**. This ordinance generally regulates developments, land alterations and uses within each of the floodway, flood fringe, and general floodplain districts. The current ordinance requires that the lowest entry of a house be no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that result from designation of a floodway. However, the RCWD requires the lowest entry of the house to be greater than: 2-feet above the 100-year flood elevation and 1-foot above the emergency overflow. **Figure 8** in **Appendix A** shows the FEMA floodplain boundaries for the City.

The City also regulates floodplain development as part of the LGU Permitting Authority granted by RCWD through their Rule E. This permitting process is independent of the FEMA permitting process.

The City also has in place a Stormwater Management Ordinance, which is provided as an appendix to this plan and can be found in **Appendix D**.

The Federal Emergency Management Agency (FEMA) completed the map modernization process for its Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) to identify flood risk within Anoka County in July 2013. FEMA released updated maps for Anoka County in December 2015. A copy of the updated FIS and FIRMS can be obtained online through the FEMA Map Service Center at <https://msc.fema.gov/portal>.

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## 2.6.4. Intercommunity Flows

The RCWD District Wide Modeling Program outlines the existing intercommunity flows in its district wide modeling program summary. The City of Circle Pines is committed to maintaining these flow rates under full buildout and will regulate development to ensure compliance with the CFS discharge rate. The City's adopted ordinances will ensure that these flows will be maintained. **Table 2.3** below is an excerpt from the summary report showing these existing flows.

**Table 2.3 Intercommunity Flows**

Discharging City	Receiving City	Watercourse	Peak Flows (cfs)			
			2-Year 24-hour Rainfall	10-Year 24-hour Rainfall	100-Year 24-hour Rainfall	100-Year 10-Day Snowmelt
Circle Pines	Blaine	Rice Creek	122	305	784	1256

## 2.7. Groundwater

Various agencies are responsible for groundwater management and protection. The DNR regulates groundwater usage rate and volume as part of its charge to conserve and use the waters of the state. For example, suppliers of domestic water to more than 25 people or applicants proposing a use that exceeds 10,000 gallons per day or 1,000,000 gallons per year must obtain a water appropriation permit from the DNR. Many of the agencies charged with regulating water usage are currently involved in assessing and addressing concerns of water usage. When and where feasible the City of Circle Pines will work with the associated agencies to be good stewards of water resources. The Minnesota Department of Health (MDH) is the official state agency responsible for addressing all environmental health matters, including groundwater protection. For example, the MDH administers the well abandonment program and regulates installation of new wells. The MPCA administers and enforces laws relating to pollution of the state's waters, including groundwater. The Minnesota Geological Survey provides a complete account of the state's groundwater resources. RCWD serves an advisory capacity with regard to groundwater protection and use. Its role is limited to cooperating and assisting the DNR, MDH and MPCA in their groundwater protection efforts.

The City's municipal well field consists of 2 wells ranging from 270 to 321 feet deep. These wells draw from the Quaternary Buried Artesian and Jordan-St. Lawrence aquifers.

The City of Circle Pines supports efforts to delineate, protect, and manage the recharge areas of the regional groundwater aquifers of the Twin Cities basin and believes this can be best accomplished at the regional/metropolitan level. The City has completed its Wellhead Protection Plan as of April 16<sup>th</sup>, 2008). Groundwater appropriations are shown in **Figure 12. Figure 13 in Appendix A** outlines the DWSMA sensitivity areas.

Anoka County has statutory responsibilities for groundwater management. The Current Anoka County Water Resources Management Report was adopted in October of 2014. The City of Circle Pines will work and coordinate with Anoka County to protect and enhance water resources within the City.

For areas of vulnerability, the City will incorporate the guidance developed by the MDH on evaluating proposed stormwater infiltration projects in vulnerable source water protection areas and also the guidance located within the Minnesota Stormwater Manual on designing infiltration

# SECTION 2

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BMPs while protecting groundwater. This will be of a particular concern in areas where infiltration is being considered in soils suitable for rapid infiltration adjacent to municipal and private wells.

## 2.8. Hydrologic System and Data

The City of Circle Pines is entirely within the RCWD watershed district. **Figure 5 in Appendix A** is an index map showing all of the major drainage areas in the City. The major drainage areas are: Baldwin Lake, County Ditch 53-62, Golden Lake, and Rice Creek. Each area is discussed in more detail below. Stormwater runoff rate and volume controls will be required to be in conformance with Watershed and State requirements.

With the additional precipitation data provided by Atlas 14, the City may choose to complete additional risk assessments for specific problem areas dependent upon funding.

### 2.8.1. Baldwin Lake Drainage Area

The Baldwin Lake Drainage Area is located in the northeastern portion of the City. **Figure 5 in Appendix A** shows the specific location of the Baldwin Lake Drainage Area. The Baldwin Lake Drainage Area discharges into Rice Creek and into the City of Blaine. The 235-acre subwatershed is broken up into minor watersheds and includes ponding areas. Rice Creek is the dominant feature of this watershed.

### 2.8.2. County Ditch 53-62 Drainage Area

The 298-acre County Ditch 53-62 Drainage Area is located north of Lake Drive and extends north and west to the city boundaries. **Figure 5 in Appendix A** shows the specific location of the County Ditch 53-62 Drainage Area. These include lands that drain into Long Lake, downstream of Pike Lake. The Long Lake Drainage Area discharges into the Rice Creek Drainage Area.

### 2.8.3. Golden Lake Drainage Area

The Golden Lake Drainage Area is located in the west central part of Circle Pines. This 169 acre subwatershed includes the lands that drain into Golden Lake, and is upstream of the Rice Creek Drainage Area. The Golden Lake Drainage Area discharges into the Rice Creek Drainage Area.

### 2.8.4. Rice Creek Drainage Area

The Rice Creek Drainage Area is located in the southern portion of Circle Pines extending north through the center of the City to Lake Drive. **Figure 5 in Appendix A** shows the specific location of the 537 acre Rice Creek Drainage Area as well as the Rice Lake Drainage Area in the northeast corner of the City which feeds into Baldwin Lake.

## 2.9. Natural Communities and Rare Species

The Minnesota DNR produces the Minnesota County Biological Survey (MCBS) identifying natural communities and rare species. Completed in 1994, the Anoka County survey identifies where evidence indicates the presence of rare plants and animals. The survey shows no natural plant communities or rare species within the Circle Pines city limits. However, a rare animal was indicated on an island of Baldwin Lake just outside the city limits. The survey identified the original vegetation of Circle Pines as mostly oak openings and barrens, which consist of scattered trees and groves of oaks of scrubby form with some brush and thickets.

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The entire City of Circle Pines has been categorized according to the Minnesota Land Cover Classification System (MLCCS). **Figure 10** in **Appendix A** shows a map of the MLCCS as classified.

### 2.10. NPDES Phase II

The City of Circle Pines is required to have a Municipal Separate Storm Sewer System (MS4) permit through the MPCA's National Pollutant Discharge Elimination System (NPDES) Phase II Program. MS4s designated by rule are urban areas with populations over 10,000 or urban areas with populations greater than 5,000 with the potential to discharge to valuable or polluted waters. Permits for construction sites greater than one acre will also be required as part of Phase II.

As an MS4, the City will, as required implement the following six minimum control measures:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Each of these measures is outlined and described in Section 6: Implementation, under Table 6.1. For more information on the MS4 Permit requirements refer to [www.pca.state.mn.us](http://www.pca.state.mn.us). Refer to **Appendix B** for a copy of the City's MS4 SWPPP (Storm Water Pollution Prevention Plan).

### 2.11. Water Resource Problem Areas

Water resource problem areas were identified through information obtained from City Staff, residents, and other agencies. Each site was analyzed and potential solutions to address the problems were developed as detailed in Section 4. Refer to **Figure 7** in **Appendix A** for the location of site-specific problem areas. The following is a list of some of the water resource problem areas within the City:

- Flooding and rate control issues at various locations
- Backyard drainage issues at various locations
- Water levels in landlocked basins
- Erosion and sedimentation of channels and creeks
- Deterioration of old corrugated metal pipe culverts
- Impaired surface waters: Golden Lake, Baldwin Lake

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## 3. AGENCY COOPERATION

There are a number of local, state, and federal agencies that have rules and regulations related to water resource management. The City recognizes the roles of these other agencies and will cooperate, coordinate, and when possible partner with these 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 Creek Watershed District [www.ricecreek.org](http://www.ricecreek.org)
- Anoka Conservation District <http://www.anokaswcd.org/>
- Anoka County <https://www.anokacounty.us/>
- Minnesota Pollution Control Agency [www.pca.state.mn.us](http://www.pca.state.mn.us)
- Minnesota Department of Health [www.health.state.mn.us](http://www.health.state.mn.us)
- Board of Water and Soil Resources [www.bwsr.state.mn.us](http://www.bwsr.state.mn.us) and the Wetland Conservation Act [www.bwsr.state.mn.us/wetlands/wca/index.html](http://www.bwsr.state.mn.us/wetlands/wca/index.html)
- Minnesota Department of Natural Resources [www.dnr.state.mn.us](http://www.dnr.state.mn.us)
- US Army Corps of Engineers <http://www.usace.army.mil/>
- Minnesota Department of Agriculture [www.mda.state.mn.us](http://www.mda.state.mn.us)
- US Fish and Wildlife Service [www.fws.gov](http://www.fws.gov)
- Minnesota Environmental Quality Board [www.eqb.state.mn.us](http://www.eqb.state.mn.us)
- Metropolitan Council [www.metrocouncil.org](http://www.metrocouncil.org)

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 [www.pca.state.mn.us/water/stormwater/stormwater-manual.html](http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html).

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## 4. ASSESSMENT OF PROBLEMS AND ISSUES

Outlined below is an assessment of existing and potential water resource-related problems that are known at this time. These problems have been identified based on an analysis of the land and water resource data collected during the preparation of this plan and through information provided by the City, its residents, and the watershed organizations. A description of any existing or potential problem within the City has been listed and potential future corrective actions have been incorporated into an implementation plan. Refer to **Figure 7 in Appendix A** for the location of many of the problem areas discussed below.

### Problems & Corrective Actions

#### 4.1. Financing and Partnerships

**Problem 4.1.A.** The City of Circle Pines is unable to completely fund the implementation of TMDL projects solely from the City's Stormwater Utility Fund.

**Corrective Action 4.1.A** The City will continue to develop a partnership with the RCWD as well as other state and regional agencies in an effort to secure important grant dollars for TMDL implementation.

**Problem 4.1.B** The Golden Lake TMDL was adopted by the EPA on September 30, 2009 and received by the MPCA Commissioners Office on October 5, 2009. Currently the RCWD Stormwater CIP, completed in 2010, does not include Golden Lake restoration efforts.

**Corrective Action 4.1.B** The City of Circle Pines will collaborate with the RCWD as they begin to update their Stormwater CIP to include Golden Lake restoration efforts and levy funds for implementation projects.

#### 4.2. Water Quality Problems

**Problem 4.2.A** Degradation of water quality in Golden Lake. Additionally, Golden Lake has an approved TMDL for nutrients.

**Corrective Action 4.2.A** The City will operate and maintain a Golden Lake Wetland Treatment System and a lake aeration system in Golden Lake. The City will participate in the implementation of the TMDL for Golden Lake. The City will also develop and implement a plan to provide treatment for stormwater runoff prior to discharge to Rice Creek, Golden Lake, County Ditch 53-62, and Baldwin Lake where reasonable and practical to do so. The City will work with the Watershed District and/or upstream communities to improve the quality of water resources. The City of Circle Pines is currently partnering with Anoka Conservation District to design and construct an iron-enhanced sand filter for treatment prior to Golden Lake.

**Problem 4.2.B** RCWD prioritization of Golden Lake TMDL implementation efforts.

**Corrective Action 4.2.B** The City encourages the RCWD to reprioritize their funding to make the Golden Lake TMDL of the highest priority to allow its completion to take place as soon as possible.

**Problem 4.2.C** Rice Creek is listed as impaired water for biota.

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**Corrective Action 4.2.C** The City will assist other partners in the implementation of the TMDL. The City will operate and maintain the Golden Lake Wetland Treatment System and lake aeration system. The City will work with RCWD and/or upstream communities to improve the quality of water resources.

**Problem 4.2.D** A TMDL was recently completed for the Upper Mississippi River to address the water quality standard for *E. coli*.

**Corrective Action 4.2.D** The Upper Mississippi River TMDL addresses reducing *E. coli* loading for different stream reaches in the metro area, including Rice Creek. The City continues to educate its residents on the importance of cleaning up after their pets to reduce pollutants entering the stormwater system. The City also has in place an ordinance requiring adequate disposal of animal waste from on public and private property. BMPs that are constructed will continue to provide some removal of *E. coli* prior to stormwater discharge into receiving water bodies. The City continues to administer a goose management plan of trapping geese around Golden Lake to reduce goose waste.

**Problem 4.2.E** The City of Circle Pines was assigned a categorical wasteload allocation (WLA) for Rice Lake and Baldwin Lake as regulated under the NPDES permit. These WLAs were approved as part of the Lino Lakes Chain of Lake Nutrient TMDL.

**Corrective Action 4.2.E** The City will continue to meet the requirements of the MS4 permit. The City will also continue to enforce RCWD Rules C and D as the LGU permitting authority to ensure that water quality requirements are being met for new and re-development. Areas to maximize stormwater treatment will be identified as development occurs.

#### 4.3. Flooding or Stormwater Rate Control Concerns between the City of Circle Pines and Adjoining Communities

**Problem 4.3.A** High flow rates and high water levels in Rice Creek, the Rice Creek Chain of Lakes, and County Ditch 53-62 have been noted.

**Corrective Action 4.3.A** The City will work with the Rice Creek Watershed District to manage flooding and rate control concerns experienced within the City. Mitigation and flood control work will be completed as deemed necessary and feasible by the City of Circle Pines.

#### 4.4. Impacts of Water Quantity or Quality Management Practices on Recreational Opportunities

**Problem 4.4.A** The City has experienced impacts to recreational opportunities in Golden Lake as the result of either water quantity or quality impacts including sedimentation, excessive algae growth, and variation in water levels.

**Corrective Action 4.4.A** The City will continue work toward the completion of the Golden Lake TMDL and associated programs. The City will also continue to work with the Watershed District to improve water quality in Ditch 53-62.

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## 4.5. Impacts of Stormwater Quality on Fish and Wildlife Resources

**Problem 4.5.A** The City has experienced impacts to fish and wildlife resources due to pollution and sediment loading in Golden Lake.

**Corrective Action 4.5.A** The City will continue to operate and implement the Golden Lake restoration project and will work with the Watershed District to maintain the wetland treatment system for improving the water quality in County Ditch 53-62.

## 4.6. Impacts of Soil Erosion on Water Quality and Water Quantity

**Problem 4.6.A** In the past, soil erosion, particularly upstream in the City of Blaine, has degraded the quality of water in Ditch 53-62 with sediment loads which are then transferred to Golden Lake. The City of Blaine has addressed this issue to the extent necessary, and does require new development to meet Watershed District standards.

**Corrective Action 4.6.A** The City will periodically inspect and remove sediment in the wetland treatment system to improve the water quality in Ditch 53-62 before entering Golden Lake. The Rice Creek Watershed District and upstream communities will be responsible for control of the upstream erosion problem.

## 4.7. The Adequacy of Programs to Maintain Water Level Control Structures

**Problem 4.7.A** The City has a program to maintain water level control structures

**Corrective Action 4.7.A** The City will implement the stormwater system maintenance program outlined in the City's Stormwater Management Plan. This system maintenance includes the annual inspection of the Golden Lake outlet/dam and periodic inspection of debris deposition and cleaning of deposition.

## 4.8. The Adequacy of Capital Improvement Programs to Correct Problems Relating to Water Quality Management, Fish and Wildlife Habitat, Public Waters and Wetland Management, and Recreational Opportunities

**Problem 4.8.A** The City currently has limited funding sources available but will also attempt to secure grant funding through available programs to assist in funding some activities.

**Corrective Action 4.8.A** Stormwater funds and special assessment funding are not adequate to implement the studies, programs and capital improvements outlined in this plan. The City must apply for grants to fund the implementation of capital improvements identified in this management plan. The City may establish a fund for stormwater system maintenance.

Given the amount of fees that Circle Pines' residents have paid in taxes to the RCWD over the past 10 years, the City looks forward to collaborating with RCWD to fund more projects that will have a direct benefit to its residents. The City would be willing to collaborate with RCWD to identify the specific need for additional grant funding from the watershed and to identify feasible projects.

## 4.9. Impact of Land Use Practices and Development on Water Resource Issues

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**Problem 4.9.A** The City of Circle Pines is near full development and contains varying topography with the presence of many different soil classifications. These conditions can make it difficult for the City to implement stormwater management BMPs to efficiently meet watershed requirements on a site by site basis.

**Corrective Action 4.9.A** The City will investigate opportunities to implement water quality and volume reduction BMPs during future reconstruction projects. In areas where project specific BMPs will be unfeasible, the City will look into completing regional water quality improvement projects, such as water reuse BMPs, to help meet future stormwater management requirements. The City would be interested in collaborating with RCWD to help identify opportunities for stormwater reuse.

**Problem 4.9.B** The majority of the City is served by a sanitary sewer collection system that conveys sanitary sewage to a treatment plant. However, there is one subsurface sewage treatment system (SSTS) in operation within the City.

**Corrective Action 4.9.B** The City will continue to work with the County to ensure that the SSTS remains in compliance and encourage connection to City sewer when feasible.

**Problem 4.9.C** The City of Circle Pines currently has a volume debit with RCWD of -24,623 cubic feet.

**Corrective Action 4.9.C** The RCWD Board of Managers took two actions regarding volume bank system debits:

1. Debit or credit could be addressed or utilized in non-public linear projects;
2. Cities could address debit using nonvolume control practices, with water quality treatment volume calculated in accordance with the current rule methodology.

The City will consider potential projects to address this debit as part of future street reconstruction and redeveloping areas, where feasible and cost effective. The City will coordinate with RCWD as potential sites become available for appropriate stormwater BMPs.

## 4.10. Education Program

**Problem 4.10.A** The City of Circle Pines recognizes the need for water resource education programs to increase public awareness of water resource management and improve the quality of stormwater runoff.

**Corrective Action 4.10.A** The City of Circle Pines will continue to provide educational content and opportunities to residents, businesses, developers, and others. These efforts may include regular notices in the City's monthly newsletter, articles in the local paper, postings on the City website, and flyers in the utility bill. The City may work with Rice Creek Watershed District to improve the efficiency of educational efforts and reduce duplication. Educational topics may include but are not limited to:

- Wetland buffers
- Yard/Pet waste management
- Illicit discharge to stormwater
- Utility Easements
- Stormwater Basin Function

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- Controlling invasive species

## 4.11. Identification of Potential Problems which are Anticipated in the Next 20 Years.

**Problem 4.11.A** Inspecting and maintaining existing stormwater infrastructure throughout the City.

**Corrective Action 4.11.A** The City of Circle Pines is responsible for maintenance of its stormwater system in conformance with the MPCA's MS4 Program. This includes maintenance of pipes, constructed ponds, lakes, wetlands, ditches, swales, and other drainage ways. Proper maintenance will ensure that the stormwater system continues to provide the necessary flood control and water quality treatment. Refer to **Appendix B** for a copy of the City SWPPP. Other units of government are responsible for maintaining the stormwater systems under their control.

For Example:

- Anoka County is responsible for maintaining storm sewer catch basins and leads in the county roads; however, the City is responsible for maintaining the trunk storm sewer lines.
- RCWD is responsible for maintaining the function of the District's public drainage system.-
- Owners of private stormwater facilities are responsible for maintaining their facilities in proper condition, consistent with the original performance design standards. Responsibilities include removal and proper disposal of all settled materials from ponds, sumps, grit chambers, and other devices, including settled solids. The City/RCWD may inspect private stormwater facilities and notify the owners of needed cleaning and repairs.

**Problem 4.11.B** Increase in accumulation of debris and material on City Streets.

**Corrective Action 4.11.B** The City will continue to sweep debris and salt from City streets. More information regarding street sweeping activities can be found in the SWPPP which is located in **Appendix B**.

**Problem 4.11.C** Future changes in peak water elevation at storage areas and/or critical road crossings within the City.

**Corrective Action 4.11.C** At this time, RCWD modeling did not identify specific areas within Circle Pines that are at risk for flooding due to future land use changes. The City will collaborate with RCWD to mitigate any potential flooding identified in future modeling efforts.

## 4.12. Availability and Adequacy of Existing Technical Information to Manage Water Resources

**Problem 4.12.A** Atlas 14 (updated precipitation probability information) was recently released by NOAA (National Oceanic and Atmospheric Administration).

**Corrective Action 4.12.A** The City has adopted Atlas 14 to replace TP-40 (existing precipitation probability information). The City will continue to update its policies, codes, ordinances, and other appropriate documents as necessary.

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**Problem 4.12.B** The City has completed a wetland inventory, but has not completed a City-wide wetland classification to assess the quality of all wetlands within the City.

**Corrective Action 4.12.B** The City will investigate completing a City-wide MnRAM (Minnesota Routine Assessment Method) assessment to determine the functions and values of each wetland. Until this City-wide study is complete, the City will continue to perform a MnRAM assessment on a site by site basis as required by development or construction activity that is impacting wetlands.

**Problem 4.12.C** The City has mapped the majority of its storm sewer system. As new and redevelopment projects are completed, the storm sewer GIS database needs to continually be updated.

**Corrective Action 4.12.C** The City will annually update its storm sewer GIS database to incorporate recent projects and associated storm sewer improvements.

**Problem 4.12.D.** The City needs to utilize the most up-to-date data and hydrologic modeling to ensure plan reviews are completed properly.

**Corrective Action 4.12.D** The RCWD has completed watershed-wide hydraulic and hydrologic models that includes the City of Circle Pines as part of their District-wide Modeling Program. These models include SWMM models for public drainage systems into Rice Creek, direct drainage into Rice Creek, water quality models, Future Conditions Modeling, and a HEC-RAS model for Rice Creek. The City is responsible for the use of the RCWD's models, and concurs with model assumptions. The City understands that District models are continually evolving, and the City is subject to conditions for use of the model, including accepting the responsibility for model outputs.

The City intends to use the models for assessment of floodplain alterations as part of Rule E, peak rate requirements and intercommunity flows for Rule C, project design and permitting, identification of flood prone areas, and for sizing stormwater infrastructure. When the City requires use of District Models, a license agreement will be signed. When this occurs, the City will regularly coordinate with the RCWD to data-share any updated component of the models.

# SECTION 5

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## 5. GOALS AND POLICIES

### 5.1. General

The goals and policies in the City of Circle Pine's Local Surface Water Management Plan are consistent with the goals of the Rice Creek Watershed District (RCWD) while meeting the more specific and changing needs of the City. The goals of this plan were established in accordance with the guidelines contained in Minnesota Statutes 103B and Minnesota Rules 8410. Furthermore, each goal has several corresponding policies. These goals and policies provide for future development and redevelopment while minimizing surface water problems and enhancing the environment. These goals and policies are subject to conformance with current Watershed District policies and standards.

With the adoption of RCWD Rule C,D, E, and F by reference in 2016, the City of Circle Pines is currently the permitting authority for areas within its jurisdictional boundary within the RCWD. Execution of an MOU between the RCWD and City of Circle Pines was completed to transfer rule authority in 2016. The City currently administers RCWD Rules C, D, E, and F. The City adopts and enforces the most recent RCWD Rules, which can be found at [www.ricecreek.org](http://www.ricecreek.org). Additional goals and policies of the City are contained throughout this section.

A general goal of the City is to cooperate, collaborate, and partner with other entities, such as the Watershed District and the MPCA as much as possible as the City implements this plan. Cooperation, collaboration, and partnering results in projects that are less likely to conflict with the goals of the affected entities, are better able to meet long-term goals, and are generally more cost-effective.

In addition to the goals and policies outlined below, the City will annually review and update its Storm Water Pollution Prevention Plan (SWPPP) to effectively manage its stormwater system and be in conformance with the NPDES MS4 Program. Refer to **Appendix B** for the most recent version of the City SWPPP.

The City of Circle Pines had previously designated the Rice Creek Watershed District (RCWD) as the Local Governmental Unit (LGU) responsible for wetland management within its jurisdictional boundaries; however, with the execution of an MOU between the RCWD and the City, the City has obtained the ability to assume LGU responsibilities in conformance with Minnesota Rules Chapter 8420 as developed by the Board of Water and Soil Resources on June 26, 2018.

### 5.2. Water Quantity

*5.2.1. Limit public capital expenditures that are necessary to control excessive volumes and rates of runoff.*

#### 5.2.2.Policies

1. Circle Pines will develop Comprehensive Stormwater Management Plans (CSMP) for required treatment as an alternative approach to meeting the requirements of RCWD Rule C, sections 6 and 7. The RCWD is required to approve any CSMP.
2. Any development or redevelopment within the City of Circle Pines will be required to manage stormwater in conformance with the policies and content of the City's Comprehensive Stormwater Plan, the Rice Creek Watershed District rules, and all previous agreements the City has entered into for stormwater management.
3. The design of all major stormwater storage facilities shall attempt to accommodate a

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100-year critical duration storm event. These facilities include lakes, ponds, and their outlets. New storm sewer systems shall be designed to accommodate a 10-year critical duration event.

4. For new development and redevelopment, future stormwater runoff rates must be less than or equal to the existing runoff rates for the critical 2-year, 10-year, and 100-year events.
5. Any new development or redevelopment within the City will require a minimum building opening of 2-ft above the anticipated 100-year high water elevation. However, if this 2-ft freeboard requirement is considered a hardship, the standard could be lowered to 1-ft if the developer can demonstrate the following:
  - i. That within the 2ft freeboard area, stormwater storage is available which is equal to or exceeds 50% of the stormwater storage currently available in the basin below the 100-year elevation.
  - ii. That a 25% obstruction of the basin outlet over a 24-hour period would not result in more than 1-ft of additional bounce in the basin.
  - iii. An adequate overflow route from the basin is available that will provide assurance 1-ft of freeboard will be maintained for the proposed low building opening.

**Table 5.1 Low Floor and Low Entry Freeboard Requirements**

Freeboard	Regional Flood Elevations		Detention Basins, Wetlands & Stormwater Ponds		Infiltration and Biofiltration Basins			Rain Gardens
	100-yr	EOF	100-yr	EOF	Bottom	100-yr	EOF	EOF
Low Floor	2.0 ft	1.0 ft	0.0 ft	NA	0.0 ft	NA	NA	NA
Low Entry	NA	NA	2.0 ft	1.0 ft	NA	2.0 ft	1.0 ft	0.5 ft
Groundwater	NA	NA	0.0 ft	0.0 ft	3.0 ft	NA	NA	3.0 ft

6. The City will require setting minimum basement floor elevations to an elevation that meets the following criteria:
  - i. Basement floor elevations adjacent to landlocked basins will be required to be 2-ft higher than the highest water level of either the 10-day snowmelt event or back-to-back 100 year, 24-hour rainfalls.
  - ii. The basement floor elevation will be 2-ft above the elevation of any known historic high groundwater elevations for the area. Information on historic high groundwater elevations can be derived from any reasonable sources including piezometers, soil borings, percolation tests, etc.
  - iii. The basement floor elevation will be 2-ft above the 100-year high water elevation for the area unless it can be demonstrated that the basement floor will be 1-ft above the highest anticipated groundwater elevation that could result from the high surface water elevations during a 100-year critical duration rainfall event. The impact of high surface water elevation on groundwater elevations in the vicinity of the structure can take into consideration that site's distance from the flood plain area, the soils, the static

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groundwater table and historic water elevations in the area.

- iv. Certified surveys verifying the permitted low floor elevations are required to issue a certificate of occupancy.
7. Wetlands will be protected within the City boundaries to assure that the value of wetlands in relation to their surface water quantity benefits are not significantly impacted by development. As stated in the City's Stormwater Management Ordinance, impacts on wetlands shall be in compliance with the Wetlands Conservation Act, and managed in accordance with RCWD Rule F which the City adopts by reference
8. It is the intention of the City to utilize natural ponding areas such as wetlands for the impoundment and treatment of surface water runoff in accordance with RCWD rules, as well as State and local laws and with policies outlined in the Stormwater Management Plan only if it can be shown that the functions and values of the wetland will not be adversely affected by excavation, substantially increased sediment load, tributary area, or water level fluctuations. These natural ponding areas are preferred over impoundments constructed in upland areas.
9. The City may provide an outlet to landlocked basins, provided that the following can be demonstrated:
  - i. The 10-day, 100-year average runoff rate will not increase
  - ii. The downstream flood profile will not be significantly impacted by increased discharge rates or volumes.
  - iii. Wetlands will not be dewatered (unless exempt as per the Wetland Conservation Act and Watershed District Rules).
  - iv. The stormwater storage volume below the outlet elevation is at least equal to the runoff generated from back-to-back 100 year, 24-hour rainfall events.
10. The City will require compensatory storage equal to the storage losses resulting from floodplain fill. The City will, in accordance with RCWD Rule E, allow for a one-time fill of 10 cubic yards.
11. The City will encourage the use of Best Management Practices (BMP'S) to promote infiltration of precipitation such as the use of grass swales and parking lot size reduction.
12. Infiltration of the first 1.1 inch of runoff is required for all projects, except public linear projects from the new impervious surface area created by the new projects where there are A and B soils and where previous or existing land uses are appropriate for infiltration. Infiltration of the first ¾ inch of runoff will be required for public linear projects. For Water Quality Treatment Standard infiltration requirement equations see RCWD Rule C.6.
13. Flood fringe encroachment within shoreland areas associated with public waters is not allowed except for in conformance with RCWD Rule E.3, and subsequent DNR regulations.
14. The RCWD requires easements for open channel systems which are a variable width

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measured perpendicular to the direction of flow, to include the open channel itself and all areas within 16.5 feet from the top of the ditch bank.

15. For compensatory storage in wetland basins not wholly contained within a developer's property, compensatory live storage equal to or greater than the increased volume of runoff resulting from development will be required to protect downstream landowners and prevent the incremental volume and rate increased resulting from wetland fill. As such, the City adopts by reference RCWD Rule F.
16. The City will continue to implement the City of Circle Pines Local Surface Water Management Plan, as well as work with the County, Rice Creek Watershed District, bordering municipalities, DNR, and SWCD to maintain the tangible and intrinsic values of natural storage retention systems within the City.

## 5.3. Water Quality

### 5.3.1. Goal

Maintain or improve the quality of water in lakes, streams, and wetlands within or immediately downstream of the City of Circle Pines.

### 5.3.2. Policies

1. Circle Pine's water quality program seeks to replenish wetlands and lakes with clean water and maintain base flow in streams by letting runoff absorb into the ground.
2. Circle Pines requires that stormwater infiltration facilities include sufficient water quality pretreatment to preserve the function of these facilities.
3. Circle Pines will develop Comprehensive Stormwater Management Plans for required treatment as an alternative to meeting RCWD Rules C.6 and C.7 for individual permits. These plans will be allowed in defined areas, and only as deemed appropriate to meet the intent of providing regional planning within Resource Areas of Concern. The RCWD is required to approve any CSMP.
4. The City incorporates by reference the "Minnesota Stormwater Manual" for the use and design of stormwater management Best Management Practices (BMP's). This manual can be viewed at [www.pca.state.mn.us/water/stormwater/stormwater-manual.html](http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html)
5. The City has developed a stormwater drainage system maintenance plan. This plan was developed to assure that the retention/treatment basin clean out and maintenance was addressed to the extent that is feasible and practical and to meet the requirements of the NPDES permit. The goal of this plan is to assure that the City's retention and treatment basins will have the capability to retain and treat stormwater in future years and includes TMDL requirements for phosphorus.
6. The City will adopt the Minnesota Pollution Control Agency "Individual Wastewater Treatment System Regulations" within three months of Stormwater Management Plan approval to ensure the two individual systems in the City located at 4573 County Road J and 4571 County Road J stay in compliance.
7. The City's preferred method to achieve desired water quality standards, specifically for TMDL requirements for phosphorus, as well as total suspended solids (TSS)

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reduction is through its volume management policies.

8. The design and construction of all new stormwater conveyance systems, and modifications to existing stormwater conveyance systems, must be designed to meet NURP water quality standards.
9. For stormwater discharged to slightly and least susceptible wetlands, storm water must be treated to remove 75% of the sediment.
10. The City of Circle Pines will sweep the streets at least two (2) times annually. Furthermore, future purchases of street sweeping units will give consideration to street sweepers which have the greatest ability to remove nutrients from the streets within the community.
11. The City will encourage homeowners with properties adjacent to water resources to establish a vegetative buffer strip at the shoreline. This strip should consist of legumes or other perennial grasses to limit erosion and nutrient transport across the buffer strip.
12. The City has completed an MS4 permit which outlines the maintenance requirements of its stormwater system. This plan has been developed to assure that the retention/treatment basin clean out and maintenance will be addressed to the extent that is feasible and practical.
13. The City will develop and implement a water quality monitoring program capable of establishing that the stormwater treatment basins constructed within the City are not only designed to NURP standards, but also meet the anticipated design removal efficiencies based on actual monitoring of the system. This program will be carried out to the extent deemed necessary and reasonable by the Circle Pines City Council. The City will keep the RCWD informed of all water quality monitoring program updates.
14. For areas within the City that are redeveloping, projects that create or reconstruct 10,000 square feet or more of impervious surface will require a permit. This does not include public linear projects. For public linear projects, a permit is required to create 10,000 square feet or more of impervious surface through multiple phases or connected actions of a single complete project, as defined by the District, within a Resource of Concern Drainage Area.
15. Flood fringe encroachment within shoreland areas associated within public waters is not allowed except for in conformance with RCWD Rule E.3, and subsequent DNR regulations.
16. Any new development or redevelopment shall show sufficient drainage and ponding easements over hydrologic features such as floodplains, storm sewers, ponds, ditches, swales, wetlands, and waterways.
17. All new and redeveloped stormwater management structures and facilities shall be maintained in perpetuity either through dedication of the facilities to the City through an easement or through a maintenance agreement between the landowner and the City.
18. The City will partner with the Anoka Conservation District (ACD) to design and construct an iron-enhanced sand filter adjacent to Golden Lake to remove nutrients from runoff prior to entering Golden Lake.

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19. The City will continue to work with the Anoka Conservation District (ACD), Rice Creek Watershed District (RCWD), and MPCA (NPDES Program) to implement Best Management Practices.

## 5.4. Runoff Management and Flood Control

### 5.4.1. Goal

Limit public capital expenditures that are necessary to control excessive volumes and rates of runoff.

### 5.4.2. Policies

1. Any development or redevelopment within the City of Circle Pines will be required to control runoff to the extent necessary to be consistent with this plan.
2. Areas located within RCWD's Flood Management Zone shall provide peak rate control for the 2, 10, and 100 year 24-hour rainfall events beyond the existing condition peak rate by reducing the peak rate to less than 80% of the existing condition. This requirement does not apply if the project is a Public Linear Project.
3. The design of all major stormwater storage facilities shall attempt to accommodate a critical duration event with a 1% chance of occurrence in any given year. These facilities include lakes, ponds, and their outlets. New storm sewer systems shall be designed to accommodate a critical duration event with a 10% chance of occurrence in any given year.
4. Any new or redevelopment within the City will be required to meet the low floor and low entry freeboard requirements as shown in Table 5.1 of this LSWMP.
5. Wetlands will be protected within the City boundaries to assure that the value of wetlands in relation to their surface water quantity benefits are not significantly impacted by development.
6. The City will be allowed to discharge water from landlocked basins provided that the rates and volumes of water discharged from the area will be limited to the maximum extent reasonable taking into consideration downstream impacts, and complies with RCWD Rule C.5(e).
7. The City will require compensatory storage equal to the storage losses resulting from floodplain fill. All floodplain permitting activities shall be subject to the respective flood sector requirements as assigned by Rice Creek Watershed District.
8. Development that results in the creation of impervious surfaces must explicitly address use of best management practices (BMPs) to first limit the loss of pervious area; and second, to:
  - a. infiltrate runoff which does occur from impervious areas to the extent feasible considering site-specific conditions and/or
  - b. reuse runoff for irrigation and other appropriate uses
9. All new and redeveloped stormwater management structures and facilities shall be

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maintained in perpetuity either through dedication of the facilities to the City through an easement or through a maintenance agreement between the landowner and the City. The City of Circle Pines prefers the development of municipal drainage systems whenever possible to the development of private drainage systems. Design of drainage systems shall attempt to accommodate existing drainage systems including tile lines. Existing drainage systems will be protected and drainage perpetuated.

## 5.5. Wetlands

### 5.5.1. *Goal*

The City of Circle Pines will protect and manage wetlands in conformance with the requirements of the Wetland Conservation Act of 1991.

### 5.5.2. *Policies*

1. Policies in areas such as volume management and water quality reduce the degradation of wetlands which preserves them as areas of groundwater recharge.
2. Through the completion of this Local Surface Water Management Plan, and adoption by Reference of RCWD Rule F, and execution of an MOU between the City and the RCWD, the City has assumed LGU authority related to wetland management and permitting as outlined by RCWD Rule F.
3. Prior to any site development activities, the City will require a site inspection to identify the location and extent of any wetlands present. The proponent of the site development shall have the burden of providing to the City a report showing the on-site inspection and delineation of all wetland areas by a qualified consultant. If any wetland encroachment is proposed, wetland values and impacts will be evaluated on a case by case basis in conformance with the rules associated with the Wetland Conservation Act of 1991 and those of the Watershed District. A functions and values assessment utilizing MnRAM will be required for all proposed wetland alterations. For any alteration of a wetland not regulated by WCA, a functions and values assessment must be completed. If it is determined that the functions and values of the wetland will be diminished, replacement must be at a 1:1 ratio.
4. Any review of a proposed wetland encroachment will initially address the issue of avoidance. It will be the City's policy that prior to allowing any wetland encroachment; all reasonable attempts to avoid such alteration must be demonstrated. This avoidance review must also consider the reasonableness of the no build alternative.

## 5.6. Erosion and Sediment Control

### 5.6.1. *Goal*

Protect the capacity of the City's stormwater management system by preventing erosion and sedimentation from occurring and correcting existing erosion and sedimentation problems.

### 5.6.2. *Policies*

1. Outlined in the City's Stormwater Management Ordinance, Circle Pine's policies reduce runoff volume which prevents erosion in streams by preventing increases in stream flow. The City's Stormwater Management Ordinance has been updated to

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include Rice Creek Watershed District permitting rules, which includes sites under one acre.

2. Erosion and sedimentation control plans shall be reviewed and enforced by the City of Circle Pines for all new developments, redevelopments, and additions to existing sites. These plans shall conform to the general criteria set forth in the Minnesota Pollution Control Agency Division of Water Quality Document "Protecting Water Quality in Urban Areas", and Met Council's "Minnesota Urban Small Site BMP Manual".
3. The City will sweep the streets at least two (2) times annually. Furthermore, future purchases of street sweeping units will give consideration to street sweepers which have the greatest ability to remove nutrients from the streets within the community.
4. Erosion and sediment control plan must be submitted in accordance with RCWD rule D.2.a. Measures must be installed prior to land altering activities and routinely inspected and maintained by the owner during the project until final turf and ground cover is established to a density of 70%. In addition, activity subject to a permit under rule D must conform to the standards of the NPDES construction general permit. The City's Stormwater Management Ordinance adopts RCWD's Rule D by reference.

## 5.7. Groundwater

### 5.7.1. Goal

Protect the quality and quantity of groundwater resources.

### 5.7.2. Policies

1. The City will promote and coordinate with other agencies the continuation of existing groundwater monitoring, inventorying, or permitting programs.
2. The City encourages the development of spill prevention, control, and counter measure plans that are consistent with State and/or Federal regulations for industrial facilities within its borders and for its own facilities, as well.
3. The City will encourage preservation of wetlands, ponds, and parks to encourage infiltration of precipitation in areas where land use is not anticipated to adversely affect surface water runoff.
4. The City will cooperate with Anoka County Environmental Health Department to ensure that all unsealed or improperly abandoned wells within the watershed are properly sealed. Technical requirements for the abandonment of these wells will be in conformance with the Minnesota Department of Health Water Well Code.
5. The City will enforce its well head protection plan in accordance with State requirements.

## 5.8. Shoreland Management

### 5.8.1. Goal

Protect and enhance fish and wildlife habitat and recreational opportunities.

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## 5.8.2. Policies

1. The City will work with and support to the maximum extent practical the efforts of Minnesota Department of Natural Resources, the Army Corps of Engineers, the United States Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Watershed Districts, and other appropriate agencies in promoting public enjoyment and protecting fish, wildlife, and recreational resource values in the City.
2. Preserve wetlands that provide habitat for wildlife and spawning of fish.
3. The City will encourage land owners to maintain wetlands and open space areas for the benefit of wildlife.
4. The City has adopted by reference RCWD Rule F, and enforces its Stormwater Management Ordinance which requires that all impacts on wetlands be in compliance with the Wetland Conservation Act.

## 5.9. Education and Public Involvement

### 5.9.1. Goal

Increase public awareness, understanding and involvement in water and natural resource management issues.

### 5.9.2. Policies

1. The City will prepare and distribute a mailing to city residents a minimum of one time per year that provides information on pertinent water management issues. This mailing will provide an opportunity for residents to participate in watershed management activities.
2. The City will implement the public education requirements of NPDES Phase II. A copy of the description of the program to be implemented by the City is included in the MS4 SWPPP Application for Reauthorization located in **Appendix B**.
3. Coordinate education efforts with RCWD, ACD, Met Council and other agencies where appropriate.

## 5.10. Public Ditch Systems

### 5.10.1. Goal

Continue to work with the public ditch authorities to ensure systems are properly managed and maintained.

### 5.10.2. Policies

1. Work with the Rice Creek Watershed District to assure they adequately inspect, maintain and repair ACD 53-62 within the City.
2. The City of Circle Pines will maintain ditches in conformance with their MS4 permit, and City ordinances.

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## 6. IMPLEMENTATION PROGRAM

### 6.1. Implementation Program Components

**Table 6.1** contains a comprehensive list of the MS4 activities and projects, programs, and studies that make up the City of Circle Pines implementation program for the next 10 years (2018 through 2027). The City developed this program by evaluating the requirements in the MS4 permit (see MS4 SWPPP Application for Reauthorization in **Appendix B**), reviewing existing information (**Section 2**), identifying potential and existing problems (**Section 4**), developing goals and policies (**Section 5**), and then assessing the need for programs, studies or projects. The City estimated total costs, identified possible funding sources, and developed an approximate schedule to complete the implementation activities. It is anticipated these tables will be updated/revised on a yearly basis.

### 6.2. Implementation Priorities

The implementation components listed in **Table 6.1** were prioritized to make the best use of available local funding, meet MS4 Permit requirements, address existing water management problems, and prevent future water management problems from occurring. **Table 6.1** identifies which activities are MS4 Permit Requirements, MS4 Permit Requirements – within 12 months, Annual Requirements, or Capital Projects/Programs/Studies. The City's implementation plan reflects its responsibility to protect the public health, safety and general welfare of its citizens by addressing problems and issues that are specific to the City of Circle Pines.

### 6.3. Financial Considerations

The City plans to use funds generated from its Stormwater Utility as the primary funding mechanism for its implementation program including; maintenance, repairs, capital projects, studies, etc. If funds from this utility fee do not cover necessary costs, the City will consider adjusting the Stormwater Utility Fee as well as using general funds to cover associated costs. The City will continue to review the stormwater utility fee annually and adjust based on the stormwater related needs of the City and other funding mechanisms.

Although not proposed at this time, the City may consider using plan implementation taxes (MN Statutes 103B.241) in the future if general funds or stormwater utility funds are not sufficient to fund the projects. The City will also take advantage of grant or loan programs to offset project costs where appropriate and cost-effective.

### 6.4. Plan Revision and Amendments

The City may need to revise this Plan to keep it current. Any amendments that are made to the plan must be submitted to the RCWD and Metropolitan Council for review and approval before adoption by the City. The City may amend this plan at any time in response to a petition by a resident or business. Written petitions for plan amendments must be submitted to the City Administrator. The petition must state the reason for the requested amendment, and provide supporting information for the City to consider the request. The City may reject the petition, delay action on the petition until the next full plan revision, or accept the petition as an urgent issue that requires immediate amendment of the plan. The City of Circle Pines may also revise/amend the plan in response to City-identified needs. This Plan is intended to be in effect for 10 years. The Plan will be revised/updated at that time, to the extent necessary.

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TABLE 6.1

LOCAL WATER MANAGEMENT IMPLEMENTATION PLAN																		
No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments	
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027
1	<u>Education Activity Implementation Plan</u> - Complete outline of education activity implementation program and implementation schedule for the upcoming permit year. Education procedures including meeting requirements for the following stormwater educational programs: -City Web Page -City Newsletter -Environmental Webpage -Support RCWD education and public engagement programs (see SWPPP) -Other	✓	✓	✓		\$25,000	City of Circle Pines	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	See SWPPP Application for Reauthorization (Appendix B)
2	<u>Annual SWPPP Assessment &amp; Annual Reporting</u> City staff will conduct an annual SWPPP assessment in preparation of each annual report. Proposed SWPPP modifications are subject to Part II.G of the MS4 permit. The final annual report will be posted on the Water Resources webpage. City staff will submit the annual report to the MPCA prior to June 30th for the previous calendar year.	✓		✓		\$20,000	City of Circle Pines	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	See SWPPP Application for Reauthorization (Appendix B)
3	<u>Annual Public Meeting/Event</u> The City will provide notice of a meeting and present the draft MS4 annual report to one public event per year to solicit public input regarding the adequacy of the City's SWPPP. Public input received (oral and written) will be recorded in a record of decision and evaluated by the City's MS4 General Contact. City responses (if relevant) will be made in writing to each commenter. Hold one event per calendar year of the MS4 permit cycle.	✓		✓		\$10,000	City of Circle Pines	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	See SWPPP Application for Reauthorization (Appendix B)
4	<u>Online Availability of the Stormwater Pollution Prevention Plan (SWPPP) Program Document</u> - The City will make the SWPPP and each year's annual report available on the Water Resources webpage within 12 months from the date the MS4 permit coverage is extended to the City.	✓	✓	✓		\$2,500	City of Circle Pines	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250	See SWPPP Application for Reauthorization (Appendix B)
5	<u>Employee Training</u> - Continue to host a minimum of one staff training event per year to discuss illicit discharge recognition and reporting. City staff will develop an annual training schedule, record the employee names, topics covered, and date of each event, annually through the end of the MS4 permit cycle (July 31, 2018)	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)

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No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments
								2018	2019	2020	2021	2022	2023	2024	2025	2026	
6	<u>IDDE Program</u> - The City will develop and implement a program to detect and reduce non-stormwater discharges, including illegal dumping. Procedures for detection may consist of visual inspections for non-stormwater discharges on City owned land and private property (as requested). Inspection frequency may be conducted concurrent with the outfall inspections and implementation schedule of the public works activities. This will be completed within 12 months from the date permit coverage is extended.	✓	✓			\$2,500	City of Circle Pines	\$2,500									See SWPPP Application for Reauthorization (Appendix B)
7	<u>IDDE Inspections</u> - In Year 1, the City will map out areas that are identified as high-priority outfalls and around high-risk establishments (fast food restaurants, dumpster, car washes, mechanics, and oil changes.) in years 2-5, the City will integrate those sites into its annual inspection of MS4 activities. As needed, City staff or a consultant will be used to televise a section of the sewer system, collect and grab samples or perform other effective testing procedures to find illicit connections within the system.	✓	✓			\$20,000	City of Circle Pines	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	See SWPPP Application for Reauthorization (Appendix B)
8	<u>IDDE Ordinance</u> - The City will review and update (as necessary) the City's ordinance to prohibit illicit and non-stormwater discharges into the City's storm sewer and surface/ground waters. The goal of this BMP will be met by reviewing existing city ordinances and implementing updates related to illicit/non-stormwater discharges (if necessary).	✓				\$1,500	City of Circle Pines	\$1,500									See SWPPP Application for Reauthorization (Appendix B)
9	<u>Construction Site Stormwater Runoff Ordinance</u> - The City will annually review and update (as necessary) the City's erosion control ordinance.	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)
10	<u>Construction Site Erosion and Sediment Control Inspections</u> - City staff will continue to implement and enforce the construction site inspection program for erosion control on construction sites one acre or larger. City staff will document the number of site inspections conducted annually.	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)
11	<u>Waste Controls for Construction Site Operators</u> - The City will enforce the NPDES Phase II permit requirements through the City's construction site inspection program.	✓	✓	✓		\$2,500	City of Circle Pines, Developers	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250	See SWPPP Application for Reauthorization (Appendix B)
12	<u>Construction Site Plan Review</u> - The City will require every applicant for a building permit, subdivision approval, or grading permit that triggers RCWD Rule C to submit a project specific stormwater management plan (if applicable).	✓	✓	✓		\$10,000	City of Circle Pines, Developers	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	See SWPPP Application for Reauthorization (Appendix B)

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No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments	
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027
13	<u>Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance</u> - The City will establish a phone line and web page links for the public to report potential construction site erosion control and waste disposal infractions.	✓	✓	✓		\$500	City of Circle Pines	\$250					\$250					See SWPPP Application for Reauthorization (Appendix B)
14	<u>Establishment of Procedures for Site Inspections and Enforcement</u> - The City will inspect construction sites for conformance to NPDES construction permit standards and applicable City standards. This goal will be met by enforcing the City's erosion control and waste disposal standards.	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)
15	<u>Permit Update</u> - The City will update its Grading, Building, and ROW permits and Construction Site Stormwater Runoff ordinance to meet the new permit requirements within 12 months following the date permit coverage is extended.	✓	✓	✓		\$1,000	City of Circle Pines	\$1,000										See SWPPP Application for Reauthorization (Appendix B)
16	<u>Post Construction Stormwater Management Mitigation</u> - The City will develop written procedures for documentation of post-construction stormwater management mitigation as described in the Permit (Part III.D.5.c.). Procedures will be in place within 12 months following the date permit coverage is extended.	✓	✓	✓		\$1,000	City of Circle Pines	\$1,000										See SWPPP Application for Reauthorization (Appendix B)
17	<u>Site Plan Review Program</u> - The City will review and revise (if necessary, during the plan review process) permanent BMP designs and criteria for post-construction stormwater management associated with new development and redevelopment projects as required by RCWD Rule C. The City will also actively look for non-structural opportunities where prudent and feasible.	✓	✓	✓		\$25,000	City of Circle Pines	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	See SWPPP Application for Reauthorization (Appendix B)
18	<u>Project Documentation</u> - The City will maintain all related documents pertaining to each new or redevelopment project in more user-friendly filing system for better records management. Implementation within 12 months from the date permit coverage is extended.	✓	✓	✓		\$1,000	City of Circle Pines	\$500					\$500					See SWPPP Application for Reauthorization (Appendix B)
19	<u>Employee Training</u> - Building or Engineering Department staff (a minimum of one staff member) will maintain valid certification in NPDES Construction Stormwater Permit related training per NPDES-CSW training requirements.	✓		✓		\$1,500	City of Circle Pines	\$300		\$300		\$300		\$300		\$300		See SWPPP Application for Reauthorization (Appendix B)

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No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments	
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027
20	<u>Review Building Dept. Inspection Checklist</u> - The City will update the existing Erosion and sediment control checklist to meet current NPDES Construction Stormwater Permit requirements. This update will occur within 12 months from the date MS4 permit coverage is extended.	✓	✓	✓		\$3,000	City of Circle Pines	\$1,500					\$1,500					See SWPPP Application for Reauthorization (Appendix B)
21	<u>Permit Application System</u> - The City will develop written procedures to improve tracking and archiving all plan review and inspection documents within 12 months following the date permit coverage is extended.	✓		✓		\$3,000	City of Circle Pines	\$1,500					\$1,500					See SWPPP Application for Reauthorization (Appendix B)
22	<u>Updated Cities Construction Site Stormwater Runoff Control Mechanism - Zoning Chapter 13, Section 1350</u> - The City will update its mechanism to be at least as stringent as the MPCs CSW permit. This effort will be completed within 12 months of the date permit coverage is extended.	✓	✓	✓		\$3,000	City of Circle Pines	\$1,500					\$1,500					See SWPPP Application for Reauthorization (Appendix B)
23	<u>Develop Priority Site Inspection Procedures</u> - Develop internal procedures for identifying priority sites for inspections (e.g., near sensitive receiving waters, projects larger than 5 acres).	✓	✓	✓		\$2,000	City of Circle Pines	\$1,000					\$1,000					See SWPPP Application for Reauthorization (Appendix B)
24	<u>City Ordinance Review</u> - The City will complete Ordinance updates for post construction runoff from new development and redevelopment within 12 months of the date permit coverage is extended.	✓	✓			\$1,000	City of Circle Pines	\$500					\$500					See SWPPP Application for Reauthorization (Appendix B)
25	<u>Enforcement Response Procedures (ERP's)</u> - The City will update its Enforcement Response Procedures to meet the requirements of the MS4 permit within 12 months of permit coverage being granted.	✓	✓			\$1,500	City of Circle Pines	\$750					\$750					See SWPPP Application for Reauthorization (Appendix B)
26	<u>Storm Sewer System Map and Inventory</u> - The City will require new developments to provide electronic as-built data in accordance with the GIS Information Requirements located in the City Design Standard. The City's GIS specialist updates and maintains all of the City's GIS information.	✓	✓			\$500	City of Circle Pines, Developer	\$250					\$250					See SWPPP Application for Reauthorization (Appendix B)
27	<u>Storm Sewer Mapping</u> - The City will annually update its storm sewer system map.	✓	✓	✓		\$4,000	City of Circle Pines	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	See SWPPP Application for Reauthorization (Appendix B)

SECTION VI

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments		
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027	
28	<u>Street Sweeping</u> - The City will begin to conduct street sweeping operations of all public streets twice annually. (record the sweeping route and date per occurrence). Review and revise (as needed) street sweeping operations (including schedule, equipment, and disposal), stormwater quality priority areas, and routes annually through the end of the MS4 permit cycle (July 31, 2018).	✓		✓		\$150,000	City of Circle Pines	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	See SWPPP Application for Reauthorization (Appendix B)	
29	<u>Structural Stormwater BMP Inspections</u> - Continue to inspect 100% of all SPCD's each year of the MS4 permit cycle (July 31, 2018)	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)
30	<u>Inspect MS4 Outfalls and Ponds</u> - Continue to inspect 20% of all MS4 outfalls each year, until 100% of all MS4 Outfalls and Ponds have been inspected within the MS4 permit cycle (until July 31, 2018)	✓				\$3,600	City of Circle Pines	\$1,800					\$1,800					See SWPPP Application for Reauthorization (Appendix B)	
31	<u>Review Inspection Reports</u> - Annually, review all pond, outfall, and SPCD inspection records to determine if maintenance, repair, or replacement is needed. Include a description of the findings and any maintenance, repair, or replacement as a result of the inspection findings. Evaluate each structural pollution control device (SPCD) inspection frequency and adjust as needed per MS4 Permit Part III.D.6.e(1.). Evaluate and update inspection records annually through the end of the MS4 permit cycle (July 31, 2018)	✓	✓	✓		\$3,000	City of Circle Pines	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	See SWPPP Application for Reauthorization (Appendix B)
32	<u>Employee Training</u> - Continue to host a minimum of one staff training event per year to discuss stormwater related topics. City staff will develop an annual training schedule, record the employee names, topics covered, and date of each event, annually through the end of the MS4 permit cycle (July 31, 2018).	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)
33	<u>Park and Open Space Training Program</u> - Training focused on fertilizer application, pesticide/herbicide application, and mowing discharge.	✓	✓	✓		\$3,000	City of Circle Pines	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	See SWPPP Application for Reauthorization (Appendix B)
34	<u>Fleet and Building Maintenance Training Program</u> - Training focused on automotive maintenance program (automotive inspections and washing), spill cleanup training, hazardous materials training, building leak prevention and inspection training.	✓	✓	✓		\$3,000	City of Circle Pines	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	See SWPPP Application for Reauthorization (Appendix B)
35	<u>Stormwater Systems Maintenance Training Program</u> - Training focused on parking lot and street cleaning, storm drain systems cleaning, road salt materials management.	✓	✓	✓		\$3,000	City of Circle Pines	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	See SWPPP Application for Reauthorization (Appendix B)

SECTION VI

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments	
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027
36	<u>Spill Prevention &amp; Control Plans for Municipal Facilities</u> - Ensure that plans describing spill prevention and control procedures are consistent among all departments. Conduct annual spill prevention and response training sessions to all municipal employees. Distribute education materials to each municipal facility by the end of year 2.	✓	✓	✓		\$1,400	City of Circle Pines	\$500	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	See SWPPP Application for Reauthorization (Appendix B)
37	<u>Facility Inventory</u> - Develop facilities inventory to include potential pollutants at each site. Create a map of all identified facilities.	✓	✓			\$500	City of Circle Pines	\$250				\$250						See SWPPP Application for Reauthorization (Appendix B)
38	<u>Pond Assessment Procedures &amp; Schedule</u> - In year 1, develop procedures for determining TSS and TP treatment effectiveness of city owned ponds use for treatment of stormwater. Implement schedule in year 2-5.	✓	✓			\$2,000	City of Circle Pines	\$2,000										See SWPPP Application for Reauthorization (Appendix B)
39	<u>Recording, Reporting, and Retention of All Inspections and Responses to the Inspections</u> - The City will retain all records of inspection, maintenance, and corrective actions of the City's stormwater system.	✓	✓	✓		\$1,000	City of Circle Pines	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	See SWPPP Application for Reauthorization (Appendix B)
40	<u>Evaluation of Inspection Frequency</u> - Evaluate inspection records and determine if inspection frequency needs to increase or decrease	✓	✓	✓		\$1,000	City of Circle Pines	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	See SWPPP Application for Reauthorization (Appendix B)
41	<u>Landscaping and Lawn Care Practices Review</u> - The City will continue to annually review its landscaping and lawn care practices and adjust its current methods if necessary.	✓	✓	✓		\$1,000	City of Circle Pines	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	See SWPPP Application for Reauthorization (Appendix B)
42	<u>Road Salt Application Review</u> - The City will record the annual activities of the salt distribution program and adjust current practices as necessary.	✓	✓	✓		\$1,000	City of Circle Pines	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	See SWPPP Application for Reauthorization (Appendix B)
43	<u>Evaluation of Proposed Stormwater Infiltration Projects for Impacts within Source Water Protection Areas</u> - 1. The City will use the MDH document "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas" (Draft-July 19, 2006) and other pertinent information as guidance in evaluating all infiltration projects within or adjacent to vulnerable DWSMA's. 2. The City will prohibit the construction of the infiltration area or incorporate specific BMPs to reduce pollutants from infiltration within vulnerable DWSMA's. 3. The City will annually record the evaluation, denial, and implemented BMP's, of all proposed infiltration projects within and/or adjacent to vulnerable DWSMA's.	✓	✓	✓		\$3,500	City of Circle Pines	\$350	\$350	\$350	\$350	\$350	\$350	\$350	\$350	\$350	\$350	See SWPPP Application for Reauthorization (Appendix B)

SECTION VI

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments
								2018	2019	2020	2021	2022	2023	2024	2025	2026	
44	<u>Structural Stormwater BMP Maintenance Program</u> - Based on storm sewer inspection findings determine if repair, replacement, or maintenance measures are necessary to ensure structures function properly and treatment is effective. Document annually number of structures repaired or scheduled for maintenance.	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)
45	<u>Stockpiles, Storage and Material Handling Area Inspections</u> - Conduct quarterly written inspections of all stockpile, storage and material handling areas (per the 2014 facility inventory), through the end of the MS4 permit cycle (July 31, 2018).	✓	✓	✓		\$5,000	City of Circle Pines	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	See SWPPP Application for Reauthorization (Appendix B)
46	<u>In-lake Alum Treatment</u> - Conduct Alum Treatment to remove phosphorus from the lake system so that it binds with the phosphorus creating floc. This eliminates the phosphorus from being available for algae growth. Due to the fact that Golden Lake is a shallow lake, it is unclear how long the floc would remain effective before being covered by resuspended lake bottom sediments.				✓	\$75,000	City of Circle Pines, RCWD	\$75,000									See Golden Lake TMDL (Appendix E) <b>Highest Priority</b>
47	<u>Lake Level Drawdown in Winter</u> - Lake draw down to four to six feet in the winter to reduce the growth of rooted aquatic plants, enhance the consolidation of lake bottom sediments, and expanding the oxidation of organic bottom sediments in shallow areas.				✓	\$75,000	RCWD, Metropolitan Council	\$75,000									See Golden Lake TMDL (Appendix E) <b>Highest Priority</b>
48	<u>Iron Sand Filter</u> - Installation of an iron sand filter will be completed to remove phosphorus from Golden Lake.				✓	\$200,000	City of Circle Pines, RCWD	\$200,000									See Golden Lake TMDL (Appendix E) <b>Highest Priority</b>
49	<u>Upstream Alum Treatment</u> - Conduct Alum Treatment to remove phosphorus from the upstream water system so that it binds with the phosphorus creating floc. This eliminates the phosphorus from being available for algae growth.				✓	\$2,000,000	City of Circle Pines, RCWD					\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	See Golden Lake TMDL (Appendix E)
50	<u>Scraping Littoral Sediments during Lake Drawdown</u> - During lake draw down this activity would reduce the presence of aquatic seed beds, remove organic sediments, and slightly deepen the littoral areas of the lake.				✓	\$900,000	City of Circle Pines, RCWD				\$900,000						See Golden Lake TMDL (Appendix E)

SECTION VI

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments	
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027
51	<u>Diversion/Retention of Flows</u> - alteration of water quantity flow and direction in an effort to improve overall water quality within Golden Lake.				✓	\$350,000	City of Circle Pines, RCWD							\$350,000				See Golden Lake TMDL (Appendix E)
52	<u>Expand and Enhance Aeration System</u> - improvements made to aeration system to enhance the aeration systems capabilities for having a positive effect on Golden Lakes water quality.				✓	\$200,000	City of Circle Pines, RCWD			\$200,000								See Golden Lake TMDL (Appendix E)
53	<u>LGU WCA Implementation</u> - The City will enforce the requirement that new development use water resource BMPs to improve water quality and control runoff volume.				✓	\$25,000	City of Circle Pines, RCWD	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	See Golden Lake TMDL (Appendix E)
54	<u>Shoreline Buffers</u> - Vegetative buffers of native vegetation around the perimeter of Golden Lake would help remove pollutants in runoff from the drainage area before they reach the lake. Native vegetation also discourages geese.				✓	\$100,000	City of Circle Pines, RCWD				\$100,000							See Golden Lake TMDL (Appendix E)
55	<u>Weed Harvesting and Herbicide treatment of Curly-leaf Pondweed</u> - Utilization of an aquatic weed harvesting program to manage the rooted aquatic macrophyte infestation problem present in Golden Lake.				✓	\$50,000	City of Circle Pines, RCWD	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	See Golden Lake TMDL (Appendix E)
56	<u>Upstream Ferric Chloride Treatment</u> - Utilization of a ferric chloride treatment program to enhance sedimentation and reduce the amount of phosphorus within Golden Lake.				✓	\$1,200,000	RCWD, Metropolitan Council						\$400,000		\$400,000		\$400,000	See Golden Lake TMDL (Appendix E)
57	<u>Sediment Delta Removal</u> - Dredging the sediment delta that has been accumulating over the years at the inlet of Golden Lake.				✓	\$300,000	City of Circle Pines, RCWD					\$300,000						See Golden Lake TMDL (Appendix E)
58	<u>Water Level Fluctuation</u> - alteration in water level as a means of reducing the growth of rooted aquatic plants and consolidation of lake bottom sediments.				✓	\$300,000	City of Circle Pines, RCWD						\$100,000		\$100,000		\$100,000	See Golden Lake TMDL (Appendix E)
59	<u>Fish Stocking</u> - method to alter the status of the golden lake fishery in an effort to improve overall water quality.				✓	\$50,000	MNDNR, RCWD					\$25,000					\$25,000	See Golden Lake TMDL (Appendix E)
60	<u>Rotenone</u> - Treatment applied to the lake in an attempt to alter the status of the water quality within golden lake that will manipulate the status of the lakes fishery in an effort to improve overall water quality.				✓	\$50,000	MNDNR, RCWD				\$50,000							See Golden Lake TMDL (Appendix E)
61	<u>Reverse Aeration</u> - Reduction in dissolved oxygen levels within the lake in an attempt to induce winterkill of undesirable fish.				✓	\$50,000	MNDNR, RCWD				\$50,000							See Golden Lake TMDL (Appendix E)
62	<u>Rough Fish Exclusion</u> - Removal of fish species designated by the MnDNR as undesirable or "rough fish".				✓	\$100,000	City of Circle Pines, MNDNR, RCWD					\$50,000					\$50,000	See Golden Lake TMDL (Appendix E)

SECTION VI

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments	
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027
63	<u>P-free Fertilizer</u> - Minnesota Statute (Chapter 18c) has been updated to include the Phosphorus Lawn Fertilizer Law (SF 1555). The enforcement of this law is projected to produce a 20% reduction in phosphorus concentrations in residential runoff.				✓	\$25,000	City of Circle Pines, RCWD, MPCA	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	See Golden Lake TMDL (Appendix E)
64	<u>Support Enhancement of Existing Regulations</u> - The City will enforce existing regulations that improve water quality.				✓	\$25,000	City of Circle Pines, RCWD, MPCA	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	See Golden Lake TMDL (Appendix E)
65	<u>Upstream Wetland Enhancement</u> - Improvement of Wetland vegetation is an integral part of a waterbodies ecosystem and benefits water quality by filtering out incoming nutrients and stabilizing the shoreline and bottom sediments. This habitat should be protected and enhanced in order to keep its function intact and/or improve it.				✓	\$400,000	City of Circle Pines, City of Blaine, RCWD			\$400,000								See Golden Lake TMDL (Appendix E)
66	<u>Protect and Enhance Fringe Wetland Vegetation</u> - Fringe wetland vegetation is an integral part of a shallow lake's ecosystem and benefits water quality by filtering out incoming nutrients and stabilizing the shoreline and bottom sediments. This habitat should be protected and enhanced in order to keep its function intact and/or improve it.				✓	\$100,000	City of Circle Pines, RCWD			\$100,000								See Golden Lake TMDL (Appendix E)
67	<u>Solarbee</u> - an experimental alternative that may be pursued in an effort to remove phosphorus from Golden Lake.				✓	\$100,000	Unknown						\$100,000					See Golden Lake TMDL (Appendix E)
68	<u>Barley Straw</u> - an experimental alternative that may be pursued in an effort to remove phosphorus from Golden Lake.				✓	\$75,000	Unknown					\$15,000	\$15,000	\$15,000	\$15,000	\$15,000		See Golden Lake TMDL (Appendix E)
69	<u>Curb-Cut Rain Garden Network</u> ; Project ID # 4/5 within the Golden Lake Stormwater Retrofit Assessment.				✓	\$50,040	City of Circle Pines, RCWD, Anoka County SWCD				\$50,040							See Golden Lake Stormwater Retrofit Assessment (Appendix F)
70	<u>New Pond with Expanded Drainage Area and Iron Enhanced Sand Filter</u> ; Project ID # 7 within the Golden Lake Stormwater Retrofit Assessment.				✓	\$228,215	City of Circle Pines, RCWD, Anoka County SWCD						\$228,215					See Golden Lake Stormwater Retrofit Assessment (Appendix F), Upper Mississippi River TMDL Section 9.1.3
71	<u>New Pond with Expanded Drainage Area</u> ; Project ID # 8 within the Golden Lake Stormwater Retrofit Assessment.				✓	\$176,340	City of Circle Pines, RCWD, Anoka County SWCD							\$176,340				See Golden Lake Stormwater Retrofit Assessment (Appendix F), Upper Mississippi River TMDL Section 9.1.3

SECTION VI

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate <sup>1</sup>	Possible Funding Sources <sup>3</sup>	Proposed Cost By Year <sup>1,2</sup>									Comments	
								2018	2019	2020	2021	2022	2023	2024	2025	2026		2027
72	New Pond : Project ID # 9 within the Golden Lake Stormwater Retrofit Assessment.				✓	\$151,190	City of Circle Pines, RCWD, Anoka County SWCD									\$151,190		See Golden Lake Stormwater Retrofit Assessment (Appendix F), Upper Mississippi River TMDL Section 9.1.3
73	Golden Lake Permeable Asphalt and Golden Lark Park Rain Garden: Project ID # 10/11 within the Golden Lake Stormwater Retrofit Assessment.				✓	\$152,974	City of Circle Pines, RCWD, Anoka County SWCD										\$152,974	See Golden Lake Stormwater Retrofit Assessment (Appendix F)
	<b>MS4 SWPPP TOTALS</b>					\$359,000	City of Circle Pines, Developers	\$51,450	\$32,950	\$33,250	\$32,950	\$33,250	\$42,750	\$33,250	\$32,950	\$33,250	\$32,950	See SWPPP Application for Reauthorization (Appendix B)
	<b>TMDL TOTAL (Predominantly funded through grant programs)</b>					\$6,750,000	City of Circle Pines, Anoka County SWCD, City of Blaine, RCWD	\$362,500	\$12,500	\$712,500	\$1,062,500	\$487,540	\$927,500	\$1,105,715	\$1,103,840	\$578,690	\$1,155,474	See Golden Lake TMDL (Appendix E) and See Golden Lake Stormwater Retrofit Assessment (Appendix F)
	<b>Grand Total</b>					\$7,867,759		\$413,950	\$45,450	\$745,750	\$1,095,450	\$520,790	\$970,250	\$1,138,965	\$1,136,790	\$611,940	\$1,188,424	

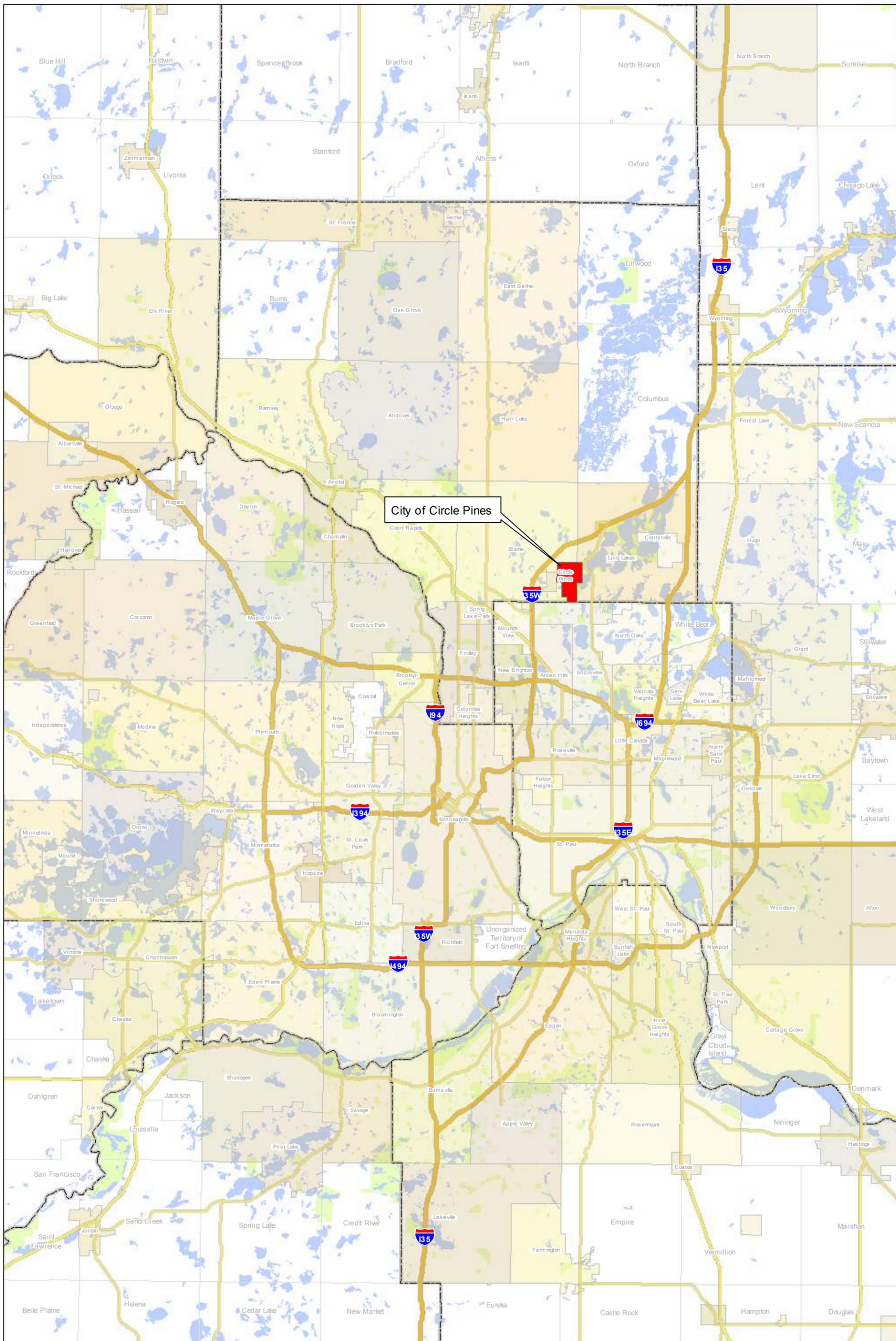
<sup>1</sup> Cost estimates are preliminary and subject to review and revision as engineer's reports are completed and more information becomes available. Table reflects 2014 costs and do not account for inflation. Costs generally include labor, equipment, materials, and all other costs necessary to complete each activity. For City completed activities, staff time is included in the cost. Some of the costs outlined above may be included in other operational costs budgeted by the City.

<sup>2</sup> 10 Year cost projections are based upon 2 MS4 Permit Cycles with year 1 program updates occurring again in 2019

<sup>3</sup> Funding for stormwater program activities projected to come from following sources - Surface Water Management Fund, Developers Agreements, Grant Funds, General Operating Fund, or Special Assessments

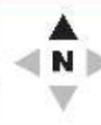
# **APPENDIX A**

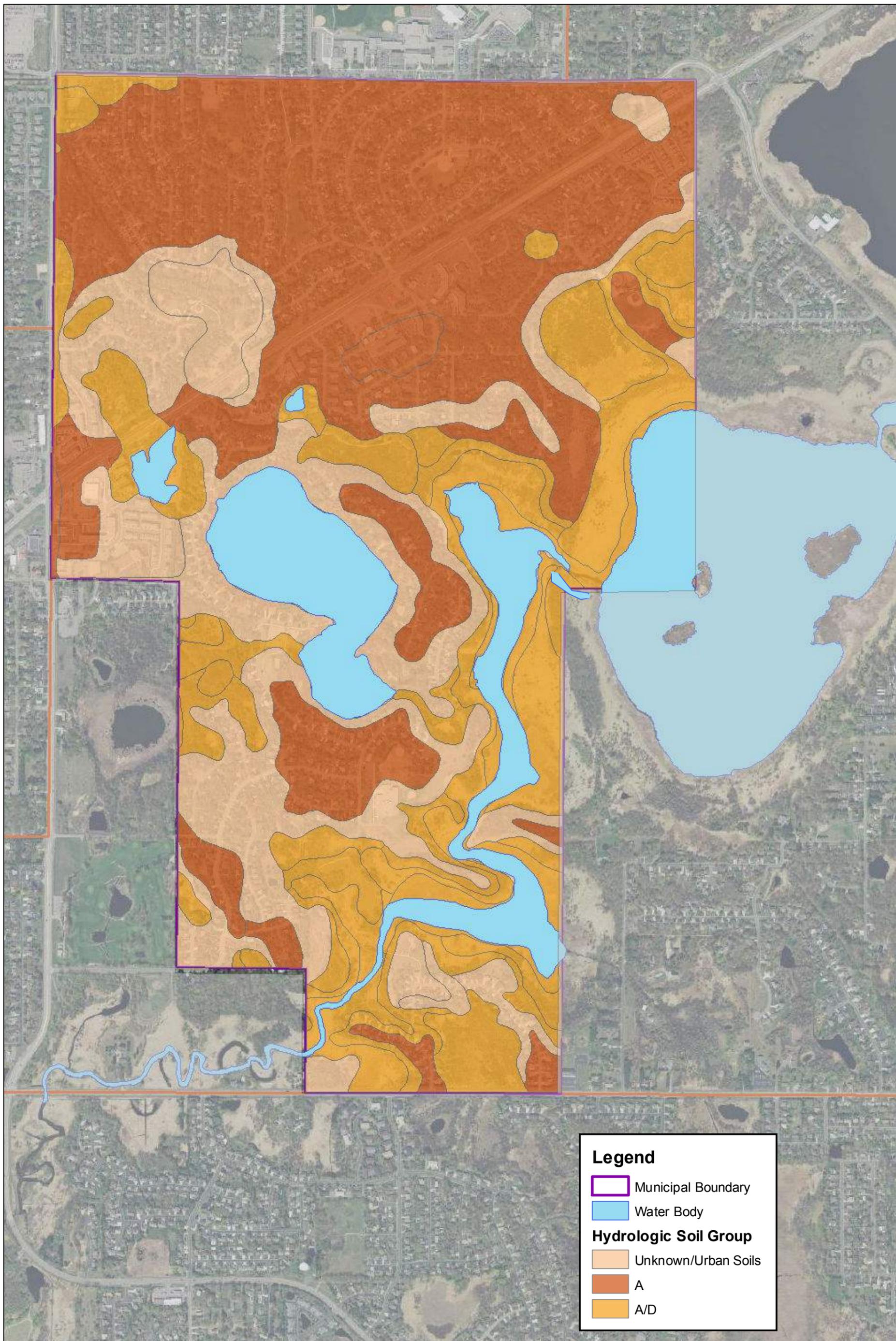
## Figures



City of Circle Pines

Circle Pines

 	<p><b>FIGURE 1: Location Map</b></p> <p>Local Surface Water Management Plan</p>	<p>0 1.5 3 6 9 Miles</p> 	
		<p>October 2017</p>	

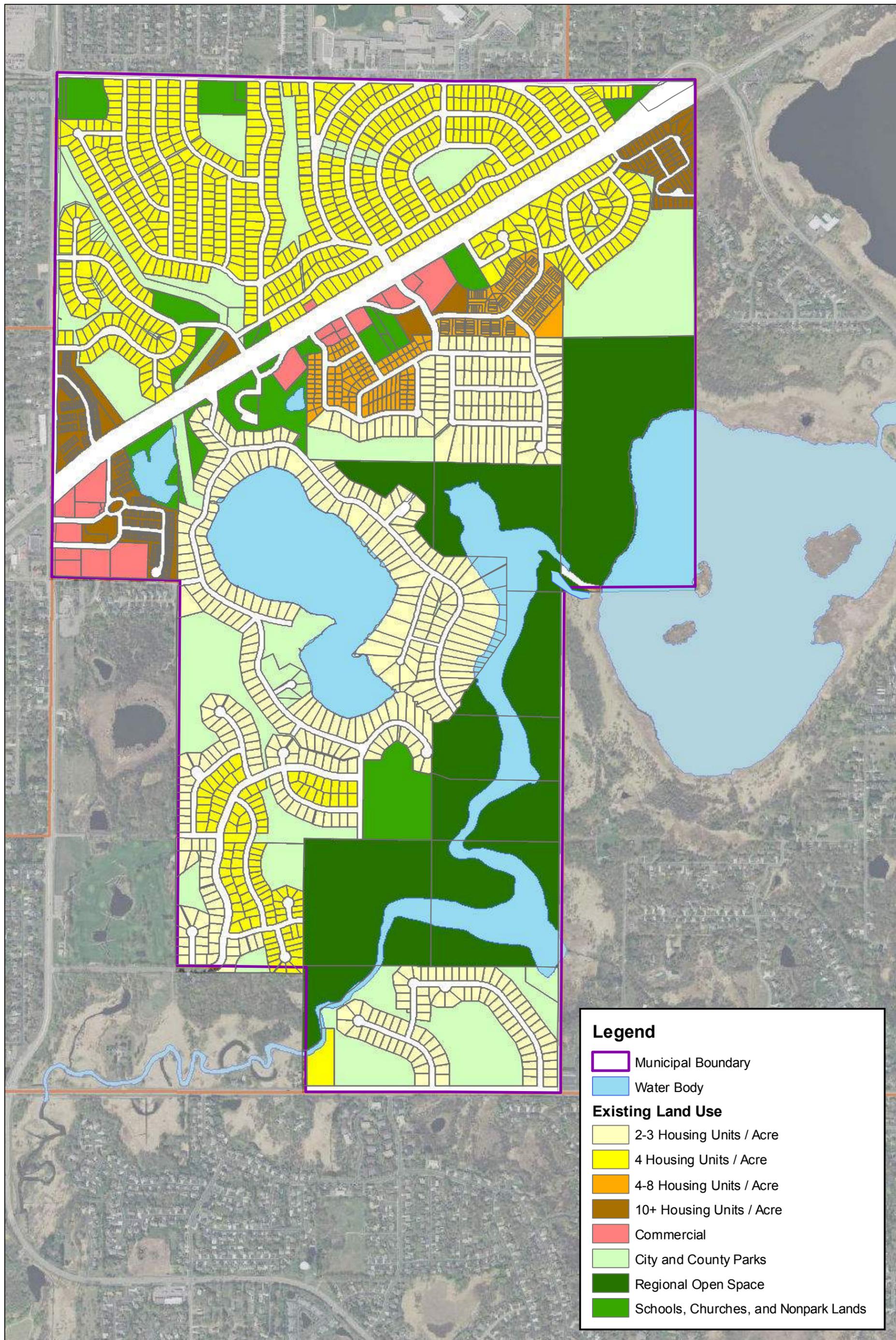


**Legend**

-  Municipal Boundary
-  Water Body

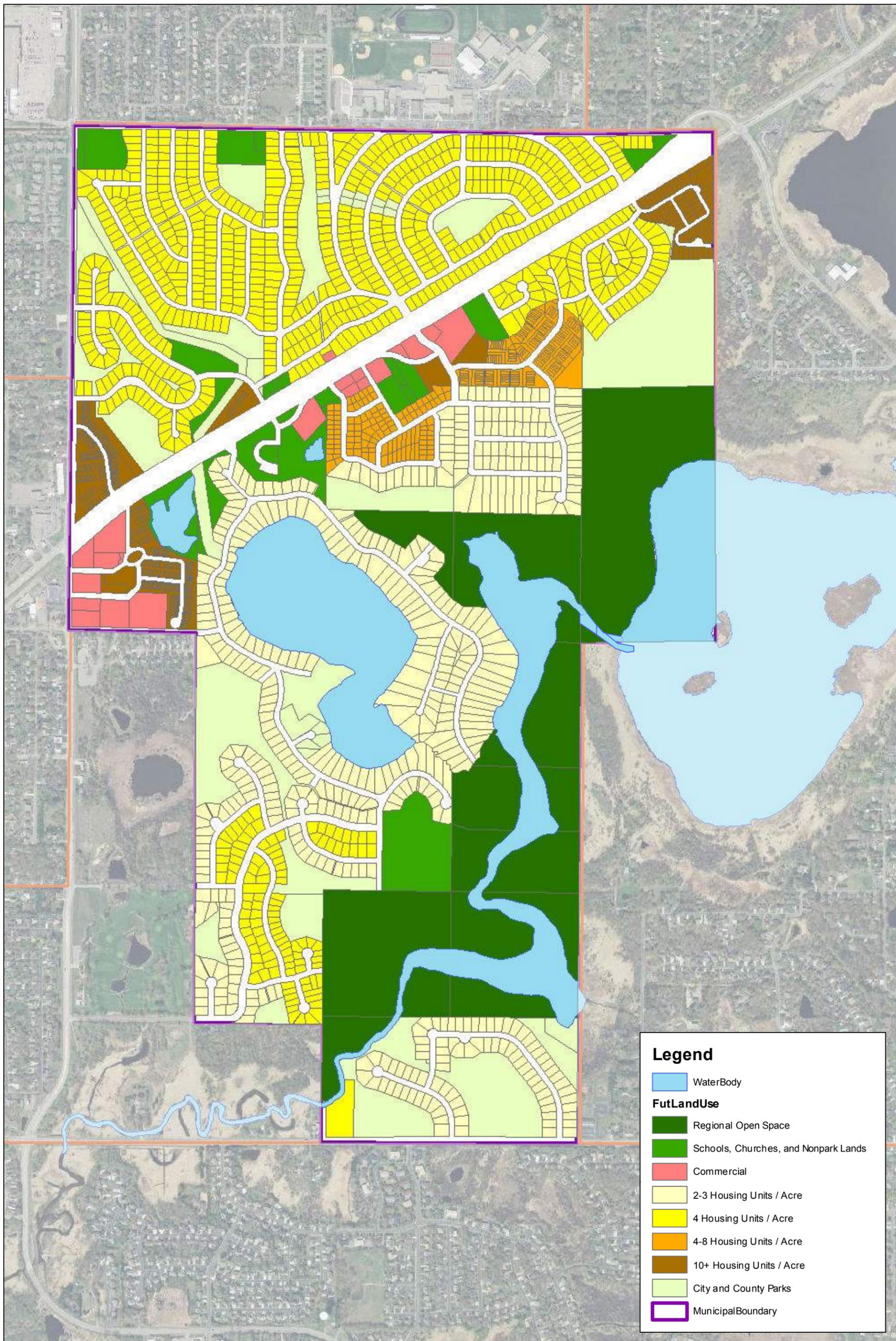
**Hydrologic Soil Group**

-  Unknown/Urban Soils
-  A
-  A/D



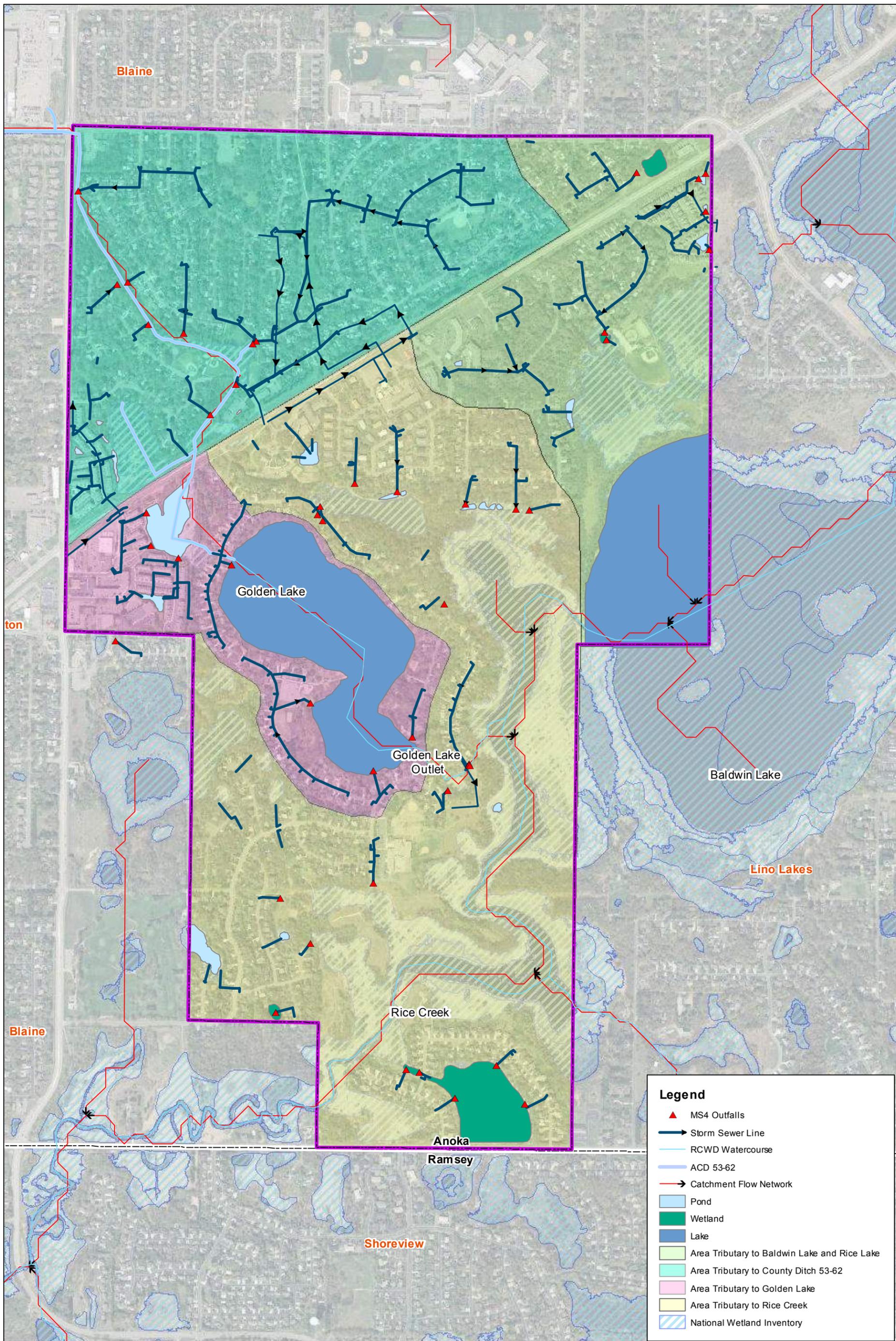
**Legend**

- Municipal Boundary
- Water Body
- Existing Land Use**
- 2-3 Housing Units / Acre
- 4 Housing Units / Acre
- 4-8 Housing Units / Acre
- 10+ Housing Units / Acre
- Commercial
- City and County Parks
- Regional Open Space
- Schools, Churches, and Nonpark Lands



**Legend**

- WaterBody
- FutLandUse**
  - Regional Open Space
  - Schools, Churches, and Nonpark Lands
  - Commercial
  - 2-3 Housing Units / Acre
  - 4 Housing Units / Acre
  - 4-8 Housing Units / Acre
  - 10+ Housing Units / Acre
  - City and County Parks
  - MunicipalBoundary



**Legend**

- ▲ MS4 Outfalls
- ➔ Storm Sewer Line
- RCWD Watercourse
- ACD 53-62
- ➔ Catchment Flow Network
- ▭ Pond
- ▭ Wetland
- ▭ Lake
- ▭ Area Tributary to Baldwin Lake and Rice Lake
- ▭ Area Tributary to County Ditch 53-62
- ▭ Area Tributary to Golden Lake
- ▭ Area Tributary to Rice Creek
- ▭ National Wetland Inventory

**FIGURE 5: Stormwater System**

Local Surface Water Management Plan

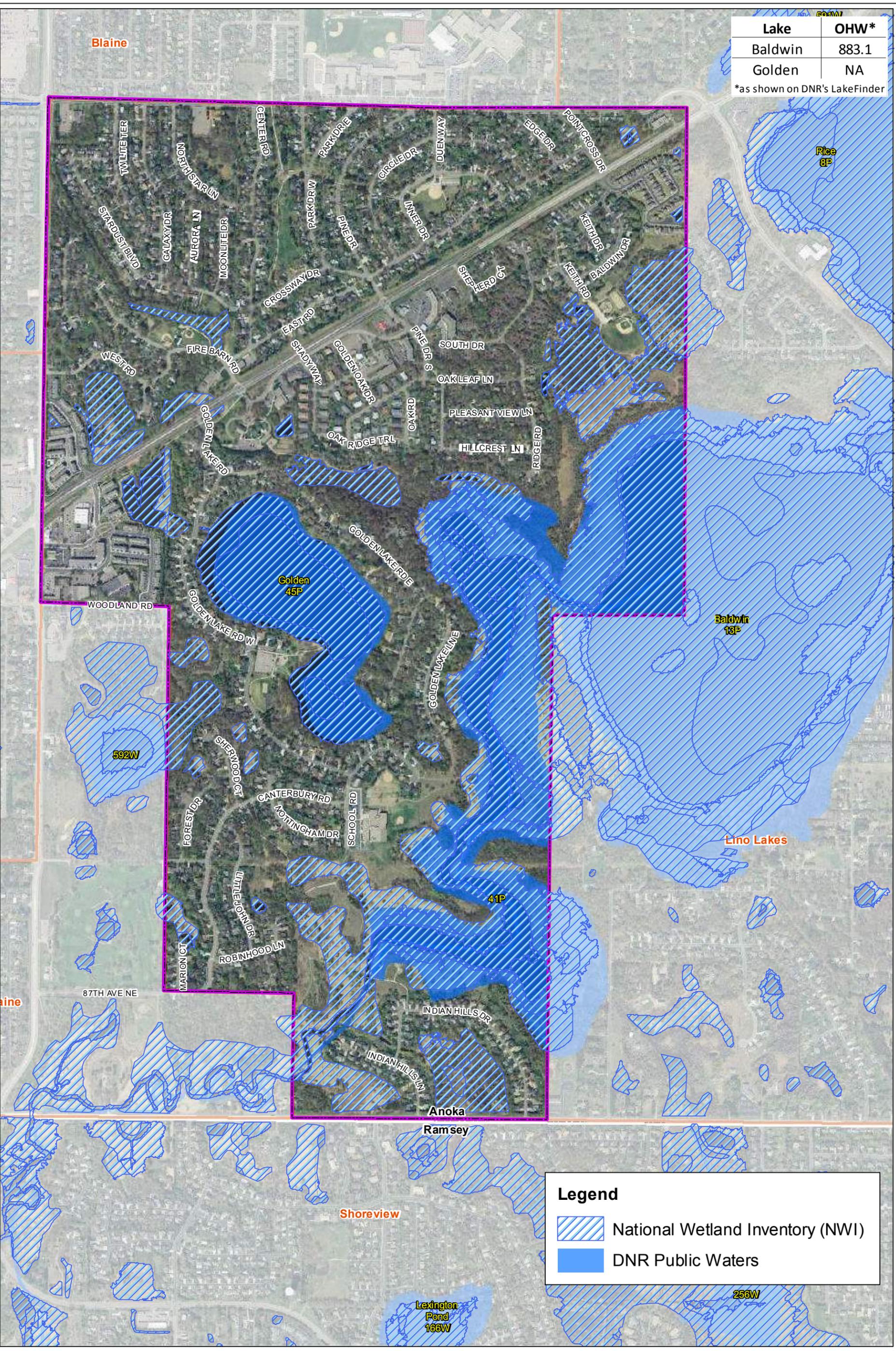
Source: City of Circle Pines Stormsewer Database

October 2017



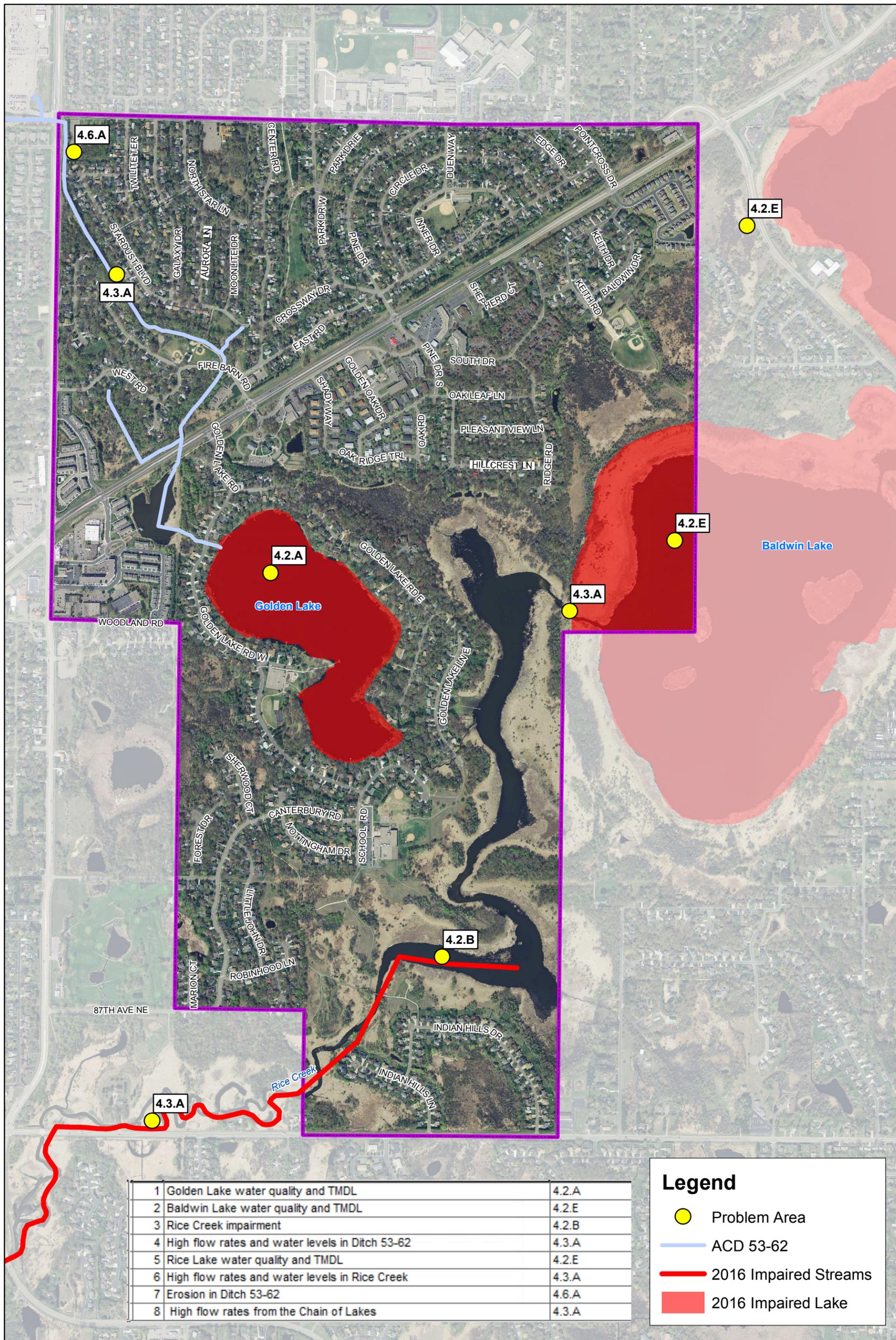
Lake	OHW*
Baldwin	883.1
Golden	NA

\*as shown on DNR's LakeFinder



**Legend**

- National Wetland Inventory (NWI)
- DNR Public Waters

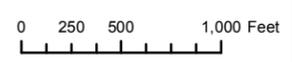


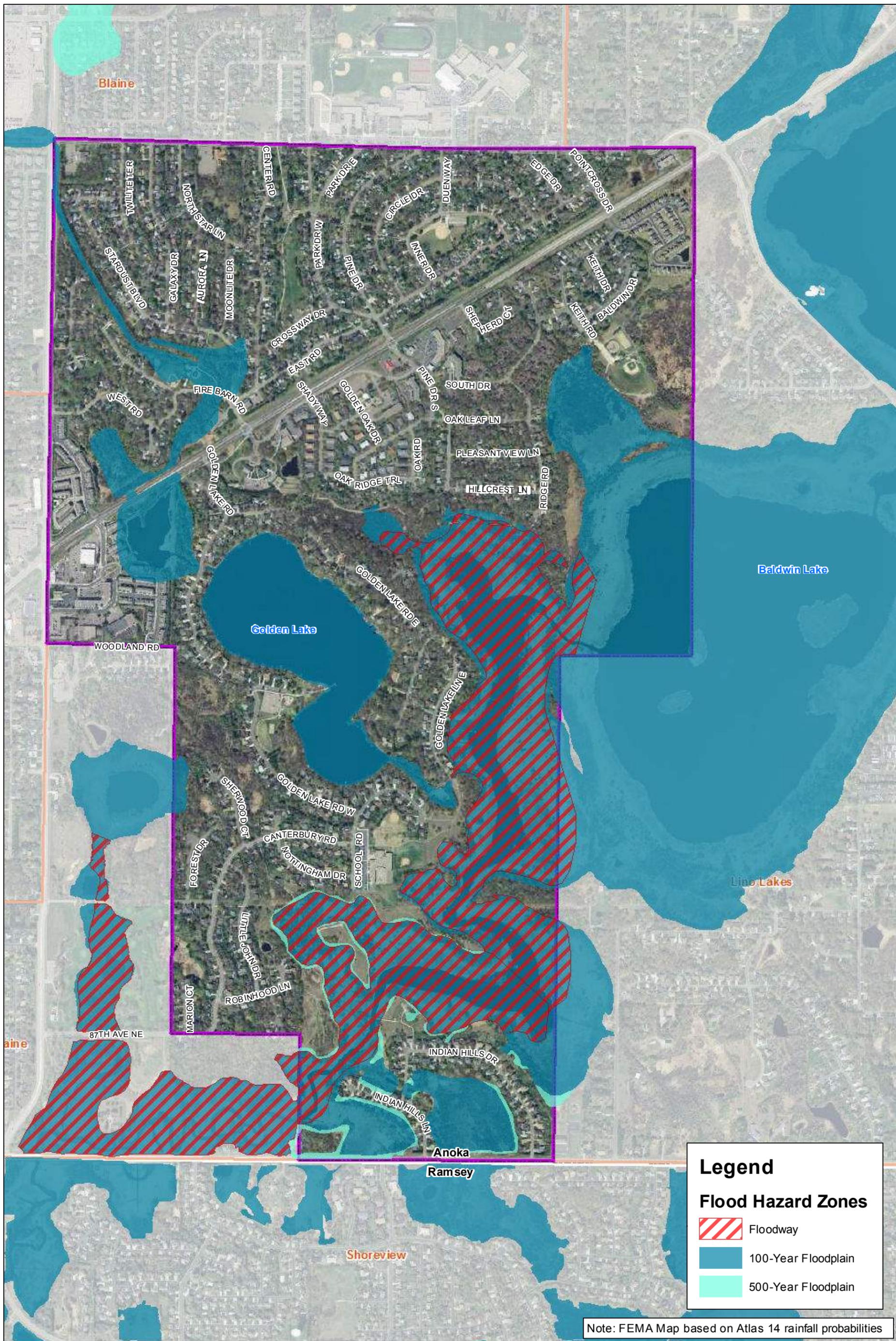
1	Golden Lake water quality and TMDL	4.2.A
2	Baldwin Lake water quality and TMDL	4.2.E
3	Rice Creek impairment	4.2.B
4	High flow rates and water levels in Ditch 53-62	4.3.A
5	Rice Lake water quality and TMDL	4.2.E
6	High flow rates and water levels in Rice Creek	4.3.A
7	Erosion in Ditch 53-62	4.6.A
8	High flow rates from the Chain of Lakes	4.3.A

**Legend**

- Problem Area
- ACD 53-62
- 2016 Impaired Streams
- 2016 Impaired Lake

**FIGURE 7: Problem Areas Map**





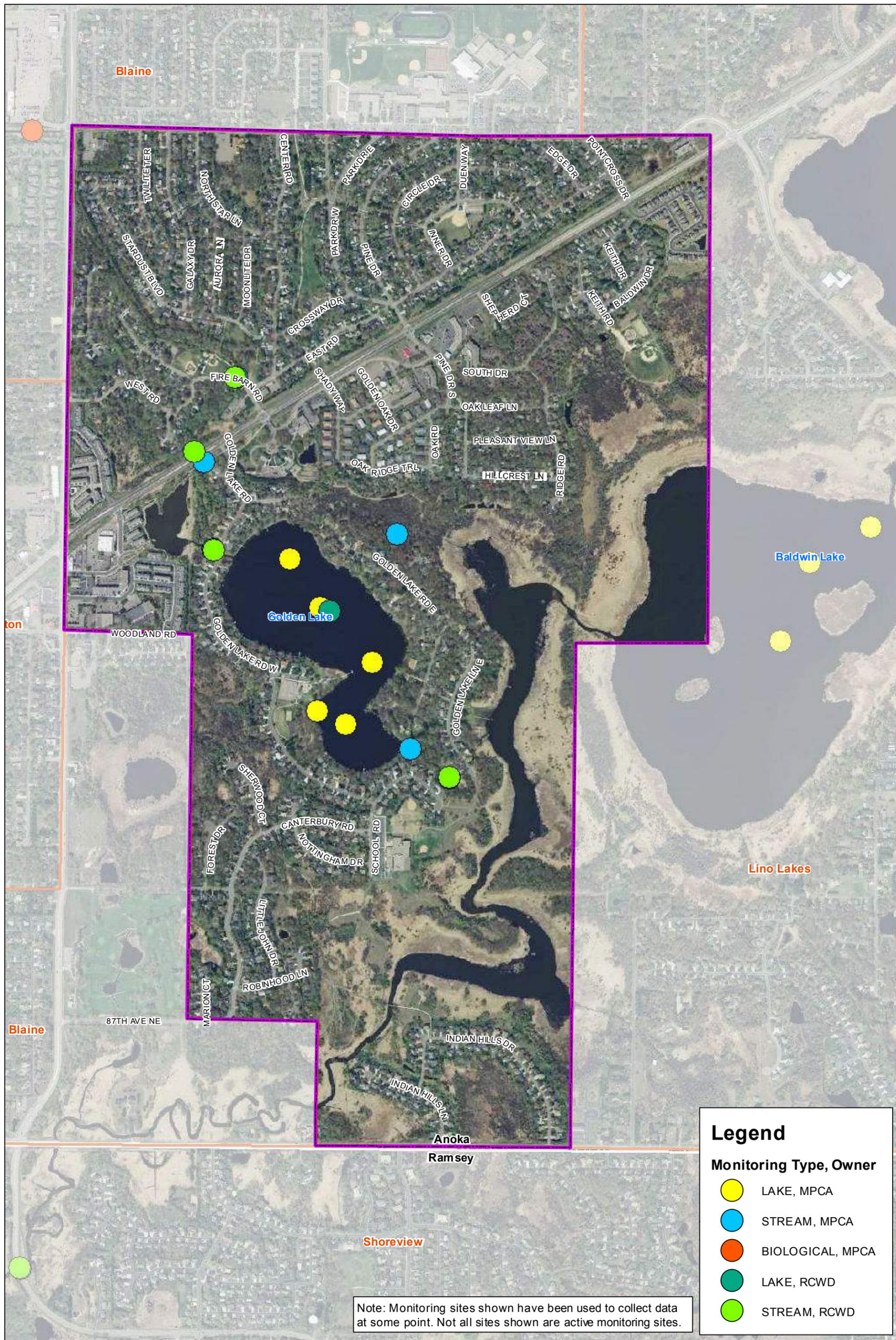
**Legend**

**Flood Hazard Zones**

-  Floodway
-  100-Year Floodplain
-  500-Year Floodplain

Note: FEMA Map based on Atlas 14 rainfall probabilities



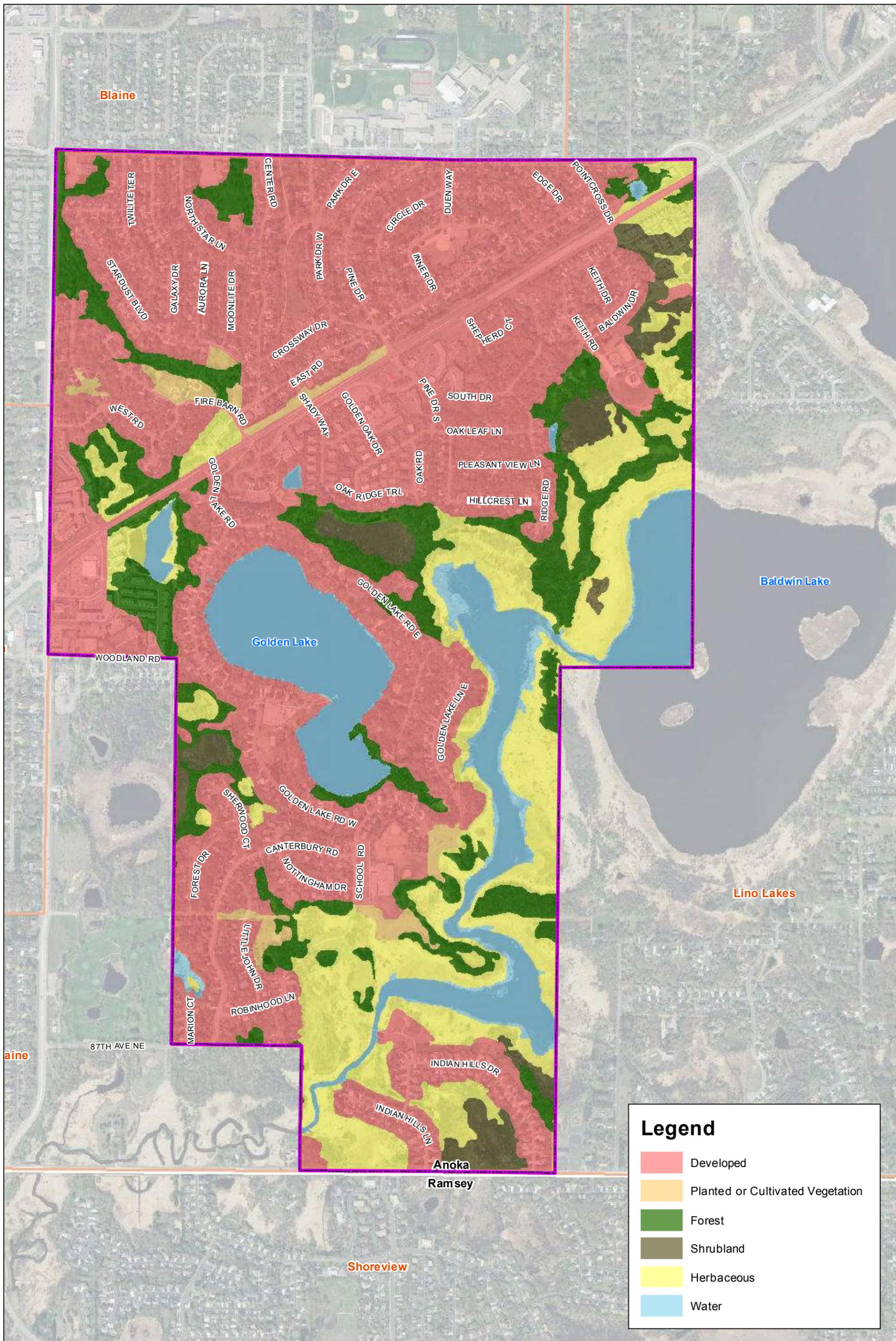


**Legend**

**Monitoring Type, Owner**

- LAKE, MPCA
- STREAM, MPCA
- BIOLOGICAL, MPCA
- LAKE, RCWD
- STREAM, RCWD

Note: Monitoring sites shown have been used to collect data at some point. Not all sites shown are active monitoring sites.

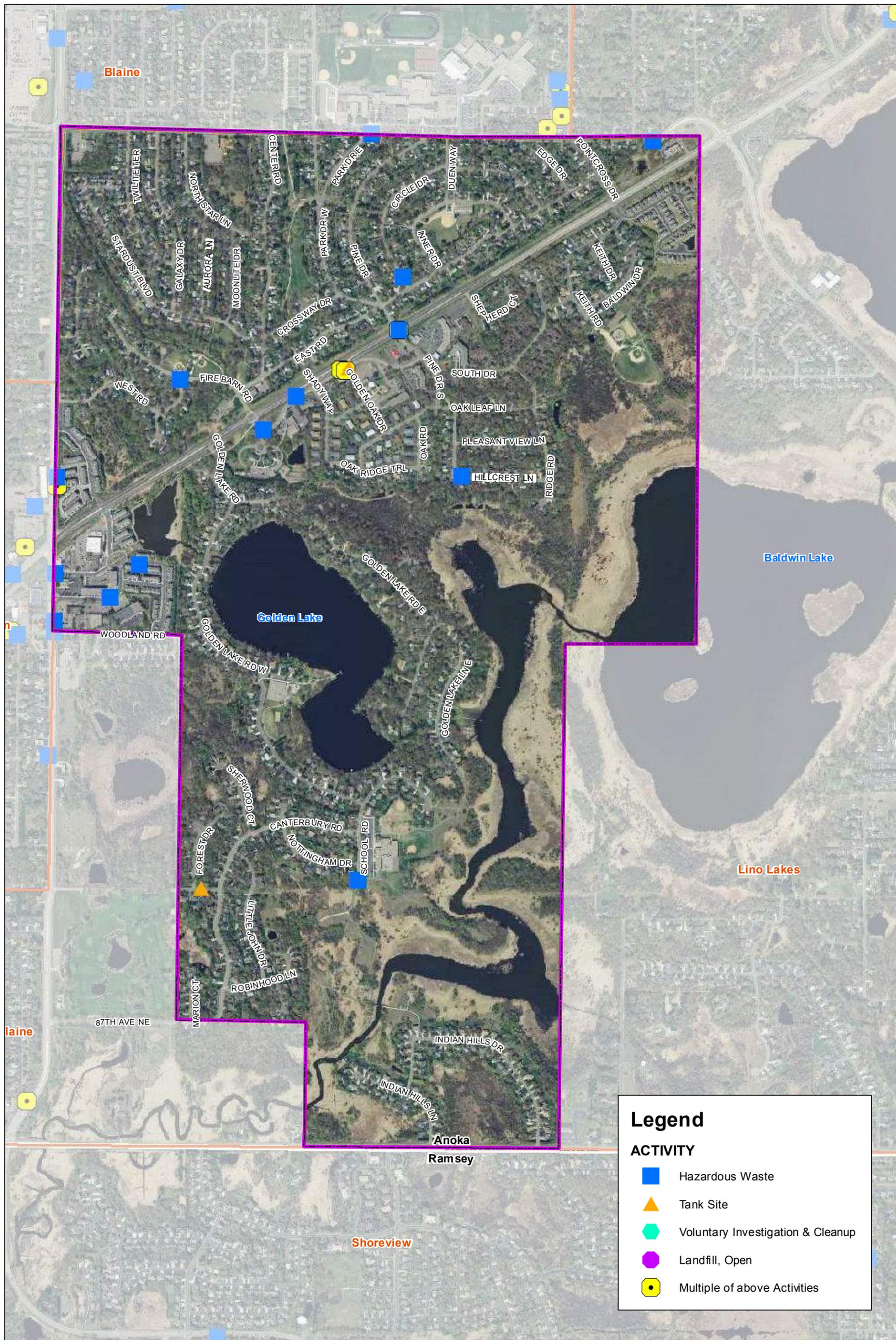


**Legend**

- Developed
- Planted or Cultivated Vegetation
- Forest
- Shrubland
- Herbaceous
- Water

**FIGURE 10: Minnesota Land Cover Classification System (MLCCS)**

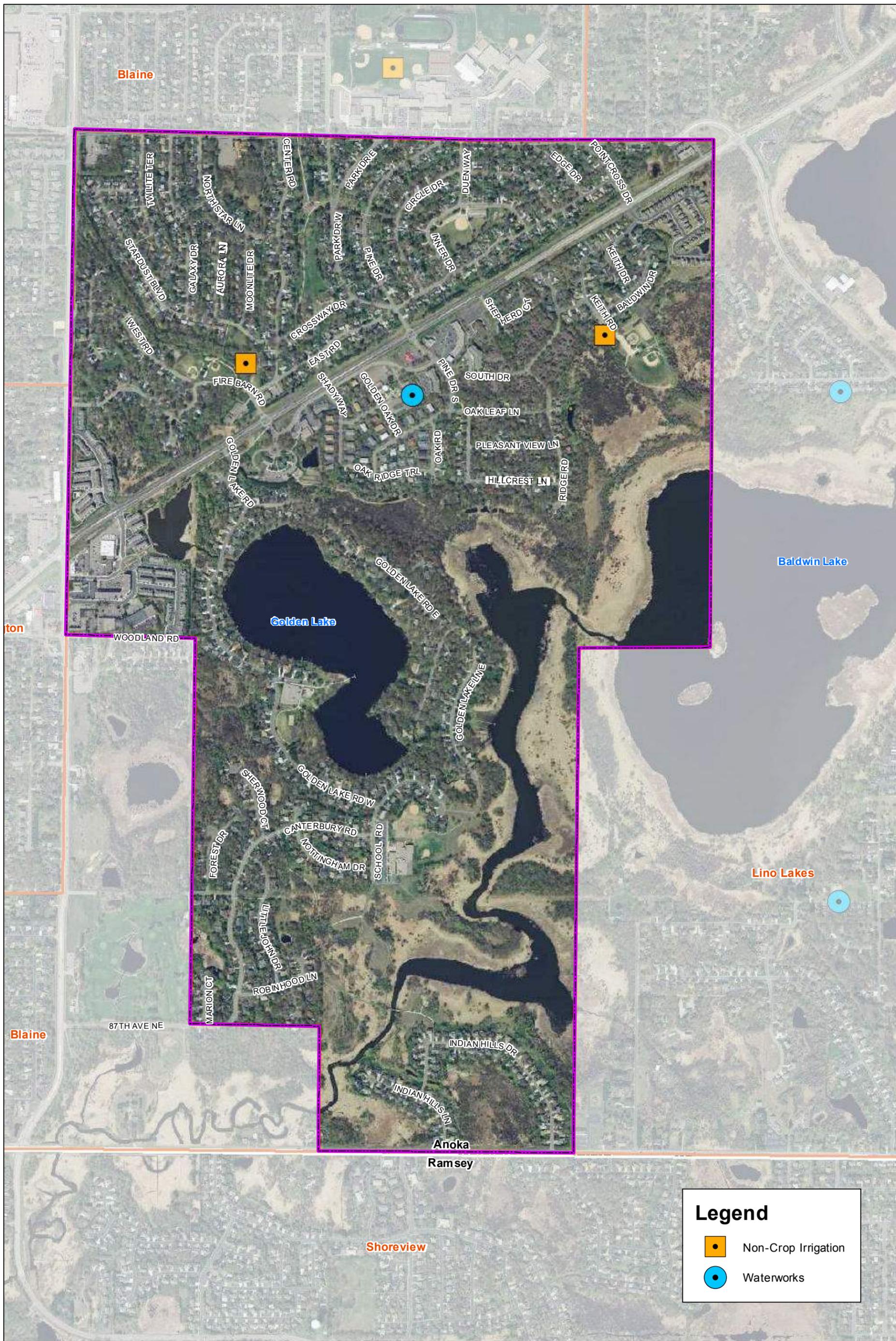




**Legend**

**ACTIVITY**

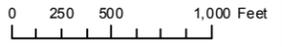
- Hazardous Waste
- ▲ Tank Site
- ⬡ Voluntary Investigation & Cleanup
- Landfill, Open
- Multiple of above Activities

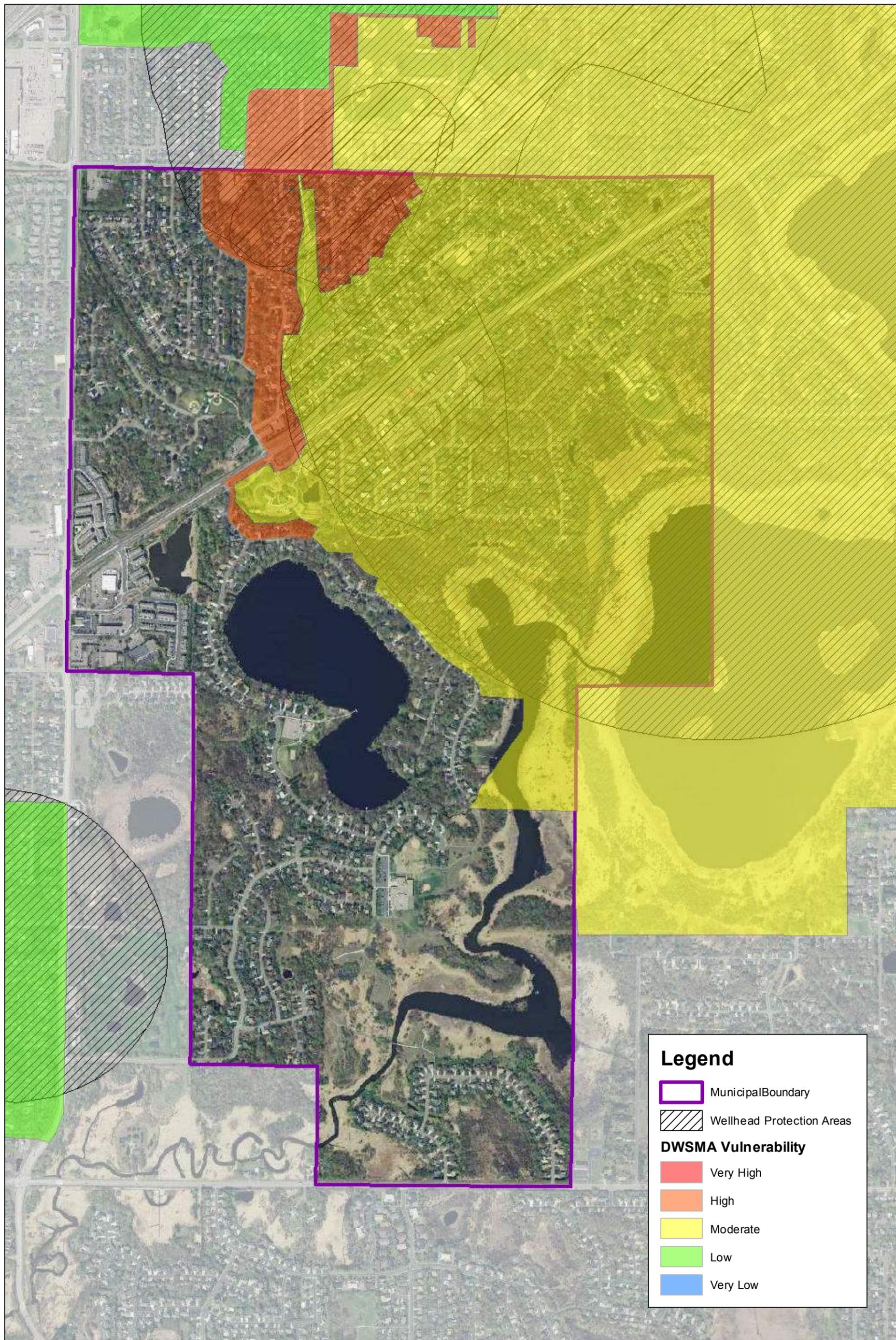


**Legend**

- Non-Crop Irrigation
- Waterworks

**FIGURE 12: Water Appropriations**





**Legend**

- Municipal Boundary
- Wellhead Protection Areas
- DWSMA Vulnerability**
  - Very High
  - High
  - Moderate
  - Low
  - Very Low

## **APPENDIX B**

### MS4 SWPPP Application for Reauthorization



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 SWPPP Application for Reauthorization

for the NPDES/SDS General Small Municipal Separate Storm Sewer System (MS4) Permit MNR040000 reissued with an effective date of August 1, 2013 Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: This application is for authorization to discharge stormwater associated with Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program. No fee is required with the submittal of this application. Please refer to "Example" for detailed instructions found on the Minnesota Pollution Control Agency (MPCA) MS4 website at http://www.pca.state.mn.us/ms4.

Submittal: This MS4 SWPPP Application for Reauthorization form must be submitted electronically via e-mail to the MPCA at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. All questions with an asterisk (\*) are required fields. All applications will be returned if required fields are not completed.

Questions: Contact Claudia Hochstein at 651-757-2881 or claudia.hochstein@state.mn.us, Dan Miller at 651-757-2246 or daniel.miller@state.mn.us, or call toll-free at 800-657-3864.

General Contact Information (\*Required fields)

MS4 Owner (with ownership or operational responsibility, or control of the MS4)

\*MS4 permittee name: City of Circle Pines \*County: Anoka
(city, county, municipality, government agency or other entity)
\*Mailing address: 200 Civic Heights Circle
\*City: Circle Pines \*State: MN \*Zip code: 55014
\*Phone (including area code): 763-784-5898 \*E-mail: cpeterson@ci.circle-pines.mn.us

MS4 General contact (with Stormwater Pollution Prevention Program [SWPPP] implementation responsibility)

\*Last name: Peterson \*First name: Chandra
(department head, MS4 coordinator, consultant, etc.)
\*Title: Asst. City Administrator
\*Mailing address: 200 Civic Heights Circle
\*City: Circle Pines \*State: MN \*Zip code: 55014
\*Phone (including area code): 763-784-5898 \*E-mail: cpeterson@ci.circle-pines.mn.us

Preparer information (complete if SWPPP application is prepared by a party other than MS4 General contact)

Last name: Peters First name: Jeff
(department head, MS4 coordinator, consultant, etc.)
Title: WSB & Associates
Mailing address: 701 Xenia Ave South Suite 300
City: Minneapolis State: MN Zip code: 55416
Phone (including area code): (763) 287-7150 E-mail: jpeters@wsbeng.com

Verification

- 1. I seek to continue discharging stormwater associated with a small MS4 after the effective date of this Permit, and shall submit this MS4 SWPPP Application for Reauthorization form, in accordance with the schedule in Appendix A, Table 1, with the SWPPP document completed in accordance with the Permit (Part II.D.). [X] Yes
2. I have read and understand the NPDES/SDS MS4 General Permit and certify that we intend to comply with all requirements of the Permit. [X] Yes

**Certification (All fields are required)**

---

- Yes - I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted.

*I certify that based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.*

*I am aware that there are significant penalties for submitting false information, including the possibility of civil and criminal penalties.*

This certification is required by Minn. Stat. §§ 7001.0070 and 7001.0540. The authorized person with overall, MS4 legal responsibility must certify the application (principal executive officer or a ranking elected official).

By typing my name in the following box, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing my application.

Name: Chandra Peterson  
*(This document has been electronically signed)*

Title: Asst. City Administrator Date (mm/dd/yyyy): 12/31/2013

Mailing address: 200 Civic Heights Circle

City: Circle Pines State: MN Zip code: 55014

Phone (including area code): 763-784-5898 E-mail: cpeterson@ci.circle-pines.mn.us

**Note:** *The application will not be processed without certification.*

# Stormwater Pollution Prevention Program Document

## I. Partnerships: (Part II.D.1)

- A. List the **regulated small MS4(s)** with which you have established a partnership in order to satisfy one or more requirements of this Permit. Indicate which Minimum Control Measure (MCM) requirements or other program components that each partnership helps to accomplish (List all that apply). Check the box below if you currently have no established partnerships with other regulated MS4s. If you have more than five partnerships, hit the tab key after the last line to generate a new row.

No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
.	

- B. If you have additional information that you would like to communicate about your partnerships with other regulated small MS4(s), provide it in the space below, or include an attachment to the SWPPP Document, with the following file naming convention: *MS4NameHere\_Partnerships*.

*The City doesn't currently have any written agreements with other MS4s for Partnerships. The City will continue to pursue other ways to incorporate program components with partners.*

## II. Description of Regulatory Mechanisms: (Part II.D.2)

### Illicit discharges

- A. Do you have a regulatory mechanism(s) that effectively prohibits non-stormwater discharges into your small MS4, except those non-stormwater discharges authorized under the Permit (Part III.D.3.b.)?  Yes  No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

- Ordinance                       Contract language  
 Policy/Standards                 Permits  
 Rules  
 Other, explain: \_\_\_\_\_

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

*City Code: Chapter 13 zoning, Section 1360 - Regulation of Discharge into StormSewer System.*

Direct link:

*[http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP\\_13\\_ZONING.pdf](http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP_13_ZONING.pdf)*

- Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere\_IDDEreg*.

2. If **no**:

Describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

*City Ordinance needs to be reviewed and evaluated. If changes are necessary they will be completed within 12 months of the date permit coverage is extended.*

## Construction site stormwater runoff control

- A. Do you have a regulatory mechanism(s) that establishes requirements for erosion and sediment controls and waste controls?  Yes  No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

- Ordinance  Contract language  
 Policy/Standards  Permits  
 Rules  
 Other, explain: \_\_\_\_\_

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

*City Code: Chapter 13 zoning, Section 1350 - Stormwater Management Ordinance*

Direct link:

*[http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP\\_13\\_ZONING.pdf](http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP_13_ZONING.pdf)*

- Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere\_CSWreg.*

- B. Is your regulatory mechanism at least as stringent as the MPCA general permit to Discharge Stormwater Associated with Construction Activity (as of the effective date of the MS4 Permit)?  Yes  No

If you answered **yes** to the above question, proceed to C.

If you answered **no** to either of the above permit requirements listed in A. or B., describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

*The City's construction site stormwater runoff control regulatory mechanism will be updated to be at least as stringent as the MPCA CSW permit. This effort will be completed within 12 months of the date permit coverage is extended.*

- C. Answer **yes** or **no** to indicate whether your regulatory mechanism(s) requires owners and operators of construction activity to develop site plans that incorporate the following erosion and sediment controls and waste controls as described in the Permit (Part III.D.4.a.(1)-(8)), and as listed below:

- |  |   |                             |
|--|---|-----------------------------|
| 1. Best Management Practices (BMPs) to minimize erosion.   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. BMPs to minimize the discharge of sediment and other pollutants.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. BMPs for dewatering activities.   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Site inspections and records of rainfall events   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. BMP maintenance   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 6. Management of solid and hazardous wastes on each project site.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 7. Final stabilization upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 8. Criteria for the use of temporary sediment basins.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

*C.1-8 The City's construction site stormwater runoff control regulatory mechanism will be updated to be at least as stringent as the MPCA CSW permit. This effort will be completed within 12 months of the date permit coverage is extended.*

## Post-construction stormwater management

- A. Do you have a regulatory mechanism(s) to address post-construction stormwater management activities?  Yes  No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

- Ordinance  Contract language  
 Policy/Standards  Permits  
 Rules

Other, explain: \_\_\_\_\_

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

*City Code: Chapter 13 zoning, Section 1350 - Stormwater Management Ordinance, Subd. 6 Stormwater Management Criteria for Permanent Facilities.*

Direct link:

[http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP\\_13\\_ZONING.pdf](http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP_13_ZONING.pdf)

- Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere\_PostCSWreg*.

- B. Answer **yes** or **no** below to indicate whether you have a regulatory mechanism(s) in place that meets the following requirements as described in the Permit (Part III.D.5.a.):

1. **Site plan review:** Requirements those owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity.  Yes  No

2. **Conditions for post construction stormwater management:** Requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the Maximum Extent Practicable (MEP):

- a. For new development projects – no net increase from pre-project conditions (on an annual average basis) of:  Yes  No

- 1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).  
2) Stormwater discharges of Total Suspended Solids (TSS).  
3) Stormwater discharges of Total Phosphorus (TP).

- b. For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of:  Yes  No

- 1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).  
2) Stormwater discharges of TSS.  
3) Stormwater discharges of TP.

3. **Stormwater management limitations and exceptions:**

- a. Limitations

- 1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas:  Yes  No

- a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.  
b) Where vehicle fueling and maintenance occur.  
c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.  
d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.

- 2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas:  Yes  No

- a) With predominately Hydrologic Soil Group D (clay) soils.  
b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.  
c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.  
d) Where soil infiltration rates are more than 8.3 inches per hour.

- 3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), the permittee's regulatory mechanism(s) may allow  Yes  No

exceptions as described in the Permit (Part III.D.5.a(3)(b)). The permittee's regulatory mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.

4. **Mitigation provisions:** The permittee's regulatory mechanism(s) shall ensure that any stormwater discharges of TSS and/or TP not addressed on the site of the original construction activity are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:
- a. Mitigation project areas are selected in the following order of preference:  Yes  No
    - 1) Locations that yield benefits to the same receiving water that receives runoff from the original construction activity.
    - 2) Locations within the same Minnesota Department of Natural Resource (DNR) catchment area as the original construction activity.
    - 3) Locations in the next adjacent DNR catchment area up-stream
    - 4) Locations anywhere within the permittee's jurisdiction.
  - b. Mitigation projects must involve the creation of new structural stormwater BMPs or the retrofit of existing structural stormwater BMPs, or the use of a properly designed regional structural stormwater BMP.  Yes  No
  - c. Routine maintenance of structural stormwater BMPs already required by this permit cannot be used to meet mitigation requirements of this part.  Yes  No
  - d. Mitigation projects shall be completed within 24 months after the start of the original construction activity.  Yes  No
  - e. The permittee shall determine, and document, who will be responsible for long-term maintenance on all mitigation projects of this part.  Yes  No
  - f. If the permittee receives payment from the owner and/or operator of a construction activity for mitigation purposes in lieu of the owner or operator of that construction activity meeting the conditions for post-construction stormwater management in Part III.D.5.a(2), the permittee shall apply any such payment received to a public stormwater project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e).  Yes  No
5. **Long-term maintenance of structural stormwater BMPs:** The permittee's regulatory mechanism(s) shall provide for the establishment of legal mechanisms between the permittee and owners or operators responsible for the long-term maintenance of structural stormwater BMPs not owned or operated by the permittee, that have been implemented to meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)). This only includes structural stormwater BMPs constructed after the effective date of this permit and that are directly connected to the permittee's MS4, and that are in the permittee's jurisdiction. The legal mechanism shall include provisions that, at a minimum:
- a. Allow the permittee to conduct inspections of structural stormwater BMPs not owned or operated by the permittee, perform necessary maintenance, and assess costs for those structural stormwater BMPs when the permittee determines that the owner and/or operator of that structural stormwater BMP has not conducted maintenance.  Yes  No
  - b. Include conditions that are designed to preserve the permittee's right to ensure maintenance responsibility, for structural stormwater BMPs not owned or operated by the permittee, when those responsibilities are legally transferred to another party.  Yes  No
  - c. Include conditions that are designed to protect/preserve structural stormwater BMPs and site features that are implemented to comply with the Permit (Part III.D.5.a(2)). If site configurations or structural stormwater BMPs change, causing decreased structural stormwater BMP effectiveness, new or improved structural stormwater BMPs must be implemented to ensure the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) continue to be met.  Yes  No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within twelve (12) months of the date permit coverage is extended, these permit requirements are met:

*B.2. The City requires that all of Rice Creek Watershed Districts standards be met. A review of those standards and the cities standards will be completed and changes if changes are needed they will be made to city ordinances within 12 months of permit coverage being granted.*

*B.3.a.1: The City will amend the ordinance and/or City Design Standards to include prohibiting the use of infiltration techniques for post-construction stormwater management as described in the Permit (Part III.D.5.a(3)(a).1). The ordinance will be amended on the same schedule as the items in B.2.a and B.2.b.*

*B.3.a.2: The City will amend the ordinance and/or City Design Standards to include restricting the use of infiltration techniques for post-construction stormwater management as described in the Permit (Part III.D.5.a(3)(a).2). This will occur on the same schedule as the items above.*

B.3.a.3: The City will amend the ordinance and/or City Design Standards to include the exceptions for linear projects as described in the Permit (Part III.D.5.a(3)(b)). This will occur on the same schedule as the items above.

B.4.a.: The City will amend the ordinance and/or City Design Standards to include order of preference for selecting mitigation project areas as described in the Permit (Part III.D.5.a(4)(a)). This will occur on the same schedule as the items above.

B.4.b.: The City will amend the ordinance and/or City Design Standards to include requirements for the creation of mitigation projects as described in the Permit (Part III.D.5.a(4)(b)). This will occur on the same schedule as the items above.

B.4.c.: The City will amend the ordinance and/or City Design Standards to include the restriction from using routine maintenance of structural BMPs to meet the requirements for mitigation projects as described in the Permit (Part III.D.5.a(4)(c)). This will occur on the same schedule as the items above.

B.4.d.: The City will amend the ordinance and/or City Design Standards to include the requirement to complete mitigation projects within 24 months after the start of the original construction activity as described in the Permit (Part III.D.5.a(4)(d)). This will occur on the same schedule as the items above.

B.4.e.: The City will amend the ordinance and/or City Design Standards to include the requirement to determine, and document, who will be responsible for long-term maintenance on all mitigation projects as described in the Permit (Part III.D.5.a(4)(e)). This will occur on the same schedule as the items above.

B.4.f.: The City will amend the ordinance and/or City Design Standards to mandate that money received from an owner/operator of construction activity, in lieu of meeting the conditions for post-construction stormwater management, shall be used for a public stormwater project as described in the Permit (Part III.D.5.a(4)(f)). This will occur on the same schedule as the items above.

B.5.a.: The City will amend the ordinance and/or City Design Standards to include the requirement to allow the permittee to conduct inspections, perform maintenance, and assess maintenance cost of structural stormwater BMPs not owned or operated by the permittee as described in the Permit (Part III.D.5.a(5)(a)). This will occur on the same schedule as the items above.

B.5.b.: The City will amend the ordinance and/or City Design Standards to include conditions that require maintenance responsibility for structural stormwater BMPs through transfer of ownership as described in the Permit (Part III.D.5.a(5)(b)). This will occur on the same schedule as the items above.

B.5.c.: The City will amend the ordinance and/or City Design Standards to include conditions to address BMP modification in the future as described in the Permit (Part III.D.5.a(5)(c)). This will occur on the same schedule as the items above.

### III. Enforcement Response Procedures (ERPs): (Part II.D.3)

A. Do you have existing ERPs that satisfy the requirements of the Permit (Part III.B.)?  Yes  No

1. If **yes**, attach them to this form as an electronic document, with the following file naming convention: *MS4NameHere\_ERPs*.

2. If **no**, describe the tasks and corresponding schedules that will be taken to assure that, with twelve (12) months of the date permit coverage is extended, these permit requirements are met:

*Enforcement Response Procedures will be updated to meet the requirements of the MS4 permit within 12 months of permit coverage being granted.*

B. Describe your ERPs:

[http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP\\_13\\_ZONING.pdf](http://www.ci.circle-pines.mn.us/vertical/sites/%7BEF567A3D-21B2-43D8-AD9B-EC198D426DD6%7D/uploads/CHP_13_ZONING.pdf)

*1350.07 Penalty. Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.*

### IV. Storm Sewer System Map and Inventory: (Part II.D.4.)

A. Describe how you manage your storm sewer system map and inventory:

*New developments are required to provide electronic as-built data in accordance with the GIS Information Requirements located in the City Design Standard. The City GIS specialist updates and maintains all of the City's GIS*

Information.

B. Answer **yes** or **no** to indicate whether your storm sewer system map addresses the following requirements from the Permit (Part III.C.1.a-d), as listed below:

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes.  Yes  No
2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate.  Yes  No
3. Structural stormwater BMPs that are part of the permittee's small MS4.  Yes  No
4. All receiving waters.  Yes  No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C. Answer **yes** or **no** to indicate whether you have completed the requirements of 2009 Minnesota Session Law, Ch. 172. Sec. 28: with the following inventories, according to the specifications of the Permit (Part III.C.2.a.-b.), including:

1. All ponds within the permittee's jurisdiction that are constructed and operated for purposes of water quality treatment, stormwater detention, and flood control, and that are used for the collection of stormwater via constructed conveyances.  Yes  No
2. All wetlands and lakes, within the permittee's jurisdiction, that collect stormwater via constructed conveyances.  Yes  No

D. Answer **yes** or **no** to indicate whether you have completed the following information for each feature inventoried.

1. A unique identification (ID) number assigned by the permittee.  Yes  No
2. A geographic coordinate.  Yes  No
3. Type of feature (e.g., pond, wetland, or lake). This may be determined by using best professional judgment.  Yes  No

If you have answered **yes** to all above requirements, and you have already submitted the Pond Inventory Form to the MPCA, then you do not need to resubmit the inventory form below.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

E. Answer **yes** or **no** to indicate if you are attaching your pond, wetland and lake inventory to the MPCA on the form provided on the MPCA website at: <http://www.pca.state.mn.us/ms4>, according to the specifications of Permit (Part III.C.2.b.(1)-(3)). Attach with the following file naming convention: *MS4NameHere\_inventory*.  Yes  No

If you answered **no**, the inventory form must be submitted to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.

## V. Minimum Control Measures (MCMs) (Part II.D.5)

### A. MCM1: Public education and outreach

1. The Permit requires that, within 12 months of the date permit coverage is extended, existing permittees revise their education and outreach program that focuses on illicit discharge recognition and reporting, as well as other specifically selected stormwater-related issue(s) of high priority to the permittee during this permit term. Describe your **current** educational program, including **any high-priority topics included**:

*The public education program has been developed to distribute educational materials to the community or conduct equivalent outreach activities. The BMPs identified will focus on the impact of storm water discharges on streams, rivers, and wetlands, and the steps that the public can take to reduce pollutants in storm water runoff.*

2. List the categories of BMPs that address your public education and outreach program, including the distribution of educational materials and a program implementation plan. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In

addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the U.S. Environmental Protection Agency's (EPA) *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
<i>Education Activity Implementation Plan</i>	<i>The City will provide stormwater education and outreach programs for residents within the City. The City will complete and outline of the education program and implementation schedule for the upcoming permit.</i>
<i>City Web Page</i>	<i>The City updates their web page by providing information on high priority storm water pollution prevention topics and effects of illicit discharge to City residents and business owners. The goal will be to add new material as it becomes available and record the number of website hits annually.</i>
<i>City Newsletter</i>	<i>City staff will develop then distribute stormwater related articles in the City newsletter. This goal will be met by distributing a minimum of two storm water related articles in the City newsletter each year.</i>
<i>Coordination of Education Program</i>	<i>The City will collaborate and coordinate the development and implementation of the City's educational activities schedule with the Rice Creek Watershed District.</i>
BMP categories to be implemented	Measurable goals and timeframes

- Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

*Asst. City Administrator/ Public Works Coordinator*

## B. MCM2: Public participation and involvement

- The Permit (Part III.D.2.a.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement a public participation/involvement program to solicit public input on the SWPPP. Describe your current program:

*Under this minimum control measure, the City provides measures to receive public input and opinion on the adequacy of the SWPPP. This input can be received from public meetings, oral testimony, and written correspondence.*

- List the categories of BMPs that address your public participation/involvement program, including solicitation and documentation of public input on the SWPPP. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
<i>Comply with Public Notice Requirements</i>	<i>Provide public notice of meeting to provide input on the SWPPP in accordance with City public hearing notification requirements.</i>
<i>Annual Meeting</i>	<i>Hold annual public meeting combined with City Council Meeting or other public participation/involvement event to solicit public input on the SWPPP.</i>
<i>Consider Public Input</i>	<i>The City will conduct a public meeting and host a web page on the City's Storm Water Pollution Prevention Program. City staff will respond to all public comments and statements received from the public meeting, and document any proposed changes to the SWPPP for final approval by City Engineer (if applicable). The goal of this BMP will be met by documenting all written and oral input into the record of decision and submitted in conjunction with the annual report to the MPCA.</i>

BMP categories to be implemented	Measurable goals and timeframes
Online Availability of Stormwater Pollution Prevention Program Document	Provide an electronic document of Stormwater Pollution Prevention Program document online, to allow anytime, easier access to these documents.

3. Do you have a process for receiving and documenting citizen input?  Yes  No

If you answered **no** to the above permit requirement, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Asst. City Administrator / Public Works Coordinator

**C. MCM 3: Illicit discharge detection and elimination**

1. The Permit (Part III.D.3.) requires that, within 12 months of the date permit coverage is extended, existing permittees revise their current program as necessary, and continue to implement and enforce a program to detect and eliminate illicit discharges into the small MS4. Describe your current program:

*The City has an ordinance that prohibits illicit discharges and connections. City Staff and public works employees are trained to look for any signs of an illicit discharge while on the job. ERPs guide what actions the City can take after an illicit discharge has been identified.*

2. Does your Illicit Discharge Detection and Elimination Program meet the following requirements, as found in the Permit (Part III.D.3.c.-g.)?

- a. Incorporation of illicit discharge detection into all inspection and maintenance activities conducted under the Permit (Part III.D.6.e.-f.) Where feasible, illicit discharge inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation).  Yes  No
- b. Detecting and tracking the source of illicit discharges using visual inspections. The permittee may also include use of mobile cameras, collecting and analyzing water samples, and/or other detailed procedures that may be effective investigative tools.  Yes  No
- c. Training of all field staff, in accordance with the requirements of the Permit (Part III.D.6.g.(2)), in illicit discharge recognition (including conditions which could cause illicit discharges), and reporting illicit discharges for further investigation.  Yes  No
- d. Identification of priority areas likely to have illicit discharges, including at a minimum, evaluating land use associated with business/industrial activities, areas where illicit discharges have been identified in the past, and areas with storage of large quantities of significant materials that could result in an illicit discharge.  Yes  No
- e. Procedures for the timely response to known, suspected, and reported illicit discharges.  Yes  No
- f. Procedures for investigating, locating, and eliminating the source of illicit discharges.  Yes  No
- g. Procedures for responding to spills, including emergency response procedures to prevent spills from entering the small MS4. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer, if the source of the illicit discharge is a spill or leak as defined in Minn. Stat. § 115.061.  Yes  No
- h. When the source of the illicit discharge is found, the permittee shall use the ERPs required by the Permit (Part III.B.) to eliminate the illicit discharge and require any needed corrective action(s).  Yes  No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

*C.2.b. The City will incorporate procedures into the IDDE program for detecting and tracking the source of illicit discharges using visual inspections as described in the permit (Part III.D.3.d). Procedures will be in place within 12 months following the date permit coverage is extended..*

*C.2.d. The City will incorporate procedures into the IDDE program for prioritization of areas likely to have illicit discharges as described in the permit (Part III.D.3.f). Procedures will be in place within 12 months following the date permit coverage is extended.*

3. List the categories of BMPs that address your illicit discharge, detection and elimination program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
<i>Storm Sewer System Mapping</i>	<i>The goal of this BMP will be met by annually updating changes to the City's storm sewer system map.</i>
<i>Illicit Discharge Detection and Elimination (IDDE) and Enforcement Ordinance</i>	<i>The City will review and update (as necessary) the City's ordinance to prohibit illicit and non-stormwater discharges into the City's storm sewer and surface/ground waters. The goal of this BMP will be met by reviewing existing city ordinances and implementing updates related to illicit/non-stormwater discharges (if necessary).</i>
<i>Illicit Discharge Detection and Elimination (IDDE) Program</i>	<i>The City will develop and implement a program to detect and reduce non-stormwater discharges, including illegal dumping. Procedures for detection may consist of visual inspections for non-stormwater discharges on City owned land and private property (as requested). Inspection frequency may be conducted concurrent with the outfall inspections and implementation schedule of the public works activities.  The City will notify the MPCA state duty officer of any hazardous material spills or discharges (within 24 hours of receipt, if applicable, per NPDES Phase II requirements).</i>
BMP categories to be implemented	Measurable goals and timeframes
<i>IDDE Program Updates</i>	<i>Develop written procedures for illicit discharge inspections, investigations, and response actions. Develop a process to document information as described in the Permit (Part III.3.h) within 12 months following the date permit coverage is extended.</i>
<i>Illicit Discharge Inspections</i>	<i>In Year 1, the City will map out areas that are identified as high-priority outfalls and around high-risk establishments (fast food restaurants, dumpster, car washes, mechanics, and oil changes.) in years 2-5, the City will those integrate those sites into its annual inspection MS4 activities.</i>
<i>Illicit Discharge Investigation</i>	<i>As needed, City staff or a consultant will be used to televise a section of the sewer system, collect grab samples or perform other effective testing procedures to find illicit connection identified in the system.</i>

4. Do you have procedures for record-keeping within your Illicit Discharge Detection and Elimination (IDDE) program as specified within the Permit (Part III.D.3.h.)?  Yes  No

If you answered **no**, indicate how you will develop procedures for record-keeping of your Illicit Discharge, Detection and Elimination Program, within 12 months of the date permit coverage is extended:

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

*Public Works Supervisor*

#### D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

*The City requires review of construction site erosion and sediment control (ESC) plans before projects begin, and work with contractors to ensure appropriate and correct use of erosion and sediment control BMPs on sites. The building inspectionis department are primarily responsible for checking compliance with construction site ESC plans.*

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):
- Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity?  Yes  No
  - Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*?  Yes  No

- c. Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee?  Yes  No
- d. Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):
- 1) Does your program include procedures for identifying priority sites for inspection?  Yes  No
  - 2) Does your program identify a frequency at which you will conduct construction site inspections?  Yes  No
  - 3) Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections?  Yes  No
  - 4) Does your program include a checklist or other written means to document construction site inspections when determining compliance?  Yes  No
- e. Does your program document and retain construction project name, location, total acreage to be disturbed, and owner/operator information?  Yes  No
- f. Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial?  Yes  No
- g. Does your program retain construction site inspection checklists or other written materials used to document site inspections?  Yes  No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

*D.2.d., City will develop written procedures for conducting site ESC inspections as described in the Permit (Part III.D.4.d). Procedures will be in place within 12 months following the date permit coverage is extended.*

3. List the categories of BMPs that address your construction site stormwater runoff control program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

<b>Established BMP categories</b>	<b>Measurable goals and timeframes</b>
<i>Construction Site Stormwater Runoff Ordinance</i>	<i>The City will annually review and update (as necessary) the City's erosion control ordinance.</i>
<i>Construction Site Erosion and Sediment Control Inspections</i>	<i>City staff will continue to implement and enforce the construction site inspection program for erosion control on construction sites one acre or larger.</i>
<i>Waste Controls for Construction Site Operators</i>	<i>The goal of this BMP is to document the number of site inspections conducted annually.</i>
<i>Construction Site Plan Review</i>	<i>The goal will be met by enforcing the NPDES Phase II permit requirements through the City's construction site inspection program.</i>
<i>Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance</i>	<i>The City will require every applicant for a building permit, subdivision approval, or grading permit that disturbs one acre or more to submit a project specific stormwater management plan (if applicable). This goal will be met by only issuing City permits to applicants that have submitted project specific stormwater management plans (if applicable).</i>
<i>Establishment of Procedures for Site Inspections and Enforcement</i>	<i>The City will establish a phone line and web page links for the public to report potential construction site erosion control and waste disposal infractions. The goal of this BMP will achieved by completing the timeline/implementation.</i>
<i>Establishment of Procedures for Site Inspections and Enforcement</i>	<i>The City will inspect construction sites for conformance to NPDES construction permit standards and applicable City standards. This goal will be met by enforcing the City's erosion control and waste disposal standards.</i>
<b>BMP categories to be implemented</b>	<b>Measurable goals and timeframes</b>
<i>Permit Update</i>	<i>Update the City Grading, Building, and ROW permits and Construction Site Stormwater Runoff ordinance to meet the new permit requirements within 12 months following the date permit</i>

	<i>coverage is extended.</i>
<i>Prioritize Inspections</i>	<i>The City will develop a process to determine the frequency for inspecting high priority inspection sites (e.g., near sensitive receiving waters, projects larger than 5 acres).</i>
<i>Permit Application System</i>	<i>Develop written procedures to improve tracking and archiving all plan review and inspection documents within 12 months following the date permit coverage is extended.</i>

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

*Public Works Director, Building inspection staff*

**E. MCM 5: Post-construction stormwater management**

1. The Permit (Part III.D.5.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a post-construction stormwater management program. Describe your current program:

*The City has a surface water management ordinance to address storm water runoff from new development and redevelopment projects that disturb equal to or greater than one acre. This program insures that controls are in place that would prevent or minimize water quality impacts from development activities.*

2. Have you established written procedures for site plan reviews that you will conduct prior to the start of construction activity?  Yes  No
3. Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):
- a. Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any checklists used for conducting site plan reviews, and any calculations used to determine compliance?  Yes  No
  - b. All supporting documentation associated with mitigation projects that you authorize?  Yes  No
  - c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))?  Yes  No
  - d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved?  Yes  No

If you answered **no** to any of the above permit requirements, describe the steps that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

*E.3. The City will develop written procedures for documentation of post-construction stormwater management mitigation as described in the Permit (Part III.D.5.c.). Procedures will be in place within 12 months following the date permit coverage is extended.*

4. List the categories of BMPs that address your post-construction stormwater management program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

<b>Established BMP categories</b>	<b>Measurable goals and timeframes</b>
<i>Site Plan Review Program</i>	<i>The City will review and revise (if necessary, during the plan review process) permanent BMP designs and criteria for post-construction stormwater management associated with new development and redevelopment projects of one acre or more. The City will also actively look for non-structural opportunities where prudent and feasible. The goal of this BMP will be met if the City conducts plan reviews on new development and redevelopment projects of one acre or more.</i>
<i>Surface Water Management Ordinance</i>	<i>Completed ordinance defining standards, review procedures and enforcement response procedures for erosion and sediment control at construction sites, and post construction runoff from new development and redevelopment in 2007.</i>
<i>Stormwater Management Plan</i>	<i>Completed SWMP and ensured goals and policies were</i>

	<i>consistent with the NPDES General and Construction Permits.</i>
<b>BMP categories to be implemented</b>	<b>Measurable goals and timeframes</b>
<i>Update ordinance to meet new permit requirements</i>	<i>Complete Ordinance updates for post construction runoff from new development and redevelopment Within 12 months of extension of permit coverage.</i>
<i>Document Pertinent Project Information</i>	<i>Maintain all related documents pertaining to each new or redevelopment project in more user-friendly filing system for better records management. Implement within 12 months.</i>

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

*Asst. City Administrator / Public Works Director*

**F. MCM 6: Pollution prevention/good housekeeping for municipal operations**

1. The Permit (Part III.D.6.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement an operations and maintenance program that prevents or reduces the discharge of pollutants from the permittee owned/operated facilities and operations to the small MS4. Describe your current program:

*The City currently inspects its structural pollution control devices on an annual basis and inspects all of its outfalls, sediment basins and ponds every 5 years. The City inspects stockpiles, storage and material handling areas at the maintenance yard for potential discharges and maintenance of BMPs. The City is evaluating the use of road salt for winter road maintenance activities to reduce chlorides entering surface waters. The City sweeps streets once in the fall after leaf drop. Maintenance staff is trained annually on various topics related to pollution prevention during maintenance activities.*

2. Do you have a facilities inventory as outlined in the Permit (Part III.D.6.a.)?  Yes  No

3. If you answered **no** to the above permit requirement in question 2, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

*F.3., The City will complete a facilities inventory as described in the Permit (Part III.D.6.a.). Inventory will be completed within 12 months following the date permit coverage is extended.*

4. List the categories of BMPs that address your pollution prevention/good housekeeping for municipal operations program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. For an explanation of measurable goals, refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

**If you have more than five categories**, hit the tab key after the last line to generate a new row.

<b>Established BMP categories</b>	<b>Measurable goals and timeframes</b>
<i>Street Sweeping</i>	<i>The City will continue recording the frequency and miles of streets that are swept, per sweeping occurrence. The goal of this BMP will be met if the City conducts two street sweeping occurrences per year.</i>
<i>Strom Sewer Inspection Program</i>	<i>Conduct one inspection of all City-owned ponds and outfalls prior to expiration date of this permit. Annual inspection of 100% of structural pollution control devices (Sumps, Water Quality Manholes, etc.).</i>
<i>Inspection of All Exposed Stockpile, Storage and Material Handling Areas</i>	<i>City staff will quarterly locate and inspect all exposed stockpiles and storage/material handling areas on City owned properties. All existing onsite BMP's will be inspected for conformance to NPDES Phase II permit requirements. Any identified erosion control issues will be corrected and documented per NPDES Phase II standards.</i>
<i>Structural Stormwater BMP Maintenance Program</i>	<i>Based on storm sewer inspection findings determine if repair, replacement, or maintenance measures are necessary to ensure structures proper function and treatment effectiveness. Document annually number or structures repaired or scheduled</i>

	for maintenance.
<i>Recording, Reporting, and Retention of All Inspections and Responses to the Inspections</i>	<i>The City will retain all records of inspection, maintenance, and corrective actions of the City's stormwater system. The goal of this BMP will be met if the City retains these records for a period of three years past the expiration of this permit.</i>
<i>Evaluation of Inspection Frequency</i>	<i>Evaluate inspection records and determine if inspection frequency needs to increase or decrease.</i>
<i>Landscaping and Lawn Care Practices Review</i>	<i>The City will continue to annually review its landscaping and lawn care practices and adjust its current methods if necessary.</i>
<i>Road Salt Application Review</i>	<i>The City will record the annual activities of the salt distribution program and adjust current practices as necessary.</i>
<i>Evaluation of Proposed Storm Water Infiltration Projects for Impacts within Source Water Protection Areas</i>	<p>1. <i>The City will use the Minnesota Department of Health's document "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas" (Draft-July 19, 2006) and other pertinent information as guidance in evaluating all infiltration projects within or adjacent to vulnerable DWSMA's.</i></p> <p>2. <i>The City will prohibit the construction of the infiltration area or incorporate specific BMPs to reduce pollutants from infiltrating within vulnerable DWSMA's.</i></p> <p>3. <i>The City will annually record the evaluation, denial, and implemented BMP's, of all proposed infiltration projects within and/or adjacent to vulnerable DWSMA's.</i></p>
<b>BMP categories to be implemented</b>	<b>Measurable goals and timeframes</b>
<i>Park and Open Space Training Program</i>	<i>Training focused on fertilizer application, pesticide/herbicide application, and mowing discharge.</i>
<i>Fleet and Building Maintenance Training Program</i>	<i>Training focused on automotive maintenance program (automotive inspections and washing), spill cleanup training, hazardous materials training, building leak prevention and inspection training.</i>
<i>Stormwater Systems Maintenance Training Program</i>	<i>Training focused on parking lot and street cleaning, storm drain systems cleaning, road salt materials management.</i>
<i>Spill Prevention &amp; Control Plans for Municipal Facilities</i>	<i>Ensure that plans describing spill prevention and control procedures are consistent among all departments. Conduct annual spill prevention and response training sessions to all municipal employees. Distribute education materials to each municipal facility by the end of year 2.</i>
<i>Facility Inventory</i>	<i>Develop facilities inventory to include potential pollutants as each site. Create a map of all identified facilities.</i>
<i>Pond Assessment Procedures &amp; Schedule</i>	<i>In year 1, develop procedures for determining TSS and TP treatment effectiveness of city owned ponds use for treatment of stormwater. Implement schedule in year 2-5.</i>

5. Does discharge from your MS4 affect a Source Water Protection Area (Permit Part III.D.6.c.)?  Yes  No
- a. If **no**, continue to 6.
- b. If **yes**, the Minnesota Department of Health (MDH) is in the process of mapping the following items. Maps are available at <http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm>. Is a map including the following items available for your MS4:
- 1) Wells and source waters for drinking water supply management areas identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330?  Yes  No
- 2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13?  Yes  No
- c. Have you developed and implemented BMPs to protect any of the above drinking water sources?  Yes  No

6. Have you developed procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all permittee owned/operated ponds constructed and used for the collection and treatment of stormwater, according to the Permit (Part III.D.6.d.)?  Yes  No
7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas?  Yes  No
8. Have you developed and implemented a stormwater management training program commensurate with each employee's job duties that:
- a. Addresses the importance of protecting water quality?  Yes  No
- b. Covers the requirements of the permit relevant to the duties of the employee?  Yes  No
- c. Includes a schedule that establishes initial training for new and/or seasonal employees and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements?  Yes  No
9. Do you keep documentation of inspections, maintenance, and training as required by the Permit (Part III.D.6.h.(1)-(5))?  Yes  No

If you answered **no** to any of the above permit requirements listed in **Questions 5 – 9**, then describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

*F.6. The City will develop a procedure for assessing ponds to determine TSS and TP effectiveness as described in the Permit (Part III.D.6.d) This study will develop procedures for determining TSS and TP treatment effectiveness of city-owned ponds used for treatment of stormwater. A schedule will be developed within 12 months of permit coverage being granted.*

*F.7., The City will develop written procedures for inspection of structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas as described in the Permit (Part III.D.6.f.). Procedures will be in place within 12 months following the date permit coverage is extended.*

*F.8., The City will develop and implement a stormwater management training program commensurate with each employees job duties as described in the Permit (Part III.D.6.g.). Procedures will be in place within 12 months following the date permit coverage is extended.*

*F.9., The City will develop written procedures to document inspections, maintenance, and training as described in the Permit (Part III.D.6.h.). Procedures will be in place within 12 months following the date permit coverage is extended.*

10. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

*Asst. City Administrator / Public Works Supervisor*

## VI. Compliance Schedule for an Approved Total Maximum Daily Load (TMDL) with an Applicable Waste Load Allocation (WLA) (Part II.D.6.)

- A. Do you have an approved TMDL with a Waste Load Allocation (WLA) prior to the effective date of the Permit?  Yes  No
1. If **no**, continue to section VII.
2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following naming convention: *MS4NameHere\_TMDL*.

This form is found on the MPCA MS4 website: <http://www.pca.state.mn.us/ms4>.

## VII. Alum or Ferric Chloride Phosphorus Treatment Systems (Part II.D.7.)

- A. Do you own and/or operate any Alum or Ferric Chloride Phosphorus Treatment Systems which are regulated by this Permit (Part III.F.)?  Yes  No
1. If **no**, this section requires no further information.
2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere\_TreatmentSystem*.

This form is found on the MPCA MS4 website: <http://www.pca.state.mn.us/ms4>.

## VIII. Add any Additional Comments to Describe Your Program



# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 1-PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1a-1

<p><b>*BMP Title:</b> Distribute Educational Materials</p>
<p><b>*BMP Description:</b></p> <p>The City or its designee will produce and distribute articles and information on the City's Storm Water Pollution Prevention Plan including information on the annual public meeting, illicit discharges, erosion control, shoreline management, composting and pollution prevention and other applicable best management practices. This publication will be distributed through City mailings, workshops, presentations, website postings, and newsletters.</p> <p>The City will begin working collaboratively with the Rice Creek Watershed District and Anoka Conservation District in distributing educational materials and outreach programs. Programs will consist of website development, public presentations, storm water educational materials, etc.</p> <p><b>Education Goal:</b> This program is designed to develop an understanding of storm water impacts and the City's SWPPP, and preventative measures the public can implement to reduce and prevent storm water pollution.</p> <p><b>Audience:</b> This activity will be directed to all City residents, property owners, and business owners within the urbanized area.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 1: BMP ID No. 1a-1 Distribute Educational Materials – Record of Activities Completed.</p>
<p><b>*Measurable Goals:</b></p> <p>The City will document the number of publications and households served by publication. The effectiveness of this BMP will be measured by the number of articles and brochures published in newsletters, distributed via City mailings/website and RCWD workshops, and visits to the City's website. Success of this BMP is defined as developing then implementing the educational activities schedule and distributing/hosting a minimum of four educational materials, workshops, or presentations per year.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>Implementation of this BMP will coincide with BMP summary sheet 1b-1.</p>
<p><b>Specific Components and Notes:</b></p> <p>Please note that educational samples may be included in each annual report. Information may be added or modified to the website as necessary.</p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

*\*Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness*

**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

**BMP ID No. 1a-1 Distribute Educational Materials**

**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1b-1

<b>*BMP Title:</b> Implement an Education Program								
<b>*BMP Description:</b> <p>The City or its designee will develop then distribute educational material and present an overview of the MS4 program and six minimum control measures used within the City's SWPPP. Educational material will include storm water issues, potentially consisting of (but not limited to) non-point source pollution, erosion and sediment control, NPDES regulation and guidance, illicit discharge, storm water pollution prevention goals of the City, local agency contact information, and additional storm water website links.</p> <p>The City Administrator will also designate a City staff person responsible for all storm water education and outreach within the City. Responsibilities will consist of:</p> <ol style="list-style-type: none"><li>1. Develop educational activities schedule and materials (webpage development, brochures, articles, presentations, workshops, etc.)</li><li>2. Collaborate the implementation of educational activities and outreach programs with Rice Creek Watershed District and Anoka Conservation District.</li><li>3. Determine annual funding for educational activities schedule.</li><li>4. Annually implement the educational activities schedule.</li></ol> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 1: BMP ID No. 1b-1 Implement an Education Program – Record of Activities Completed.</p>								
<b>*Measurable Goals:</b> <p>The City will document the number of attendees at each scheduled activity (public meeting, workshop, presentation, website visits, etc.) as a way to measure the effectiveness of each activity. The City will then review the effectiveness of each activity in determining the following year's educational activities. Success of this BMP will be defined as completing the implementation schedule and annually reviewing and revising (if applicable) the educational activities schedule.</p>								
<b>*Timeline/Implementation Schedule:</b> <table><tr><td>Designate a City staff person responsible for all storm water education and outreach.</td><td>January 1, 2007</td></tr><tr><td>Coordinate educational efforts with RCWD/ACD and prepare an educational activities schedule and determine the amount of funding needed annually for educational outreach/training.</td><td>February 1, 2007</td></tr><tr><td>After allocation of funds, secure City Council/City Administrator approval for appropriate allocation of storm water utility fees. Begin implementing educational activities schedule.</td><td>March 1, 2007</td></tr><tr><td>Review and revise educational activities schedule and funding. Distribute/host a minimum of four educational materials or workshops per year.</td><td>Annually- January 1, 2008 through 2011</td></tr></table>	Designate a City staff person responsible for all storm water education and outreach.	January 1, 2007	Coordinate educational efforts with RCWD/ACD and prepare an educational activities schedule and determine the amount of funding needed annually for educational outreach/training.	February 1, 2007	After allocation of funds, secure City Council/City Administrator approval for appropriate allocation of storm water utility fees. Begin implementing educational activities schedule.	March 1, 2007	Review and revise educational activities schedule and funding. Distribute/host a minimum of four educational materials or workshops per year.	Annually- January 1, 2008 through 2011
Designate a City staff person responsible for all storm water education and outreach.	January 1, 2007							
Coordinate educational efforts with RCWD/ACD and prepare an educational activities schedule and determine the amount of funding needed annually for educational outreach/training.	February 1, 2007							
After allocation of funds, secure City Council/City Administrator approval for appropriate allocation of storm water utility fees. Begin implementing educational activities schedule.	March 1, 2007							
Review and revise educational activities schedule and funding. Distribute/host a minimum of four educational materials or workshops per year.	Annually- January 1, 2008 through 2011							
<b>Specific Components and Notes:</b>								
<b>*Responsible Party for this BMP:</b> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>								

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1c-1

<p><b>*BMP Title:</b> Education Program: Public Education and Outreach Program</p>
<p><b>*Audience(s) Involved:</b> All City residents, property owners, and business owners.</p>
<p><b>*Educational Goals for Each Audience:</b> The City or its designee will raise awareness to the audiences involved by providing information on stormwater pollution prevention, effects of illicit discharge, best management practices, components of the City SWPPP, and outside entity resources available to City residents and business owners.</p>
<p><b>*Activities Used to Reach Educational Goals:</b></p> <ol style="list-style-type: none"><li>1. <u>Printed Brochures</u>: Educational brochures will encourage best management practices, increase awareness of non-point source pollution, and provide local contact information for residents to request further information on specific stormwater topics.</li><li>2. <u>Collaborate with Rice Creek Watershed District</u>: The designated city staff person will coordinate with the Rice Creek Watershed District in distributing educational materials and outreach programs. Programs will consist of website development, public presentations, storm water educational materials, etc.</li></ol>
<p><b>*Activity Implementation Plan:</b></p> <ol style="list-style-type: none"><li>1. <u>Printed Brochures</u>: Will be available at City Hall and on the City's webpage beginning March 1, 2007. The effectiveness of this activity will be measured by the number of website hits annually.</li><li>2. <u>Collaborate With Rice Creek Watershed District</u>: Implementation of educational activities will begin on March 1, 2007. Specific activities will follow the educational activities schedule as determined by the City. The effectiveness of this activity will be measured by distributing two printed educational materials to residents and business owners annually.</li><li>3. <u>Educational Activities Schedule</u>: Refer to BMP sheet 1b-1.</li></ol> <p>Refer to BMP summary sheet 1b-1 timeline/implementation schedule.</p>
<p><b>*Performance Measures:</b> The City will document the number of attendees at each scheduled activity (public meeting, workshop, presentation, etc.) and requests for printed brochures, as a way to measure the effectiveness of each activity used. The City will then review the effectiveness of each activity used in determining the following year's educational activities. Success of this BMP will be defined as annually reviewing and revising (if applicable) the educational activities schedule.</p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

---

**BMP ID No. 1c-1 Education Program: Public Education and Outreach Program**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1c-2

<b>*BMP Title:</b> Education Program: Public Participation
<b>*Audience(s) Involved:</b> City of Circle Pines residents.
<b>*Educational Goals for Each Audience:</b> The educational goal of this program is to increase awareness and understanding of water quality issues and the Storm Water Pollution Prevention Program to local residents and business owners.
<b>*Activities Used to Reach Educational Goals:</b> Public presentations on storm water quality issues, workshops and/or hands-on demonstrations of non-point pollution sources, BMPs, and behavior changes residents can implement to reduce or prevent stormwater pollution.  Specific activities will be scheduled by City staff with collaboration from the Rice Creek Watershed District and Anoka Conservation District. Program information and objectives will vary year to year.
<b>*Activity Implementation Plan:</b> Implementation of this BMP will coincide with BMP summary sheet 1b-1.
<b>*Performance Measures:</b> This BMP will be measured by the City recording the number of participants at each scheduled educational activity. The level of participation at each educational activity will determine future activity schedules. Success of this BMP will be defined by increasing awareness of the SWPPP program, benefits to local residents, and documenting the number of participants for each scheduled activity.
<b>*Responsible Party for this BMP:</b> Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a>

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**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
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**BMP ID No. 1c-2 Education Program: Public Participation**

**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1c-3

<b>*BMP Title:</b> Education Program: Illicit Discharge Detection and Elimination	
<b>*Audience(s) Involved:</b> City of Circle Pines residents, City staff, and the general public.	
<b>*Educational Goals for Each Audience:</b> The City or its designee will increase the public's awareness of the potential sources and negative effects of illicit non-storm water discharges, as well as alternative uses for unwanted materials by providing information on recycling options, services, and programs within the City, such as drop-off sites for household hazardous waste. The City will also review the current educational activities undertaken by its staff to identify, prevent and correct illicit discharges from daily public works activities and other general City operations. These activities may include, but are not limited to, distributing educational brochures, newsletters, videos, and workshops. The City will train staff, implement procedures, and incorporate best management practices in the handling of hazardous materials used by City staff.	
<b>*Activities Used to Reach Educational Goals:</b> <u>Distribute Educational Material:</u> The City will distribute illicit discharge, household hazardous waste, and recycling program literature to residents a minimum of one time annually through City newsletters, utility bill inserts, and continuously on the City's Storm Water website.  <u>Staff Education:</u> The City will also review the current educational activities undertaken by its staff to identify, prevent and correct illicit discharges from daily public works activities and other general City operations. These educational activities may include, but are not limited to, videos, training, and workshops. The City will train staff, implement procedures, and incorporate best management practices in the handling of hazardous materials used by all City staff.	
<b>*Activity Implementation Plan:</b>	
Provide educational activities to City staff a minimum of one time annually.	January 1, 2007 through May 31, 2011
Distribute illicit discharge educational material to the public a minimum of one time annually.	January 1, 2007 through May 31, 2011
<b>*Performance Measures:</b> The City will record all comments received, requests for information, and complaints regarding potential illicit discharge (refer to MCM #3).  The City will continue to annually review the educational content of printed literature for adequacy and update as necessary. Educational material, presentations, and requests for additional information will be distributed and recorded through the life of this permit, May 31, 2011.	
<b>*Responsible Party for this BMP:</b>	
Name: James Keinath	
Department: City Administrator	
Phone: 763-784-5895	
E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a>	

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**BMP Summary Sheet Page 2**

**Responsible Person:**

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**BMP ID No. 1c-3 Education Program: Illicit Discharge Detection and Elimination**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1c-4

<b>*BMP Title:</b> Education Program: Construction Site Run-off Control
<b>*Audience(s) Involved:</b> City staff and contractors performing work within the City.
<b>*Educational Goals for Each Audience:</b> <ol style="list-style-type: none"><li>1. <u>Contractors:</u> Increased awareness of construction site runoff and review of project specific erosion control BMPs.</li><li>2. <u>City Staff:</u> Introduce new ideas relating to construction site pollution prevention, develop an understanding of the SWPPP, and increase the knowledge of specific NPDES construction permit and city ordinance requirements.</li><li>3. Review of erosion control plans and project specific SWPPP for construction projects requiring a City grading permit.</li></ol>
<b>*Activities Used to Reach Educational Goals:</b> <ol style="list-style-type: none"><li>1. <u>Staff Training:</u> Provide training on how to prevent soil erosion on a construction site, proper erosion control and inspection, and review the components of the storm water pollution prevention plan (SWPPP).</li><li>2. <u>Plan Review/On-site Pre-Construction Meetings with Contractors:</u> City staff will meet with contractors prior to the start of construction projects to discuss implementing project specific BMP's, requirements of the NPDES construction permit/project SWPPP, City and NPDES standards for erosion control monitoring, site inspections, and violations.</li></ol>
<b>*Activity Implementation Plan:</b> <ol style="list-style-type: none"><li>1. <u>Staff Training:</u> Provide training on how to prevent soil erosion on a construction site, proper erosion control and inspection, and review the components of the storm water pollution prevention plan (SWPPP).</li><li>2. The City will begin documenting all staff training on January 1, 2007 through May 31, 2011.</li></ol>
<b>*Performance Measures:</b> <p>Document the number of educational materials distributed/requested, preconstruction meetings, and presentations/workshops/field training attended by City staff. Pre-construction meetings may be required by City staff as a pre-requisite to the issuance of City grading permits. Success of this BMP will be measured by training applicable new City staff within three years of the individual's hire date and conducting a pre-construction meeting with applicants for a City grading permit (as determined by City staff).</p>
<b>*Responsible Party for this BMP:</b> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

**BMP ID No. 1c-4 Education Program: Construction Site Runoff Control**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1c-5

<p><b>*BMP Title:</b> Education Program: Post-Construction Stormwater Management in New Development and Redevelopment</p>
<p><b>*Audience(s) Involved:</b> City of Circle Pines residents and business owners.</p>
<p><b>*Educational Goals for Each Audience:</b> The City's goal for this BMP includes educating residents and business owners on the importance of storm water management within their neighborhood and increasing their understanding of maintenance procedures for existing storm water management systems within the City.</p>
<p><b>*Activities Used to Reach Educational Goals:</b> Printed educational materials Presentations at the annual public meeting Stormwater web page Comprehensive Storm Water Management Plan</p>
<p><b>*Activity Implementation Plan:</b> The City will distribute a minimum of one Post-Construction Stormwater Management related educational material to residents annually and continuously on the City's Stormwater website. The City will also present an overview of the post construction management ordinances to the public during the annual public meeting.</p>
<p><b>*Performance Measures:</b> The City will document the number of attendees at the annual public meeting, distributed educational materials annually, and requests for additional information. The success of this BMP will be achieved as distributing a minimum of one Post-Construction Stormwater Management related educational material to residents annually.</p>
<p><b>*Responsible Party for this BMP:</b> Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1c-6

<b>*BMP Title:</b> Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations
<b>*Audience(s) Involved:</b> City staff involved in public works projects and construction projects.
<b>*Educational Goals for Each Audience:</b> The goal of this program is to: <ol style="list-style-type: none"><li>1. Introduce and demonstrate the implementation of specific BMPs for use in public works projects and activities.</li><li>2. Develop an understanding of the City's SWPPP.</li><li>3. Promote a greater understanding of MCM's #3-6.</li></ol>
<b>*Activities Used to Reach Educational Goals:</b> The City will provide training opportunities for City staff in erosion control, best management practices, good housekeeping, and pollution prevention. These may include but are not limited to: Mn/DOT erosion control certification, SWPPP workshops, and BMP workshops. Refer to MCM 6 for further information.
<b>*Activity Implementation Plan:</b> The City will provide a minimum of one training opportunity per year and document the number of training sessions and the number of staff participants in attendance. Training topics and schedules will vary annually.  This activity will begin on January 1, 2007 and continue annually through the expiration of this permit, May 31, 2011.
<b>*Performance Measures:</b> The City will document the number of training sessions and the number of participants attending. The success of this BMP will be achieved through training and/or certifying all applicable City staff within three years of the individual's hire date.
<b>*Responsible Party for this BMP:</b> Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1d-1

<p><b>*BMP Title:</b> Coordination of Education Program</p>
<p><b>*BMP Description:</b></p> <p>The City will collaborate and coordinate the development and implementation of the City's educational activities schedule with the Rice Creek Watershed District, Anoka Conservation District, and the City's engineering consultant. Final modifications to the City's educational programs will be decided by the City Administrator.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 1: BMP ID No. 1a-1, 1b-1, 1c-1, 1c-2, 1c-3, 1c-4, 1c-5, 1c-6. Public Education &amp; Outreach</p>
<p><b>*Measurable Goals:</b></p> <p>The effectiveness of this BMP will be evaluated a minimum of once annually. Success of this BMP will be in achieving and/or identifying modifications to the educational program, as defined in 1a-1, 1b-1, 1c-1, 1c-2, 1c-3, 1c-4, 1c-5, and 1c-6.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>This activity will begin on January 1, 2007 and continue annually through the expiration of this permit, May 31, 2011, or as specified in 1a-1, 1b-1, 1c-1, 1c-2, 1c-3, 1c-4, 1c-5, and 1c-6.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

---

**BMP ID No. 1d-1 Coordination of Education Program**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** PUBLIC EDUCATION AND OUTREACH

**Unique BMP Identification Number:** 1e-1

<p><b>*BMP Title:</b> Annual Public Meeting</p>
<p><b>*BMP Description:</b></p> <p>The City will hold an annual public meeting to distribute educational materials and present an overview of the MS4 program and the City's SWPPP. Oral and written statements will be received and considered for inclusion into the SWPPP by City staff.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 1: BMP ID No. 1e-1 Annual Public Meeting – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>The City will document the number of attendees at the public meeting, all comments received, and responses to each comment in the record of decision. The effectiveness of this BMP will be measured by the number of residents who attend the annual public meeting. The success of this BMP is defined by the public's increased awareness about stormwater pollution and the MS4 program.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>This activity will be conducted annually through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p> <p>Specific topics most requested and/or discussed will be expanded for discussion on the City's stormwater website and/or at the next scheduled annual public meeting.</p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 2-PUBLIC PARTICIPATION/INVOLVEMENT

**Unique BMP Identification Number:** 2a-1

<p><b>*BMP Title:</b> Comply with Public Notice Requirements</p>
<p><b>*BMP Description:</b></p> <p>The City will submit a public meeting notice to the local newspaper for print a minimum of 30 days prior to annual public meeting date. The public notice will include the dates, times, and locations of the meeting, contact person name and phone number, and a brief narrative highlighting the SWPPP. The City may also post additional public notice on the City's website and at government offices within the City.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 2: BMP ID No. 2a-1 Comply with Public Notice Requirements – Record of Activities Completed.</p>
<p><b>*Measurable Goals:</b></p> <p>A copy of the printed public notice may be retained by the City and submitted with the annual report to the MPCA annually. The effectiveness of this BMP will be measured by the number of public notices posted. Success will be defined as submitting the public meeting notice to the local newspaper for print at least 30 days in advance of the meeting.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>This activity will be completed annually through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 2-PUBLIC PARTICIPATION/INVOLVEMENT

**Unique BMP Identification Number:** 2b-1

<p><b>*BMP Title:</b> Solicit Public Input and Opinion on the Adequacy of the SWPPP</p>
<p><b>*BMP Description:</b></p> <p>The City will conduct a public meeting and host a website on the City's Stormwater Pollution Prevention Program; solicit public opinion on the plan, and consider written and oral input into the SWPPP.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 2: BMP ID No. 2b-1 Solicit Public Input and opinion on the Adequacy of the SWPPP – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>Document attendance and record minutes at the public meeting, record statements and written comments and document changes made to the SWPPP. The effectiveness of this BMP will be measured by the number of residents who attend the public meeting. Success will be defined as hosting the public meeting and website.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>This activity will be completed annually beginning in 2007 and continue through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 2-PUBLIC PARTICIPATION/INVOLVEMENT

**Unique BMP Identification Number:** 2c-1

<p><b>*BMP Title:</b> Consider Public Input</p>
<p><b>*BMP Description:</b></p> <p>The City will conduct a public meeting and host a stormwater website on the City's Stormwater Pollution Prevention Program; solicit public opinion on the plan, and consider written and oral input into the SWPPP. Responses will be documented within the record of decision and submitted in conjunction with the annual report to the MPCA.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page: BMP ID No. 2c-1 Consider Public Input – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>Hold the public meeting and host a website, record attendance, keep minutes, record statements and written comments and document changes made to the SWPPP.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>This activity will be completed annually beginning in 2007 and continue through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 3-ILLCIT DISCHARGE DETECTION AND ELIMINATION

**Unique BMP Identification Number:** 3a-1

<p><b>*BMP Title:</b> Storm Sewer System Map</p>
<p><b>*BMP Description:</b></p> <p>The City currently has a map identifying all ponds, lakes, streams, storm sewer pipes and conveyances (equal to or greater than 24") as well as outfalls and discharge points leaving the City. As part of the SWPPP, the City will annually update this map to include changes to the storm sewer system throughout the City, including but not limited to, new development, street improvements, water quality projects, wetland mitigation projects, and any changes to the storage or conveyance of stormwater within the City.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 3: BMP ID No. 3a-1 Storm Sewer System Map – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>The effectiveness of this BMP will be defined as mapping all storm sewer conveyances 24" or greater that are owned by the City. The success of this BMP will be measured by annually updating all City owned storm sewer conveyances equal to or greater than 24".</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>This activity will be completed annually beginning in 2007 and continue through the life of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 3-ILLICIT DISCHARGE DETECTION AND ELIMINATION

**Unique BMP Identification Number:** 3b-1

<p><b>*BMP Title:</b> Regulatory Control Program</p>										
<p><b>*BMP Description:</b></p> <p>The City will review current applicable ordinances and (if necessary) develop an ordinance which will address the issue of non-stormwater discharges in the City's storm sewer system. Elements of this ordinance will include, but are not limited to, defining allowable discharges, setting policy as it pertains to violations and penalties, and mitigation requirements.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 3: BMP ID No. 3b-1 Regulatory Control Program – Record of Activities Completed</p>										
<p><b>*Measurable Goals:</b></p> <p>The City will review existing ordinances and, if necessary, develop and adopt a stormwater system illicit discharge ordinance. The effectiveness of this BMP will be measured by the number of enforcement actions issued annually. Success will be defined as the review of existing ordinances or development of an illicit discharge ordinance.</p>										
<p><b>*Timeline/Implementation Schedule:</b></p> <table><tr><td>Draft ordinance (or review existing ordinance)</td><td>2007</td></tr><tr><td>Public comment period (if applicable)</td><td>2007</td></tr><tr><td>City Council review (if applicable)</td><td>2007</td></tr><tr><td>Adopt ordinance (if applicable)</td><td>2008</td></tr><tr><td>Annually review existing ordinances or adopted ordinance</td><td>2009-2011</td></tr></table>	Draft ordinance (or review existing ordinance)	2007	Public comment period (if applicable)	2007	City Council review (if applicable)	2007	Adopt ordinance (if applicable)	2008	Annually review existing ordinances or adopted ordinance	2009-2011
Draft ordinance (or review existing ordinance)	2007									
Public comment period (if applicable)	2007									
City Council review (if applicable)	2007									
Adopt ordinance (if applicable)	2008									
Annually review existing ordinances or adopted ordinance	2009-2011									
<p><b>Specific Components and Notes:</b></p>										
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>										

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 3-ILLCIT DISCHARGE DETECTION AND ELIMINATION

**Unique BMP Identification Number:** 3c-1

<p><b>*BMP Title:</b> Illicit Discharge Detection and Elimination Plan</p>						
<p><b>*BMP Description:</b></p> <p>The City will continue to utilize volunteer organizations to collect trash and debris from roadsides. Litter will be picked up once per year and collected in plastic bags. An authorized contractor will properly dispose of the collected litter. The program will also identify hazardous materials illegally discarded and arrange for proper cleanup and disposal.</p> <p>The City will also develop and implement a program to detect and reduce non-storm water discharges, including illegal dumping. Procedures for detection may consist of visual inspections for non-storm water discharges on City owned land, private property (as requested), and right-of-ways within 24 hours of receipt by the City or on the next scheduled City work day. Inspection frequency will be conducted concurrent with the implementation schedule of the public works activities described in BMP summary sheets 6a-2, 6b-2, 6b-3, and 6b-4. The City will notify the MPCA state duty officer of any hazardous material spills or discharges (within 24 hours of receipt, if applicable, per NPDES Phase II requirements).</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP Id No. 3c-1 Illicit Discharge Detection and Elimination Plan – Record of Activities Completed</li></ul>						
<p><b>*Measurable Goals:</b></p> <p>The effectiveness of this BMP will be measured by:</p> <ol style="list-style-type: none"><li>1. Annually documenting the number of miles covered by trash and debris collection,</li><li>2. Annually documenting all reported non-storm water discharges occurring on City owned land, private property, and right-of-ways, as well as any remedial actions taken (if applicable).</li></ol> <p>Success of this BMP is defined as:</p> <ol style="list-style-type: none"><li>1. Amount of volunteer trash and debris collection hours recorded annually.</li><li>2. Developing and implementing an illicit non-storm water discharge detection and elimination program.</li></ol>						
<p><b>*Timeline/Implementation Schedule:</b></p> <table><tr><td>Develop illicit discharge detection procedures</td><td>February 1, 2007</td></tr><tr><td>Begin implementing illicit discharge detection procedures</td><td>March 1, 2007</td></tr><tr><td>Inspections will be documented annually</td><td>2007 to May 31, 2011.</td></tr></table> <p>Documentation of trash and debris collection will begin in 2007, and continue annually until the expiration of this permit, May 31, 2011.</p>	Develop illicit discharge detection procedures	February 1, 2007	Begin implementing illicit discharge detection procedures	March 1, 2007	Inspections will be documented annually	2007 to May 31, 2011.
Develop illicit discharge detection procedures	February 1, 2007					
Begin implementing illicit discharge detection procedures	March 1, 2007					
Inspections will be documented annually	2007 to May 31, 2011.					
<p><b>Specific Components and Notes:</b></p>						
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>						

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 3-ILLCIT DISCHARGE DETECTION AND ELIMINATION

**Unique BMP Identification Number:** 3d-1

<p><b>*BMP Title:</b> Public and Employee Illicit Discharge Information Program</p>
<p><b>*BMP Description:</b></p> <p>The City or its designee will discourage illicit non-storm water discharges by educating the public (City residents, businesses, and staff) on its potential sources and effects as well as alternative uses for unwanted materials. This BMP includes providing information on recycling options, services, and programs within the City, such as drop-off sites for household hazardous waste. The City will also review the current educational activities undertaken by its staff to identify, prevent, and eliminate illicit discharges from daily public works activities and other general City operations. These activities may include, but are not limited to, educational brochures, newsletters, videos, and workshops. Specific materials regarded as illicit non-storm water discharges are defined within chapters 5 and 7 of the City code.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 3d-1 Public and Employee Illicit Discharge Information Program – Record of Activities Completed</li><li>• Section III: Chapters 5 and 7</li></ul>
<p><b>*Measurable Goals:</b></p> <ul style="list-style-type: none"><li>• Number of calls to the City regarding illegal dumping or illicit discharges.</li><li>• Annual review of educational materials.</li><li>• Success of this BMP will be defined as distributing illicit discharge, household hazardous waste, and recycling program literature to residents and providing educational activities to City staff a minimum of one time annually.</li></ul>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will continue to annually review the educational content of printed literature for adequacy and update as necessary. Educational material, presentations, and requests for additional information will be distributed and documented annually, through the life of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 3-ILLCIT DISCHARGE DETECTION AND ELIMINATION

**Unique BMP Identification Number:** 3e-1

<p><b>*BMP Title:</b> Identification of Non Stormwater Discharges and Flows</p>
<p><b>*BMP Description:</b></p> <p>The City has identified and evaluated the following categories of non-storm water discharges (as defined in Part V.G.3.e): Water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetland, de-chlorinated swimming pool discharges, and street wash water, discharges or flows from fire fighting activities.</p> <p>The City has determined the above referenced sources of non-storm water discharge to be insignificant pollutant contributors to the MS4 system.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 3: BMP ID No. 3e-1 Identification of Non Stormwater Discharges and Flows – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>All non-storm water discharges (as defined in Part V.G.3.e) were evaluated and determined to be insignificant sources of pollutants to the MS4.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>No program or implementation plan is currently scheduled due to the insignificance of the above mentioned non-storm water discharges.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

**BMP ID No. 3e-1 Identification of Non Stormwater Discharges and Flows**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

**Unique BMP Identification Number:** 4a-1

<p><b>*BMP Title:</b> Ordinance or other Regulatory Mechanism</p>
<p><b>*BMP Description:</b></p> <p>City staff will review and revise (if applicable) current City ordinances and codes annually for conformance to new or amended NPDES construction permit and/or watershed district erosion control standards. Existing applicable City ordinances regarding erosion and sediment control that currently meet or exceed the minimum NPDES requirements include 1350.06 of the City Code.</p> <p><b><u>Target Audience:</u></b> Construction site operators and City staff.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 4a-1 Ordinance or other Regulatory Mechanism – Record of Activities Completed.</li><li>• Section III: 1350.06</li></ul>
<p><b>*Measurable Goals:</b></p> <p>The City will annually review and update as necessary the City's erosion control ordinances.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will review the current ordinances for conformance to NPDES minimum standards, and add additional requirements if necessary by January 1<sup>st</sup>, 2007. The enforcement of new permit requirements (if necessary) will begin on February 1<sup>st</sup>, 2007 through May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p> <ul style="list-style-type: none"><li>• Chapter 1350.06</li></ul>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

**Unique BMP Identification Number:** 4b-1

<p><b>*BMP Title:</b> Construction Site Implementation of Erosion and Sediment Control BMPs</p>
<p><b>*BMP Description:</b></p> <p>Construction site operators must conform to NPDES Phase II permit requirements, local watershed permits (if applicable), and local city ordinances for construction site erosion control. As part of the City's permit approval standards, erosion control BMPs must be implemented in accordance with the NPDES permit requirements. Existing applicable City ordinances regarding construction site implementation erosion and sediment control that currently meet or exceed the minimum NPDES requirements include 1350.06 of the City Code. The City has adopted the design criteria, standards, and specifications contained in the MPCA publication "Protecting Water Quality in Urban Areas."</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 4b-1 Construction Site Implementation of Erosion and Sediment Control BMPs – Record of Activities Completed.</li><li>• Section III: 1350.06</li></ul>
<p><b>*Measurable Goals:</b></p> <p>Success of this BMP will be determined by site inspections per NPDES Phase II requirements and City permit approvals.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will review the current City ordinances for conformance to NPDES minimum standards in 2006 and add additional or updated erosion control BMP requirements (if necessary) by February 1, 2007. The effectiveness of this BMP will be monitored then annually evaluated through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p> <ul style="list-style-type: none"><li>• Chapter 1350.06</li></ul>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

**Unique BMP Identification Number:** 4c-1

<p><b>*BMP Title:</b> Waste Controls for Construction Site Operators</p>
<p><b>*BMP Description:</b></p> <p>Construction site operators must conform to NPDES Phase II permit requirements and the City's ordinances on waste and material disposal as defined in City Code 1350.06 Sub. 2. All waste and unused building materials must be properly disposed of off-site and prevented from being carried by runoff into a receiving channel or storm sewer system.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 4c-1 Waste Controls for Construction Site Operators – Record of Activities Completed</li><li>• Section III: 1350.06 Sub. 2</li></ul>
<p><b>*Measurable Goals:</b></p> <p>Success of this BMP will be determined by site inspections per NPDES Phase II requirements and City Code 1350.06 sub. 2. The effectiveness of this BMP will be measured by the annual recorded number of remedial actions against construction site operations. Success of BMP will be defined as operator compliance to the City's Waste and Material Disposal, 1350.06 ordinance and NPDES Phase II permit regulations.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will review the current City permits in 2006 for conformance to NPDES minimum standards, and add additional or updated waste and material disposal requirements (if necessary) by February 1, 2007. The effectiveness of this BMP will be monitored and annually evaluated through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

**Unique BMP Identification Number:** 4d-1

<p><b>*BMP Title:</b> Procedure for Site Plan Review</p>
<p><b>*BMP Description:</b></p> <p>Every applicant for a city permit to allow land disturbing activities is required to submit a project specific storm water management plan (if applicable) and/or erosion control plan to the City for review and approval. Construction permits will be required to meet MPCA NPDES Phase II guidelines for erosion and sediment control and all applicable City ordinances and codes.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 4: BMP ID No. 4d-1 Procedure for Site Plan Review – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>No City permit to allow land disturbing activities shall be issued until approval of a storm water management plan (if applicable) and/or erosion control plan, or waiver of the approval requirement has been obtained. Success will be defined as enforcing the permit's submittal requirement (as defined in City code 1350).</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will continue to implement this BMP in 2006, and monitor then evaluate the effectiveness through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p> <ul style="list-style-type: none"><li>• City Code 1350</li></ul>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

**Unique BMP Identification Number:** 4e-1

<p><b>*BMP Title:</b> Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance</p>
<p><b>*BMP Description:</b></p> <p>The City will establish a phone line and website contact information through which the public may report potential construction site erosion control and waste disposal infractions. Reported incidents will be inspected within 24 hours of receipt or on the next scheduled work day by the City. Hazardous material spills or discharges will be reported to the MPCA State Duty Officer within 24 hours of receipt by the City or identified by the construction site operator. Remedial actions against the violator may be taken at the discretion of the City Administrator, City Council, and/or City administrator.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 4: BMP ID No. 4e-1 Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>The City will establish contact information for receipt of construction site violations. The City will record:</p> <ul style="list-style-type: none"><li>• The number of calls and emails related to SWPPP issues.</li><li>• The number of illicit discharge and construction site complaints.</li><li>• The number of clean-up activities or SWPPP changes resulting from calls or emails.</li></ul> <p>Success of this BMP will be defined by the implementation schedule.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>Establish phone hotline/post website contact information. <span style="float: right;">Implement by January 1, 2007</span></p> <p>Annually record all phone calls and emails received and remedial actions and/or SWPPP changes. <span style="float: right;">January 1, 2008 through May 31, 2011</span></p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

**Unique BMP Identification Number:** 4f-1

<p><b>*BMP Title:</b> Establishment of Procedures for Site Inspections and Enforcement</p>						
<p><b>*BMP Description:</b></p> <p>Construction site operators must conform to all NPDES construction permit standards and City ordinances pertaining to construction site erosion control and waste disposal. Inspection procedures consist of NPDES Phase II inspection requirements and violations reported by the public as defined in BMP Summary Sheets 3c-1 and 4e-1. Compliance to these ordinances will be enforced through ordinances 1350.07, through 1350-08. Enforcement procedures include:</p> <ol style="list-style-type: none"><li>1. Written notice of the alleged violation to the responsible parties.</li><li>2. Remedial actions within 2 weeks of the written notice or proof of this action being unwarranted.</li><li>3. Failure to respond forwarded to the City attorney for further action, including monetary reimbursement of damages.</li></ol> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 4f-1 Establishment of Procedures for Site Inspections and Enforcement – Record of Activities Completed.</li><li>• Section III: 1350.07 through 1350.08.</li></ul>						
<p><b>*Measurable Goals:</b></p> <p>The City will begin to annually evaluate the effectiveness of site inspections and enforcement procedures via enforcement actions taken annually. Additional and/or revised procedures will be added (if applicable) when deemed necessary or found non-conforming to NPDES Phase II requirements.</p>						
<p><b>*Timeline/Implementation Schedule:</b></p> <table><tr><td>Evaluate all recorded violations, determine if additional and/or revised inspection and enforcement procedures are needed.</td><td>prior to January 1, 2007</td></tr><tr><td>Draft/finalize revised inspection and enforcement procedures (if applicable)</td><td>January 1, 2007</td></tr><tr><td>Implement new/revised inspection and enforcement procedures (if applicable)</td><td>February 1, 2007</td></tr></table> <p>The implementation schedule will continue annually through the expiration of this permit, May 31, 2011.</p>	Evaluate all recorded violations, determine if additional and/or revised inspection and enforcement procedures are needed.	prior to January 1, 2007	Draft/finalize revised inspection and enforcement procedures (if applicable)	January 1, 2007	Implement new/revised inspection and enforcement procedures (if applicable)	February 1, 2007
Evaluate all recorded violations, determine if additional and/or revised inspection and enforcement procedures are needed.	prior to January 1, 2007					
Draft/finalize revised inspection and enforcement procedures (if applicable)	January 1, 2007					
Implement new/revised inspection and enforcement procedures (if applicable)	February 1, 2007					
<p><b>Specific Components and Notes:</b></p>						
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>						

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**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

---

**BMP ID No. 4f-1 Establishment of Procedures for Site Inspections and Enforcement**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 5-POST-CONSTRUCTION STORMWATER MANAGEMENT  
IN NEW DEVELOPMENT AND REDEVELOPMENT

**Unique BMP Identification Number:** 5a-1

<p><b>*BMP Title:</b> Development and Implementation of Structural and/or Non-structural BMPs</p>
<p><b>*BMP Description:</b></p> <p><u>Structural</u> The City will review and revise (if necessary, during the plan review process) permanent BMP designs and criteria for post-construction storm water management associated with new development and redevelopment projects. The City will also consider the implementation of low impact development practices if prudent and feasible. The City will annually review and revise (if necessary) the current policies, requirements, and Best Management Practices specific to structural BMP's.</p> <p><u>Non-Structural</u> The City may also improve the condition of parks, wetlands, and watersheds when the opportunity arises. Potential wetland restorations, native plantings, bank stabilization, detention ponds, and other best management construction projects will continue to be actively pursued by the City when the opportunity arises.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"> <li>• BMP No. 5a-1 Development and Implementation of Structural and/or Non-structural BMPs – Record of Activities Completed</li> </ul>
<p><b>*Measurable Goals:</b></p> <p>The City will evaluate all structural and non-structural BMP's during the plan review process for the potential of new and/or revised BMP's. The City will also actively look for non-structural opportunities where prudent and feasible. Success of this BMP is defined as annually recording all revised BMP designs and implemented structural and non-structural BMPs on City properties.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>Begin evaluation of all permanent BMP's (during plan review process), implement potential new/or revised BMP's. <span style="float: right;">January 1, 2007</span></p> <p>Annually record all revised BMP designs and implemented structural and non-structural BMP's. <span style="float: right;">2007 through May 31, 2011</span></p>
<p><b>Specific Components and Notes:</b></p> <p>Comprehensive Storm Water Management Plan</p>
<p><b>*Responsible Party for this BMP:</b></p> <p style="margin-left: 40px;">Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

*\*Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

**BMP ID No. 5a-1 Development and Implementation of Structural and/or Non-Structural BMPs**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 5-POST-CONSTRUCTION STORMWATER MANAGEMENT  
IN NEW DEVELOPMENT AND REDEVELOPMENT

**Unique BMP Identification Number:** 5b-1

<p><b>*BMP Title:</b> Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment</p>
<p><b>*BMP Description:</b></p> <p>The City will implement the requirements of the Comprehensive Storm Water Management Plan, along with City codes (1350.06 subd. 6 through 15) to minimize the negative impacts storm water runoff may have on water quality within the City. Post-construction inspection and maintenance (as defined in the CSMP) will continue to be undertaken by the City of Circle Pines. Corrective actions and routine maintenance of all storm water management facilities will continue to be funded by collected storm water utility fees.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP No. 5b-1 Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment – Record of Activities Completed</li><li>• Section III: Chapters 1350.06 Subd. 6 through 15.</li></ul>
<p><b>*Measurable Goals:</b></p> <p>The City will continue to inspect and maintain all storm water management facilities as described within the Comprehensive Storm Water Management Plan and applicable City codes.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will continue this BMP in 2006 and update (if necessary) from 2007 through May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p> <p>Comprehensive Storm Water Management Plan</p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 5-POST-CONSTRUCTION STORMWATER MANAGEMENT  
IN NEW DEVELOPMENT AND REDEVELOPMENT

**Unique BMP Identification Number:** 5c-1

<p><b>*BMP Title:</b> Long-term Operation and Maintenance of BMPs</p>
<p><b>*BMP Description:</b></p> <p>City staff will inspect post-construction BMP's then evaluate inspection records for determining the corrective maintenance actions (if necessary) for the long-term operation of all storm water management facilities owned by the City of Circle Pines. Corrective actions and routine maintenance of all storm water management facilities will continue to be funded by collected storm water utility fees, and guided by the Comprehensive Storm Water Management Plan.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP: Index Page 5: BMP ID No. 5c-1 Long-term Operation and Maintenance of BMPs – Record of Activities Completed</p>
<p><b>*Measurable Goals:</b></p> <p>The City will continue to annually inspect a minimum of 20% of all its MS4 outfalls, sediment basins, and ponds, then evaluate and record the number of proposed maintenance projects and successful funding of each project (if applicable). Success of this BMP is defined as achieving the measurable goals of minimum control measure six.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will continue to inspect, evaluate then annually record the number of proposed maintenance projects and successful funding of each project (if applicable) through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p> <p>Comprehensive Storm Water Management Plan City Codes 1350-06 Subd. 6-15</p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6a-1

<p><b>*BMP Title:</b> Municipal Operations and Maintenance Program</p>						
<p><b>*BMP Description:</b></p> <p>The City's Public Works Department will develop and implement a municipal operations pollution prevention plan consistent with the BMPs described within this MS4 permit and specified in BMPs 1c-6, 3c-1, 6a-2, 6b-2 through 6b-9 for City employees. This plan will consist of (at a minimum) training materials and workshops for City staff to help reduce storm water pollution caused from park maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.</p> <p>The City may also evaluate its maintenance facility and update the NPDES general stormwater permit for industrial activities in accordance to the NPDES requirements (if necessary).</p> <p><u>Target Audience:</u> City staff</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 6a-1 Municipal Operations and Maintenance Program– Record of Activities Completed.</li></ul>						
<p><b>*Measurable Goals:</b></p> <p>The effectiveness of this BMP will be measured by City staff annually evaluating conformance to the municipal operations pollution prevention plan, and revising (if necessary) the plan components. Success is defined as developing, implementing, and achieving the goals detailed within the plan by the implantation dates described below. The City will adhere to the NPDES Industrial Stormwater Permit Inspection Reports on no-exposure exemption (if necessary).</p>						
<p><b>*Timeline/Implementation Schedule:</b></p> <table><tr><td>Develop a municipal operations pollution prevention plan</td><td>prior to February 1, 2007</td></tr><tr><td>Implement municipal operations pollution prevention plan</td><td>April 1, 2007</td></tr><tr><td>Review and revise (if necessary) plan components annually</td><td>2007 through May 31, 2011</td></tr></table>	Develop a municipal operations pollution prevention plan	prior to February 1, 2007	Implement municipal operations pollution prevention plan	April 1, 2007	Review and revise (if necessary) plan components annually	2007 through May 31, 2011
Develop a municipal operations pollution prevention plan	prior to February 1, 2007					
Implement municipal operations pollution prevention plan	April 1, 2007					
Review and revise (if necessary) plan components annually	2007 through May 31, 2011					
<p><b>Specific Components and Notes:</b></p>						
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>						

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6a-2

<p><b>*BMP Title:</b> Street Sweeping**</p>						
<p><b>*BMP Description:</b></p> <p>The City currently brush or vacuum sweeps City owned streets a minimum of twice per year in an effort to reduce the amount of sediment and trash from reaching the storm sewer system. One street sweeping activity will occur in the spring (April-June) on all streets, and the second activity will occur in the fall (September – November) on selected areas (as determined by the City Administrator).</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 6a-2 Street Sweeping – Record of Activities Completed</li></ul>						
<p><b>*Measurable Goals:</b></p> <p>The City will continue recording the frequency and miles of streets that are annually swept, and quantify the amount of trash/debris removed per sweeping occurrence. Success of this BMP is defined as recording two street sweeping occurrences per year.</p>						
<p><b>*Timeline/Implementation Schedule:</b></p> <p><u>This BMP is currently implemented.</u></p> <table><tr><td>Spring street sweeping on all City streets, once annually (April-June).</td><td>2007 through May 31, 2011</td></tr><tr><td>Fall street sweeping on selected City streets, once annually (September-November).</td><td>2007 through May 31, 2011</td></tr><tr><td>Record the frequency, miles of streets swept and amount of trash/debris removed.</td><td>Annually, 2007 through May 31, 2011</td></tr></table>	Spring street sweeping on all City streets, once annually (April-June).	2007 through May 31, 2011	Fall street sweeping on selected City streets, once annually (September-November).	2007 through May 31, 2011	Record the frequency, miles of streets swept and amount of trash/debris removed.	Annually, 2007 through May 31, 2011
Spring street sweeping on all City streets, once annually (April-June).	2007 through May 31, 2011					
Fall street sweeping on selected City streets, once annually (September-November).	2007 through May 31, 2011					
Record the frequency, miles of streets swept and amount of trash/debris removed.	Annually, 2007 through May 31, 2011					
<p><b>Specific Components and Notes:</b></p>						
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>						

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**BMP Summary Sheet Page 2**

**Responsible Person:**

Name: James Keinath  
Title: City Administrator  
Phone: 763-784-5895  
E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

**BMP ID No. 6a-2 Street Sweeping**  
**Record of Activities Completed:**

Outlined below is a description of the specific activities that were undertaken by the City over the past year that document the City has met the measurable goals associated with this BMP.

Date	Description	Contact Person (if different than responsible person)

I hereby certify that the above activities were completed.

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6b-2

**\*BMP Title:** Annual Inspection of All Structural Pollution Control Devices

**\*BMP Description:**

The City Public Works Department will continue to inspect all identified structural pollution control devices on City property and right-of-ways, and prescribe a maintenance schedule as necessary. Newly constructed and rebuild structural pollution control devices will be added to the storm sewer map (BMP summary sheet 3a-1) and inspected within one year of post construction.

Location(s) in SWPPP of detailed information relating to this BMP:

- BMP ID No. 6b-2 Annual Inspection of All Structural Pollution Control Devices – Record of Activities Completed

**\*Measurable Goals:**

The City will continue to inspect and document all structural pollution control devices a minimum of once per year. Maintenance and repair specifications and schedules will be developed and implemented as necessary. Success of this BMP will be defined as annually conducting and documenting inspections, repairs, and maintenance projects of all structural pollution control devices.

**\*Timeline/Implementation Schedule:**

This BMP is currently implemented. This activity will continue to be conducted in 2006 and annually through the expiration of this permit, May 31, 2011.

**Specific Components and Notes:**

**\*Responsible Party for this BMP:**

Name: James Keinath

Department: City Administrator

Phone: 763-784-5895

E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6b-3

**\*BMP Title:** Inspection of a Minimum of 20 percent of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis

**\*BMP Description:**

The City currently inspects all mapped outfalls, sediment basins, and ponds within the City's storm sewer system. The results of these inspections will be compiled in a report which will include sediment levels, watershed information and recommended maintenance schedules.

Location(s) in SWPPP of detailed information relating to this BMP:

- BMP ID No. 6b-3 Inspection of a Minimum of 20 percent of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis – Record of Activities Completed

**\*Measurable Goals:**

The City will inspect all mapped outfalls, sediment basins, and ponds a minimum of 20% each year (on a rotating schedule during the permit coverage) and record the physical condition of each inspected outfall or pond. Success of this BMP will be defined as recording a minimum inspection rate of 20% each year of all MS4 outfalls, sediment basins, and ponds.

**\*Timeline/Implementation Schedule:**

This BMP is currently implemented. This activity will continue to be conducted in 2006 and annually through the expiration of this permit, May 31, 2011.

**Specific Components and Notes:**

**\*Responsible Party for this BMP:**

Name: James Keinath

Department: City Administrator

Phone: 763-784-5895

E-mail: [jkeinath@ci.circle-pines.mn.us](mailto:jkeinath@ci.circle-pines.mn.us)

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# BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6b-4

<p><b>*BMP Title:</b> Annual Inspection of All Exposed Stockpile, Storage and Material Handling Areas</p>
<p><b>*BMP Description:</b></p> <p>City staff will annually locate and inspect all exposed stockpiles and storage/material handling areas on City owned properties. All existing onsite BMP's will be inspected for conformance to NPDES Phase II permit requirements. Any identified erosion control issues will be corrected and documented.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 6b-4 Annual Inspection of All Exposed Stockpile, Storage and Material Handling Areas – Record of Activities Completed</li></ul>
<p><b>*Measurable Goals:</b></p> <p>The effectiveness of this BMP will be measured by the frequency of inspections and corrective actions. Success will be defined as locating and inspecting all exposed stockpiles and storage/material handling on City property a minimum of once each year.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>Locate and inspect all exposed stockpile, storage and material handling areas located on City-owned properties, record inspections, correct and document all remedial actions a minimum of once per year. Beginning in 2007; continue annually through May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

*\*Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*



## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6b-5

<p><b>*BMP Title:</b> Inspection Follow-up Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures</p>
<p><b>*BMP Description:</b></p> <p>Determinations of repair, replacement, or maintenance measures shall be directed by the City Administrator and City's engineering consultant. All corrective maintenance, repair, and/or replacement measures shall be documented and recorded in the City's SWPPP.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 6b-5 Inspection Follow-up Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures – Record of Activities Completed</li></ul>
<p><b>*Measurable Goals:</b></p> <p>Repair, replacement, and/or maintenance completed will be documented and recorded within the City's SWPPP annually and may be submitted with the annual report to the MPCA. The effectiveness of this BMP will be measured by the number of determinations made annually. Success will be defined as completing all applicable corrective actions as determined from the inspection reports.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The activity was established in 2004 and will continually be updated annually through the life of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6b-6

<p><b>*BMP Title:</b> Record Reporting and Retention of All Inspections and Responses to the Inspections</p>
<p><b>*BMP Description:</b></p> <p>The City Administrator will retain all records of inspection, maintenance, and corrective actions of the City's storm water system. Records will be available, by request, to the public upon approval by the City Administrator.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• Index Page 6: BMP ID No. 6b-6 Record Reporting and Retention of All Inspections and Responses to the Inspections – Record of Activities Completed</li></ul>
<p><b>*Measurable Goals:</b></p> <p>The City will record the number of record requests and distributed materials annually. Success will be defined by the City providing the records or materials as requested.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The activity was established in 2004 and will be updated annually throughout the life of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

*\*Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*



## BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6b-7

<p><b>*BMP Title:</b> Evaluation of Inspection Frequency</p>
<p><b>*BMP Description:</b></p> <p>The City will retain the records of inspection results and any maintenance performed or recommended. After two years of inspections, if patterns of maintenance become apparent, the frequency of inspections may be adjusted at the discretion of the City's engineering consultant, given the following conditions are fulfilled:</p> <ol style="list-style-type: none"><li>1. If maintenance or sediment removal is required as a result of each of the first two annual inspections, the frequency of inspection shall be increased to at least two (2) time annually, or more frequently as needed to prevent carry-over or washout of pollutants from structures and maximize pollutant removal.</li></ol> <p>If maintenance or sediment removal is not required as a result of both of the first two (2) annual inspections, the frequency may be reduced to once every two (2) years.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• Index Page 6: BMP ID No. 6b-7 Evaluation of Inspection Frequency – Record of Activities Completed</li></ul>
<p><b>*Measurable Goals:</b></p> <p>The effectiveness of this BMP will be measured by the annual recording of all inspections completed the previous year. Success of this BMP will be defined as annually reviewing the frequency of inspections to the maintenance completed by the City.</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The activity was established in 2002 and will continue to be annually evaluated through the expiration of this permit, May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

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## Additional BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

**Unique BMP Identification Number:** 6b-8

<p><b>*BMP Title:</b> Landscaping and Lawn Care Practices Review</p>
<p><b>*BMP Description:</b></p> <p>The City will continue to annually review and, if necessary, adjust its current practices in the use of fertilizer, pesticide and herbicide application, mowing and discharge operations, grass clipping collection, mulching and composting.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p> <ul style="list-style-type: none"><li>• BMP ID No. 6b-8 Landscaping and Lawn Care Practices Review – Record of Activities Completed</li></ul>
<p><b>*Measurable Goals:</b></p> <p>The City will continue to annually review and adjust (if necessary) its current methods (as previously specified) of landscaping and lawn care maintenance. The City will annually document the results of the review. Success will be defined as annually reviewing and adjusting current practices (if necessary).</p>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>This BMP was implemented in 2004 and will continue through May 31, 2011.</p>
<p><b>Specific Components and Notes:</b></p>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>

*\*Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness*







## Additional BMP Summary Sheet

**MS4 Name:** City of Circle Pines

**Minimum Control Measure:** N/A

**Unique BMP Identification Number:** 7

<p><b>*BMP Title:</b> Evaluation of Potential Storm Water Infiltration Projects for Impacts within Source Water Protection Areas</p>
<p><b>*BMP Description:</b></p> <p>The City will adopt and implement the Minnesota Department of Health's "<i>Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas</i>" (Draft-July 19, 2006) as a guidance manual in evaluating all proposed infiltration projects within or adjacent to vulnerable drinking water supply management areas (DWSMA). This document can be found in section I of the SWPPP.</p> <p>If the proposed infiltration/discharge is determined by the City to potentially affect the local drinking water supply, the City will prohibit the construction of the infiltration area or incorporate the necessary BMPs to minimize the identified pollutant(s) prior to infiltrating the vulnerable portions of the DWSMA.</p> <p>Location(s) in SWPPP of detailed information relating to this BMP:</p>
<p><b>*Measurable Goals:</b></p> <ol style="list-style-type: none"><li>1. The City will implement the Minnesota Department of Health's "<i>Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas</i>" (Draft-July 19, 2006) as a guide in evaluating all infiltration projects within or adjacent to vulnerable DWSMA's.</li><li>2. The City will prohibit the construction of the infiltration area or incorporate specific BMPs to reduce pollutants from infiltrating within vulnerable DWSMA's.</li><li>3. The City will annually record the evaluation, denial, and implemented BMP's, of all proposed infiltration projects within and/or adjacent to vulnerable DWSMA's.</li></ol>
<p><b>*Timeline/Implementation Schedule:</b></p> <p>The City will begin implementation of the three above mentioned measurable goals by January 1, 2007.</p>
<p><b>Specific Components and Notes:</b></p> <p>The following information is located within section I of the SWPPP:</p> <ul style="list-style-type: none"><li>• "<i>Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas</i>" (Draft-July 19, 2006)</li><li>• Maps of Vulnerable Drinking Water Supply Management Areas within the City of Circle Pines</li><li>• Source Water Assessment for the City of Circle Pines</li></ul>
<p><b>*Responsible Party for this BMP:</b></p> <p>Name: James Keinath Department: City Administrator Phone: 763-784-5895 E-mail: <a href="mailto:jkeinath@ci.circle-pines.mn.us">jkeinath@ci.circle-pines.mn.us</a></p>



## **APPENDIX C**

### Floodplain Management Ordinance

## CHAPTER 14 - FLOOD PLAIN MANAGEMENT

### SECTION 1401.00 STATUTORY AUTHORIZATION, FINDINGS OF FACT AND PURPOSE

**1401.01 Statutory Authorization:** The legislature of the State of Minnesota has, in Minnesota Statutes Chapter 103F and Chapter 462 delegated the responsibility to local government units to adopt regulations designed to minimize flood losses. Therefore, the City Council of Circle Pines, Minnesota, does ordain as follows:

#### **1401.02 Purpose:**

- a. This ordinance regulates development in the flood hazard areas of Circle Pines, Minnesota. These flood hazard areas are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base. It is the purpose of this ordinance to promote the public health, safety, and general welfare by minimizing these losses and disruptions.
- b. National Flood Insurance Program Compliance. This ordinance is adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 Code of Federal Regulations Parts 59 -78, as amended, so as to maintain the community's eligibility in the National Flood Insurance Program.
- c. This ordinance is also intended to preserve the natural characteristics and functions of watercourses and floodplains in order to moderate flood and stormwater impacts, improve water quality, reduce soil erosion, protect aquatic and riparian habitat, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development.

### SECTION 1402.00 GENERAL PROVISIONS

**1402.01 How to Use This Ordinance:** This ordinance adopts the floodplain maps applicable to Circle Pines and includes three floodplain districts: Floodway, Flood Fringe, and General Floodplain.

- a. Where Floodway and Flood Fringe districts are delineated on the floodplain maps, the standards in Sections 1404.00 or 1405.00 will apply, depending on the location of a property.
- b. Locations where Floodway and Flood Fringe districts are not delineated on the floodplain maps are considered to fall within the General Floodplain district. Within the General Floodplain district, the Floodway District

standards in Section 1404.00 apply unless the floodway boundary is determined, according to the process outlined in Section 1406.00. Once the floodway boundary is determined, the Flood Fringe District standards in Section 1405.00 may apply outside the floodway.

**1402.02 Lands to Which Ordinance Applies:** This ordinance applies to all lands within the jurisdiction of the City of Circle Pines shown on the Official Zoning Map and/or the attachments to the map as being located within the boundaries of the Floodway, Flood Fringe, or General Floodplain Districts.

- a. The Floodway, Flood Fringe and General Floodplain Districts are overlay districts that are superimposed on all existing zoning districts. The standards imposed in the overlay districts are in addition to any other requirements in this ordinance. In case of a conflict, the more restrictive standards will apply.

**1402.03 Incorporation of Maps by Reference:** The following maps together with all attached material are hereby adopted by reference and declared to be a part of the Official Zoning Map and this ordinance. The attached material includes the Flood Insurance Study for Anoka County, Minnesota, and Incorporated Areas and the Flood Insurance Rate Map panels 27003C0343E and 27003C0344E, all dated December 16, 2015 and all prepared by the Federal Emergency Management Agency. These materials are on file at Circle Pines City Hall.

**1402.04 Regulatory Flood Protection Elevation:** The regulatory flood protection elevation (RFPE) is an elevation no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the floodplain that result from designation of a floodway.

**1402.05 Interpretation:** The boundaries of the zoning districts are determined by scaling distances on the Flood Insurance Rate Map.

- a. Where a conflict exists between the floodplain limits illustrated on the official zoning map and actual field conditions, the flood elevations shall be the governing factor. The Zoning Administrator must interpret the boundary location based on the ground elevations that existed on the site on the date of the first National Flood Insurance Program map showing the area within the regulatory floodplain, and other available technical data.
- b. Persons contesting the location of the district boundaries will be given a reasonable opportunity to present their case to the City Council and to submit technical evidence.

**1402.06 Abrogation and Greater Restrictions:** It is not intended by this ordinance to repeal, abrogate, or impair any existing easements, covenants, or other private agreements. However, where this ordinance imposes greater restrictions, the

provisions of this ordinance prevail. All other ordinances inconsistent with this ordinance are hereby repealed to the extent of the inconsistency only.

**1402.07 Warning and Disclaimer of Liability:** This ordinance does not imply that areas outside the floodplain districts or land uses permitted within such districts will be free from flooding or flood damages. This ordinance does not create liability on the part of the City of Circle Pines or its officers or employees for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

**1402.08 Severability:** If any section, clause, provision, or portion of this ordinance is adjudged unconstitutional or invalid by a court of law, the remainder of this ordinance shall not be affected and shall remain in full force.

**1402.09 Definitions:** Unless specifically defined below, words or phrases used in this ordinance must be interpreted according to common usage and so as to give this ordinance its most reasonable application.

- a. Accessory Use or Structure - a use or structure on the same lot with, and of a nature customarily incidental and subordinate to, the principal use or structure.
- b. Base Flood Elevation - The elevation of the "regional flood." The term "base flood elevation" is used in the flood insurance survey.
- c. Basement - any area of a structure, including crawl spaces, having its floor or base subgrade (below ground level) on all four sides, regardless of the depth of excavation below ground level.
- d. Conditional Use - a specific type of structure or land use listed in the official control that may be allowed but only after an in-depth review procedure and with appropriate conditions or restrictions as provided in the official zoning controls or building codes and upon a finding that:
  - (1) Certain conditions as detailed in the zoning ordinance exist.
  - (2) The structure and/or land use conform to the comprehensive land use plan if one exists and are compatible with the existing neighborhood.
- e. Critical Facilities - facilities necessary to a community's public health and safety, those that store or produce highly volatile, toxic or water-reactive materials, and those that house occupants that may be insufficiently mobile to avoid loss of life or injury. Examples of critical facilities include hospitals, correctional facilities, schools, daycare facilities, nursing homes, fire and police stations, wastewater

treatment facilities, public electric utilities, water plants, fuel storage facilities, and waste handling and storage facilities.

- f. Development - any manmade change to improved or unimproved real estate, including buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.
- g. Equal Degree of Encroachment - a method of determining the location of floodway boundaries so that floodplain lands on both sides of a stream are capable of conveying a proportionate share of flood flows.
- h. Farm Fence - A fence as defined by Minn. Statutes Section 344.02, Subd. 1(a)-(d). An open type fence of posts and wire is not considered to be a structure under this ordinance. Fences that have the potential to obstruct flood flows, such as chain link fences and rigid walls, are regulated as structures under this ordinance.
- i. Flood - a temporary increase in the flow or stage of a stream or in the stage of a wetland or lake that results in the inundation of normally dry areas.
- j. Flood Frequency - the frequency for which it is expected that a specific flood stage or discharge may be equaled or exceeded.
- k. Flood Fringe - that portion of the floodplain outside of the floodway. Flood fringe is synonymous with the term "floodway fringe" used in the Flood Insurance Study for Anoka County, Minnesota.
- l. Flood Prone Area - any land susceptible to being inundated by water from any source (see "Flood").
- m. Floodplain - the beds proper and the areas adjoining a wetland, lake or watercourse which have been or hereafter may be covered by the regional flood.
- n. Floodproofing - a combination of structural provisions, changes, or adjustments to properties and structures subject to flooding, primarily for the reduction or elimination of flood damages.
- o. Floodway - the bed of a wetland or lake and the channel of a watercourse and those portions of the adjoining floodplain which are reasonably required to carry or store the regional flood discharge.
- p. Lowest Floor - the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, used solely for parking of vehicles, building access, or storage in an area other than a

basement area, is not considered a building's lowest floor.

- q. Manufactured Home - a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include the term "recreational vehicle."
- r. Obstruction - any dam, wall, wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel modification, culvert, building, wire, fence, stockpile, refuse, fill, structure, or matter in, along, across, or projecting into any channel, watercourse, or regulatory floodplain which may impede, retard, or change the direction of the flow of water, either in itself or by catching or collecting debris carried by such water.
- s. One Hundred Year Floodplain - lands inundated by the "Regional Flood" (see definition).
- t. Principal Use or Structure - all uses or structures that are not accessory uses or structures.
- u. Reach - a hydraulic engineering term to describe a longitudinal segment of a stream or river influenced by a natural or man-made obstruction. In an urban area, the segment of a stream or river between two consecutive bridge crossings would most typically constitute a reach.
- v. Recreational Vehicle - a vehicle that is built on a single chassis, is 400 square feet or less when measured at the largest horizontal projection, is designed to be self-propelled or permanently towable by a light duty truck, and is designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use. For the purposes of this ordinance, the term recreational vehicle is synonymous with the term "travel trailer/travel vehicle."
- w. Regional Flood - a flood which is representative of large floods known to have occurred generally in Minnesota and reasonably characteristic of what can be expected to occur on an average frequency in the magnitude of the 1% chance or 100-year recurrence interval. Regional flood is synonymous with the term "base flood" used in a flood insurance study.
- x. Regulatory Flood Protection Elevation (RFPE) - an elevation not less than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the floodplain that result from designation of a floodway.

- y. Repetitive Loss: Flood related damages sustained by a structure on two separate occasions during a ten year period for which the cost of repairs at the time of each such flood event on the average equals or exceeds 25% of the market value of the structure before the damage occurred.
- z. Special Flood Hazard Area - a term used for flood insurance purposes synonymous with "One Hundred Year Floodplain."
- aa. Structure - anything constructed or erected on the ground or attached to the ground or on-site utilities, including, but not limited to, buildings, factories, sheds, detached garages, cabins, manufactured homes, recreational vehicles not meeting the exemption criteria specified in Section 1409.02 (b) of this ordinance and other similar items.
- bb. Substantial Damage - means damage of any origin sustained by a structure where the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.
- cc. Substantial Improvement - within any consecutive 365-day period, any reconstruction, rehabilitation (including normal maintenance and repair), repair after damage, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:
  - (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions.
  - (2) Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure." For the purpose of this ordinance, "historic structure" is as defined in 44 Code of Federal Regulations, Part 59.1.

**1402.10 Annexations:** The Flood Insurance Rate Map panels adopted by reference into Section 2.3 above may include floodplain areas that lie outside of the corporate boundaries of the City of Circle Pines at the time of adoption of this ordinance. If any of these floodplain land areas are annexed into the City after the date of adoption of this ordinance, the newly

annexed floodplain lands will be subject to the provisions of this ordinance immediately upon the date of annexation.

## **SECTION 1403.00 ESTABLISHMENT OF ZONING DISTRICTS**

### **1403.01 Districts:**

- a. Floodway District. The Floodway District includes those areas designated as floodway on the Flood Insurance Rate Map adopted in Section 1402.03. For lakes, wetlands and other basins, the Floodway District includes those areas designated as Zone A and Zone AE without a floodway on the Flood Insurance Rate Map that are at or below the ordinary high water level as defined in Minnesota Statutes, Section 103G.005, subdivision 14.
- b. Flood Fringe District. The Flood Fringe District includes those areas designated as floodway fringe on the Flood Insurance Rate Map adopted in Section 1402.03, as being within Zone AE but being located outside of the floodway. For lakes, wetlands and other basins (that do not have a floodway designated), the Flood Fringe District includes those areas designated as Zone AE on the Flood Insurance Rate Map panels adopted in Section 1402.03 that are below the 1% annual chance (100-year) flood elevation but above the ordinary high water level as defined in Minnesota Statutes, Section 103G.005, subdivision 14.
- c. General Floodplain District. The General Floodplain District includes those areas designated as Zone A or Zone AE without a floodway on the Flood Insurance Rate Map adopted in Section 1402.03, but not subject to the criteria in sections 1403.01, a. and 1403.02, b. above.

**1403.02 Compliance:** Within the floodplain districts established in this ordinance, the use of any land, the use, size, type and location of structures on lots, the installation and maintenance of transportation, utility, water supply and waste treatment facilities, and the subdivision of land must comply with the terms of this ordinance and other applicable regulations. All uses not listed as permitted uses or conditional uses in Sections 1404.00, 1405.00 and 1406.00, respectively, are prohibited.

In addition, a caution is provided here that:

- a. New and replacement manufactured homes and certain recreational vehicles are subject to the general provisions of this ordinance and specifically Section 1409.00.
- b. Modifications, additions, structural alterations, normal maintenance and repair, or repair after damage to existing nonconforming structures and nonconforming uses of structures or land are regulated by the general

provisions of this ordinance and specifically Section 1411.00.

- c. All structures must be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- d. As-built elevations for elevated or floodproofed structures must be certified by ground surveys and flood-proofing techniques must be designed and certified by a registered professional engineer or architect as specified in the general provisions of this ordinance and specifically as stated in Section 1410.00 of this ordinance.
- e. Critical facilities, as defined in Section 1402.09, e., are prohibited in all floodplain districts.

#### **SECTION 1404.00 FLOODWAY DISTRICT (FW)**

**1404.01 Permitted Uses:** The following uses, subject to the standards set forth in Section 1404.02, are permitted uses if otherwise allowed in the underlying zoning district or any applicable overlay district:

- a. General farming, pasture, grazing, outdoor plant nurseries, horticulture, truck farming, forestry, sod farming, and wild crop harvesting.
- c. Industrial-commercial loading areas, parking areas, and airport landing strips.
- c. Open space uses, including but not limited to private and public golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, hunting and fishing areas, and single or multiple purpose recreational trails.
- d. Residential lawns, gardens, parking areas, and play areas.
- e. Railroads, streets, bridges, utility transmission lines and pipelines, provided that the Department of Natural Resources' Area Hydrologist is notified at least ten days prior to issuance of any permit, and that the standards in Sections 1404.04 a., 1404.04 c.(1) and 1404.04 f. of this ordinance are met.

#### **1404.02 Standards for Floodway Permitted Uses:**

- a. The use must have a low flood damage potential.
- b. With the exception of the uses listed in Section 1404.01 e., the use must not obstruct flood flows or increase

flood elevations and must not involve structures, fill, obstructions, excavations or storage of materials or equipment.

- c. Any facility that will be used by employees or the general public must be designed with a flood warning system that provides adequate time for evacuation if the area is inundated to a depth and velocity such that the depth (in feet) multiplied by the velocity (in feet per second) would exceed a product of four upon occurrence of the regional (1% chance) flood.

**1404.03 Conditional Uses:** The following uses may be allowed as conditional uses following the standards and procedures set forth in Section 1410.04 of this ordinance and further subject to the standards set forth in Section 1404.04, if otherwise allowed in the underlying zoning district or any applicable overlay district.

- a. Structures accessory to the uses listed in 1404.01 above and the uses listed in 1404.03 b-1404.03 g. below.
- b. Extraction and storage of sand, gravel, and other materials.
- c. Marinas, boat rentals, docks, piers, wharves, and water control structures.
- d. Storage yards for equipment, machinery, or materials.
- e. Placement of fill or construction of fences that obstruct flood flows. Farm fences, as defined in section 1402.09 h., are permitted uses.
- f. Travel-ready recreational vehicles meeting the exception standards in Section 1409.02 c.
- g. Levees or dikes intended to protect agricultural crops for a frequency flood event equal to or less than the 10-year frequency flood event.

**1404.04 Standards for Floodway Conditional Uses:**

- a. All Uses. A conditional use must not cause any increase in the stage of the 1% chance or regional flood or cause an increase in flood damages in the reach or reaches affected.
- b. Fill; Storage of Materials and Equipment:
  - (1) The storage or processing of materials that are, in time of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.
  - (2) Fill, dredge spoil, and other similar materials deposited or stored in the floodplain must be protected from erosion by vegetative cover, mulching, riprap or other acceptable method. Permanent sand and gravel

operations and similar uses must be covered by a long-term site development plan.

- (3) Temporary placement of fill, other materials, or equipment which would cause an increase to the stage of the 1% percent chance or regional flood may only be allowed if the City Council has approved a plan that assures removal of the materials from the floodway based upon the flood warning time available.

c. Accessory Structures:

- (1) Accessory structures must not be designed for human habitation.
- (2) Accessory structures, if permitted, must be constructed and placed on the building site so as to offer the minimum obstruction to the flow of flood waters:
  - (a) Whenever possible, structures must be constructed with the longitudinal axis parallel to the direction of flood flow; and
  - (b) So far as practicable, structures must be placed approximately on the same flood flow lines as those of adjoining structures.
- (3) Accessory structures must be elevated on fill or structurally dry floodproofed in accordance with the FP-1 or FP-2 floodproofing classifications in the State Building Code. All floodproofed accessory structures must meet the following additional standards:
  - (a) The structure must be adequately anchored to prevent flotation, collapse or lateral movement and designed to equalize hydrostatic flood forces on exterior walls; and
  - (b) Any mechanical and utility equipment in the structure must be elevated to or above the regulatory flood protection elevation or properly floodproofed.
- (4) As an alternative, an accessory structure may be internally/wet floodproofed to the FP-3 or FP-4 floodproofing classifications in the State Building Code, provided the accessory structure constitutes a minimal investment and does not exceed 576 square feet in size. A detached garage may only be used for parking of vehicles and limited storage. All structures must meet the following standards:
  - (a) To allow for the equalization of hydrostatic pressure, there must be a minimum of two "automatic" openings in the outside walls of the structure, with a total net area of not less than one square inch

for every square foot of enclosed area subject to flooding; and

- (b) There must be openings on at least two sides of the structure and the bottom of all openings must be no higher than one foot above the lowest adjacent grade to the structure. Using human intervention to open a garage door prior to flooding will not satisfy this requirement for automatic openings.
- d. Structural works for flood control that will change the course, current or cross section of protected wetlands or public waters are subject to the provisions of Minnesota Statutes, Section 103G.245.
- e. A levee, dike or floodwall constructed in the floodway must not cause an increase to the 1% chance or regional flood. The technical analysis must assume equal conveyance or storage loss on both sides of a stream.
- f. Floodway developments must not adversely affect the hydraulic capacity of the channel and adjoining floodplain of any tributary watercourse or drainage system.

#### **SECTION 1405.00 FLOOD FRINGE DISTRICT (FF)**

**1405.01 Permitted Uses:** Permitted uses are those uses of land or structures allowed in the underlying zoning district(s) that comply with the standards in Sections 1405.02. If no pre-existing, underlying zoning districts exist, then any residential or nonresidential structure or use of a structure or land is a permitted use provided it does not constitute a public nuisance.

#### **1405.02 Standards for Flood Fringe Permitted Uses:**

- a. All structures, including accessory structures, must be elevated on fill so that the lowest floor, as defined, is at or above the regulatory flood protection elevation. The finished fill elevation for structures must be no lower than one foot below the regulatory flood protection elevation and the fill must extend at the same elevation at least 15 feet beyond the outside limits of the structure.
  - (1) All service utilities, including ductwork, must be elevated or water-tight to prevent infiltration of floodwaters.
  - (2) As an alternative to elevation on fill, an accessory structure that constitutes a minimal investment and that does not exceed 576 square feet in size may be internally floodproofed in accordance with Section 1404.04 c.
- b. The cumulative placement of fill or similar material on a parcel must not exceed 1,000 cubic yards, unless the fill is specifically intended to elevate a structure in

accordance with Section 1405.02 a. of this ordinance, or if allowed as a conditional use under Section 1405.03 c. below.

- c. The storage of any materials or equipment must be elevated on fill to the regulatory flood protection elevation.
- e. The storage or processing of materials that are, in time of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.
- f. Fill must be properly compacted and the slopes must be properly protected by the use of riprap, vegetative cover or other acceptable method.
- g. All new principal structures must have vehicular access at or above an elevation not more than two feet below the regulatory flood protection elevation, or must have a flood warning /emergency evacuation plan acceptable to the City Council.
- h. Accessory uses such as yards, railroad tracks, and parking lots may be at an elevation lower than the regulatory flood protection elevation. However, any facilities used by employees or the general public must be designed with a flood warning system that provides adequate time for evacuation if the area is inundated to a depth and velocity such that the depth (in feet) multiplied by the velocity (in feet per second) would exceed a product of four upon occurrence of the regional (1% chance) flood.
- i. Interference with normal manufacturing/industrial plant operations must be minimized, especially along streams having protracted flood durations. In considering permit applications, due consideration must be given to the needs of industries with operations that require a floodplain location.
- j. Flood fringe developments must not adversely affect the hydraulic capacity of the channel and adjoining floodplain of any tributary watercourse or drainage system.
- k. Manufactured homes and recreational vehicles must meet the standards of Section 1409.00 of this ordinance.

**1405.03 Conditional Uses:** The following uses and activities may be allowed as conditional uses, if allowed in the underlying zoning district(s) or any applicable overlay district, following the procedures in Section 1410.04 of this ordinance. Conditional uses must meet the standards in Sections 1405.02 d. through 1405.02 j. and Section 1405.04.

- a. Any structure that is not elevated on fill or floodproofed in accordance with Section 1405.02a. of this ordinance.
- b. Storage of any material or equipment below the regulatory flood protection elevation.
- c. The cumulative placement of more than 1,000 cubic yards of fill when the fill is not being used to elevate a

structure in accordance with Section 1405.02a. of this ordinance.

**1405.04 Standards for Flood Fringe Conditional Uses:**

- a. The standards listed in Sections 1405.02 d. through 1405.02 j. apply to all conditional uses.
- b. Basements, as defined by Section 1402.09 c. of this ordinance, are subject to the following:
  - (1) Residential basement construction is not allowed below the regulatory flood protection elevation.
  - (2) Non-residential basements may be allowed below the regulatory flood protection elevation provided the basement is structurally dry floodproofed in accordance with Section 1405.04 d. of this ordinance.
- c. All areas of nonresidential structures, including basements, to be placed below the regulatory flood protection elevation must be floodproofed in accordance with the structurally dry floodproofing classifications in the State Building Code. Structurally dry floodproofing must meet the FP-1 or FP-2 floodproofing classification in the State Building Code, which requires making the structure watertight with the walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. Structures wet floodproofed to the FP-3 or FP-4 classification are not permitted.
- d. The placement of more than 1,000 cubic yards of fill or other similar material on a parcel (other than for the purpose of elevating a structure to the regulatory flood protection elevation) must comply with an approved erosion/sedimentation control plan.
  - (1) The plan must clearly specify methods to be used to stabilize the fill on site for a flood event at a minimum of the regional (1% chance) flood event.
  - (2) The plan must be prepared and certified by a registered professional engineer or other qualified individual acceptable to the City Council.
  - (3) The plan may incorporate alternative procedures for removal of the material from the floodplain if adequate flood warning time exists.
- e. Storage of materials and equipment below the regulatory flood protection elevation must comply with an approved emergency plan providing for removal of such materials within the time available after a flood warning.
- f. Alternative elevation methods other than the use of fill may be utilized to elevate a structure's lowest floor

above the regulatory flood protection elevation. These alternative methods may include the use of stilts, pilings, parallel walls, etc., or above-grade, enclosed areas such as crawl spaces or tuck under garages. The base or floor of an enclosed area shall be considered above-grade and not a structure's basement or lowest floor if: 1) the enclosed area is above-grade on at least one side of the structure; 2) it is designed to internally flood and is constructed with flood resistant materials; and 3) it is used solely for parking of vehicles, building access or storage. The above-noted alternative elevation methods are subject to the following additional standards:

- (1) Design and Certification - The structure's design and as-built condition must be certified by a registered professional engineer or architect as being in compliance with the general design standards of the State Building Code and, specifically, that all electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities must be at or above the regulatory flood protection elevation or be designed to prevent flood water from entering or accumulating within these components during times of flooding.
- (2) Specific Standards for Above-grade, Enclosed Areas - Above-grade, fully enclosed areas such as crawl spaces or tuck under garages must be designed to internally flood and the design plans must stipulate:
  - (a) The minimum area of openings in the walls where internal flooding is to be used as a floodproofing technique. There shall be a minimum of two openings on at least two sides of the structure and the bottom of all openings shall be no higher than one foot above grade. The automatic openings shall have a minimum net area of not less than one square inch for every square foot of enclosed area subject to flooding unless a registered professional engineer or architect certifies that a smaller net area would suffice. The automatic openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of flood waters without any form of human intervention; and
  - (b) That the enclosed area will be designed of flood resistant materials in accordance with the FP-3 or FP-4 classifications in the State Building Code and shall be used solely for building access, parking of vehicles or storage.

**SECTION 1406.00 GENERAL FLOODPLAIN DISTRICT (GF)**

**1406.01 Permitted Uses:**

- a. The uses listed in Section 1404.01 of this ordinance, Floodway District Permitted Uses, are permitted uses.
- b. All other uses are subject to the floodway/flood fringe evaluation criteria specified in Section 1406.02 below. Section 1404.00 applies if the proposed use is determined to be in the Floodway District. Section 1405.00 applies if the proposed use is determined to be in the Flood Fringe District.

**1406.02 Procedures for Floodway and Flood Fringe Determinations:**

- a. Upon receipt of an application for a permit or other approval within the General Floodplain District, the Zoning Administrator must obtain, review and reasonably utilize any regional flood elevation and floodway data available from a federal, state, or other source.
- b. If regional flood elevation and floodway data are not readily available, the applicant must furnish additional information, as needed, to determine the regulatory flood protection elevation and whether the proposed use would fall within the Floodway or Flood Fringe District. Information must be consistent with accepted hydrological and hydraulic engineering standards and the standards in 1406.02 c., below.
- c. The determination of floodway and flood fringe must include the following components, as applicable:
  - (1) Estimate the peak discharge of the regional (1% chance) flood.
  - (2) Calculate the water surface profile of the regional flood based upon a hydraulic analysis of the stream channel and overbank areas.
  - (3) Compute the floodway necessary to convey or store the regional flood without increasing flood stages more than one-half (0.5) foot. A lesser stage increase than 0.5 foot is required if, as a result of the stage increase, increased flood damages would result. An equal degree of encroachment on both sides of the stream within the reach must be assumed in computing floodway boundaries.
- d. The Zoning Administrator will review the submitted information and assess the technical evaluation and the recommended Floodway and/or Flood Fringe District boundary. The assessment must include the cumulative effects of previous floodway encroachments. The Zoning Administrator may seek technical assistance from a designated engineer or other expert person or agency, including the Department of Natural Resources. Based on

this assessment, the Zoning Administrator may approve or deny the application.

- e. Once the Floodway and Flood Fringe District boundaries have been determined, the Zoning Administrator must process the permit application consistent with the applicable provisions of Section 1404.00 and 1405.00 of this ordinance.

**SECTION 1407.00 LAND DEVELOPMENT STANDARDS**

**1407.01 In General:** Recognizing that flood prone areas may exist outside of the designated floodplain districts, the requirements of this section apply to all land within the City of Circle Pines.

**1407.02 Subdivisions:** No land may be subdivided which is unsuitable for reasons of flooding or inadequate drainage, water supply or sewage treatment facilities. Manufactured home parks and recreational vehicle parks or campgrounds are considered subdivisions under this ordinance.

- a. All lots within the floodplain districts must be able to contain a building site outside of the Floodway District at or above the regulatory flood protection elevation.
- b. All subdivisions must have road access both to the subdivision and to the individual building sites no lower than two feet below the regulatory flood protection elevation, unless a flood warning emergency plan for the safe evacuation of all vehicles and people during the regional (1% chance) flood has been approved by the City Council. The plan must be prepared by a registered engineer or other qualified individual, and must demonstrate that adequate time and personnel exist to carry out the evacuation.
- c. For all subdivisions in the floodplain, the Floodway and Flood Fringe District boundaries, the regulatory flood protection elevation and the required elevation of all access roads must be clearly labeled on all required subdivision drawings and platting documents.
- d. In the General Floodplain District, applicants must provide the information required in Section 1406.02 of this ordinance to determine the regional flood elevation, the Floodway and Flood Fringe District boundaries and the regulatory flood protection elevation for the subdivision site.
- e. If a subdivision proposal or other proposed new development is in a flood prone area, any such proposal must be reviewed to assure that:
  - (1) All such proposals are consistent with the need to minimize flood damage within the flood prone area,

- (2) All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage, and
- (3) Adequate drainage is provided to reduce exposure of flood hazard.

**1407.03 Building Sites:** If a proposed building site is in a flood prone area, all new construction and substantial improvements (including the placement of manufactured homes) must be:

- (1) Designed (or modified) and adequately anchored to prevent floatation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
- (2) Constructed with materials and utility equipment resistant to flood damage;
- (3) Constructed by methods and practices that minimize flood damage; and
- (4) Constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

## **SECTION 1408.00 PUBLIC UTILITIES, RAILROADS, ROADS, AND BRIDGES**

**1408.01 Public Utilities:** All public utilities and facilities such as gas, electrical, sewer, and water supply systems to be located in the floodplain must be floodproofed in accordance with the State Building Code or elevated to the regulatory flood protection elevation.

**1408.02 Public Transportation Facilities:** Railroad tracks, roads, and bridges to be located within the floodplain must comply with Sections 1404.00 and 1405.00 of this ordinance. These transportation facilities must be elevated to the regulatory flood protection elevation where failure or interruption of these facilities would result in danger to the public health or safety or where such facilities are essential to the orderly functioning of the area. Minor or auxiliary roads or railroads may be constructed at a lower elevation where failure or interruption of transportation services would not endanger the public health or safety.

**1408.03 On-site Water Supply and Sewage Treatment Systems:** Where public utilities are not provided: 1) On-site water supply systems must be designed to minimize or eliminate infiltration of flood waters into the systems; and 2) New or replacement on-site sewage treatment systems must be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters and they must

not be subject to impairment or contamination during times of flooding. Any sewage treatment system designed in accordance with the state's current statewide standards for on-site sewage treatment systems is considered to be in compliance with this Section.

**SECTION 1409.00 MANUFACTURED HOMES, MANUFACTURED HOME PARKS, AND RECREATIONAL VEHICLES.**

**1409.01 Manufactured Homes:** New manufactured home parks and expansions to existing manufactured home parks are prohibited in any floodplain district. For existing manufactured home parks or lots of record, the following requirements apply:

- a. Placement or replacement of manufactured home units is prohibited in the Floodway District.
- b. If allowed in the Flood Fringe District, placement or replacement of manufactured home units is subject to the requirements of Section 1405.00 of this ordinance and the following standards.

- (1) New and replacement manufactured homes must be elevated in compliance with Section 1405.00 of this ordinance and must be securely anchored to an adequately anchored foundation system that resists flotation, collapse and lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state or local anchoring requirements for resisting wind forces.

- (2) New or replacement manufactured homes in existing manufactured home parks must meet the vehicular access requirements for subdivisions in Section 1407.02b.

**1409.02 Recreational Vehicles:** New recreational vehicle parks or campgrounds and expansions to existing recreational vehicle parks or campgrounds are prohibited in any floodplain district. Placement of recreational vehicles in existing recreational vehicle parks or campgrounds in the floodplain must meet the exemption criteria below or be treated as new structures meeting the requirements of this ordinance.

- a. Recreational vehicles are exempt from the provisions of this ordinance if they are placed in any of the following areas and meet the criteria listed in Section 1409.02b.:

- (1) Individual lots or parcels of record.
- (2) Existing commercial recreational vehicle parks or campgrounds.
- (3) Existing condominium-type associations.

- b. Criteria for Exempt Recreational Vehicles:

- (1) The vehicle must have a current license required for highway use.

- (2) The vehicle must be highway ready, meaning on wheels or the internal jacking system, attached to the site only by quick disconnect type utilities commonly used in campgrounds and recreational vehicle parks.
  - (3) No permanent structural type additions may be attached to the vehicle.
  - (4) The vehicle and associated use must be permissible in any pre-existing, underlying zoning district.
  - (5) Accessory structures are not permitted within the Floodway District. Any accessory structure in the Flood Fringe District must be constructed of flood-resistant materials and be securely anchored, meeting the requirements applicable to manufactured homes in Section 1409.02b.
  - (6) An accessory structure must constitute a minimal investment
- c. Recreational vehicles that are exempt in Section 1409.02b. lose this exemption when development occurs on the site that exceeds a minimal investment for an accessory structure such as a garage or storage building. The recreational vehicle and all accessory structures will then be treated as new structures subject to the elevation and floodproofing requirements of Section 1405.00 of this ordinance. No development or improvement on the parcel or attachment to the recreational vehicle is allowed that would hinder the removal of the vehicle should flooding occur.

## **SECTION 1410.00 ADMINISTRATION**

**1410.01 Zoning Administrator:** A Zoning Administrator or other official designated by the City Council must administer and enforce this ordinance.

### **1410.02 Permit Requirements:**

- a. Permit Required. A permit must be obtained from the Zoning Administrator prior to conducting the following activities:
  - (1) The erection, addition, modification, rehabilitation, or alteration of any building, structure, or portion thereof. Normal maintenance and repair also requires a permit if such work, separately or in conjunction with other planned work, constitutes a substantial improvement as defined in this ordinance.
  - (2) The use or change of use of a building, structure, or land.

- (3) The construction of a dam, fence, or on-site septic system, although a permit is not required for a farm fence as defined in this ordinance.
  - (4) The change or extension of a nonconforming use.
  - (5) The repair of a structure that has been damaged by flood, fire, tornado, or any other source.
  - (6) The placement of fill, excavation of materials, or the storage of materials or equipment within the floodplain.
  - (7) Relocation or alteration of a watercourse - including new or replacement culverts and bridges), unless a public waters work permit has been applied for.
  - (8) Any other type of "development" as defined in this ordinance.
- b. Application for Permit. Permit applications must be submitted to the Zoning Administrator on forms provided by the Zoning Administrator. The permit application must include the following as applicable:
- (1) A site plan showing all pertinent dimensions, existing or proposed buildings, structures, and significant natural features having an influence on the permit.
  - (2) Location of fill or storage of materials in relation to the stream channel.
  - (3) Copies of any required municipal, county, state or federal permits or approvals.
  - (4) Other relevant information requested by the Zoning Administrator as necessary to properly evaluate the permit application.
- c. Certificate of Zoning Compliance for a New, Altered, or Nonconforming Use. No building, land or structure may be occupied or used in any manner until a certificate of zoning compliance has been issued by the Zoning Administrator stating that the use of the building or land conforms to the requirements of this ordinance.
- d. Certification. The applicant is required to submit certification by a registered professional engineer, registered architect, or registered land surveyor that the finished fill and building elevations were accomplished in compliance with the provisions of this ordinance. Floodproofing measures must be certified by a registered professional engineer or registered architect.

- e. Record of First Floor Elevation. The Zoning Administrator must maintain a record of the elevation of the lowest floor (including basement) of all new structures and alterations or additions to existing structures in the floodplain. The Zoning Administrator must also maintain a record of the elevation to which structures and alterations or additions to structures are floodproofed.
- f. Notifications for Watercourse Alterations. Before authorizing any alteration or relocation of a river or stream, the Zoning Administrator must notify adjacent communities. If the applicant has applied for a permit to work in public waters pursuant to Minnesota Statutes, Section 103G.245, this will suffice as adequate notice. A copy of the notification must also be submitted to the Chicago Regional Office of the Federal Emergency Management Agency (FEMA).
- g. Notification to FEMA When Physical Changes Increase or Decrease Base Flood Elevations. As soon as is practicable, but not later than six months after the date such supporting information becomes available, the Zoning Administrator must notify the Chicago Regional Office of FEMA of the changes by submitting a copy of the relevant technical or scientific data.

**1410.03 Variances:**

- a. Variance Applications. An application for a variance to the provisions of this ordinance will be processed and reviewed in accordance with applicable state statutes and Section 1310.03 of the Zoning Ordinance.
- b. Adherence to State Floodplain Management Standards. A variance must not allow a use that is not allowed in that district, permit a lower degree of flood protection than the regulatory flood protection elevation for the particular area, or permit standards lower than those required by state law.
- c. Additional Variance Criteria. The following additional variance criteria of the Federal Emergency Management Agency must be satisfied:
  - (1) Variances must not be issued by a community within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result.
  - (2) Variances may only be issued by a community upon
    - (i) a showing of good and sufficient cause, (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and
    - (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense,

create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

- (3) Variances may only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- d. Flood Insurance Notice. The Zoning Administrator must notify the applicant for a variance that: 1) The issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage; and 2) Such construction below the base or regional flood level increases risks to life and property. Such notification must be maintained with a record of all variance actions.
  - e. General Considerations. The community may consider the following factors in granting variances and imposing conditions on variances and conditional uses in floodplains:
    - (1) The potential danger to life and property due to increased flood heights or velocities caused by encroachments;
    - (2) The danger that materials may be swept onto other lands or downstream to the injury of others;
    - (3) The proposed water supply and sanitation systems, if any, and the ability of these systems to minimize the potential for disease, contamination and unsanitary conditions;
    - (4) The susceptibility of any proposed use and its contents to flood damage and the effect of such damage on the individual owner;
    - (5) The importance of the services to be provided by the proposed use to the community;
    - (6) The requirements of the facility for a waterfront location;
    - (7) The availability of viable alternative locations for the proposed use that are not subject to flooding;
    - (8) The compatibility of the proposed use with existing development and development anticipated in the foreseeable future;
    - (9) The relationship of the proposed use to the Comprehensive Land Use Plan and flood plain management program for the area;
    - (10) The safety of access to the property in times of flood for ordinary and emergency vehicles;

- (11) The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters expected at the site.
- f. Submittal of Hearing Notices to the Department of Natural Resources (DNR). The Zoning Administrator must submit hearing notices for proposed variances to the DNR sufficiently in advance to provide at least ten days' notice of the hearing. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.
  - g. Submittal of Final Decisions to the DNR. A copy of all decisions granting variances must be forwarded to the DNR within ten days of such action. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.
  - h. Record-Keeping. The Zoning Administrator must maintain a record of all variance actions, including justification for their issuance, and must report such variances in an annual or biennial report to the Administrator of the National Flood Insurance Program, when requested by the Federal Emergency Management Agency.

**1410.04 Conditional Uses:**

- a. Administrative Review. An application for a conditional use permit under the provisions of this ordinance will be processed and reviewed in accordance with Section 1310.04 of the Zoning Ordinance.
- b. Factors Used in Decision-Making. In passing upon conditional use applications, the City Council must consider all relevant factors specified in other sections of this ordinance, and those factors identified in Section 1410.03e. of this ordinance.
- c. Conditions Attached to Conditional Use Permits. The City Council may attach such conditions to the granting of 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) Modification of waste treatment and water supply facilities.
  - (2) Limitations on period of use, occupancy, and operation.
  - (3) Imposition of operational controls, sureties, and deed restrictions.
  - (4) Requirements for construction of channel modifications, compensatory storage, dikes, levees, and other protective measures.

- (5) Floodproofing measures, in accordance with the State Building Code and this ordinance. The applicant must submit a plan or document certified by a registered professional engineer or architect that the floodproofing measures are consistent with the regulatory flood protection elevation and associated flood factors for the particular area.
- d. Submittal of Hearing Notices to the Department of Natural Resources (DNR). The Zoning Administrator must submit hearing notices for proposed conditional uses to the DNR sufficiently in advance to provide at least ten days' notice of the hearing. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.
- e. Submittal of Final Decisions to the DNR. A copy of all decisions granting conditional uses must be forwarded to the DNR within ten days of such action. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.

#### **SECTION 1411.00 NONCONFORMITIES**

**1411.01 Continuance of Nonconformities:** A use, structure, or occupancy of land which was lawful before the passage or amendment of this ordinance but which is not in conformity with the provisions of this ordinance may be continued subject to the following conditions. Historic structures, as defined in Section 2.939(b) of this ordinance, are subject to the provisions of Sections 1411.01 a. - f. of this ordinance.

- a. A nonconforming use, structure, or occupancy must not be expanded, changed, enlarged, or altered in a way that increases its flood damage potential or degree of obstruction to flood flows except as provided in 1411.01 b. below. Expansion or enlargement of uses, structures or occupancies within the Floodway District is prohibited.
- b. Any addition or structural alteration to a nonconforming structure or nonconforming use that would result in increasing its flood damage potential must be protected to the regulatory flood protection elevation in accordance with any of the elevation on fill or floodproofing techniques (i.e., FP-1 thru FP-4 floodproofing classifications) allowable in the State Building Code, except as further restricted in 1411.01 c. and 1411.01 g. below.
- c. If the cost of all previous and proposed alterations and additions exceeds 50 percent of the market value of any nonconforming structure, then the entire structure must meet the standards of Section 1404.00 or 1405.00 of this ordinance for new structures depending upon whether the structure is in the Floodway or Flood Fringe District,

respectively. The cost of all structural alterations and additions must include all costs such as construction materials and a reasonable cost placed on all manpower or labor.

- d. If any nonconforming use, or any use of a nonconforming structure, is discontinued for more than one year, any future use of the premises must conform to this ordinance. The Assessor must notify the Zoning Administrator in writing of instances of nonconformities that have been discontinued for a period of more than one year.
- e. If any nonconformity is substantially damaged, as defined in Section 1402.09 bb. of this ordinance, it may not be reconstructed except in conformity with the provisions of this ordinance. The applicable provisions for establishing new uses or new structures in Sections 1404.00 or 1405.00 will apply depending upon whether the use or structure is in the Floodway or Flood Fringe, respectively.
- f. If any nonconforming use or structure experiences a repetitive loss, as defined in Section 1402.09 y. of this ordinance, it must not be reconstructed except in conformity with the provisions of this ordinance.
- g. Any substantial improvement, as defined in Section 1402.09 cc. of this ordinance, to a nonconforming structure requires that the existing structure and any additions must meet the requirements of Section 1404.00 or 1405.00 of this ordinance for new structures, depending upon whether the structure is in the Floodway or Flood Fringe District.

## **SECTION 1412.00 PENALTIES AND ENFORCEMENT**

**1412.01 Violation Constitutes a Misdemeanor:** 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) constitute a misdemeanor and will be punishable as defined by law.

**1412.02 Other Lawful Action:** Nothing in this ordinance restricts the City from taking such other lawful action as is necessary to prevent or remedy any violation. If the responsible party does not appropriately respond to the Zoning Administrator within the specified period of time, each additional day that lapses will constitute an additional violation of this ordinance and will be prosecuted accordingly.

**1412.03 Enforcement:** In responding to a suspected ordinance violation, the Zoning Administrator and City Council may utilize the full array of enforcement actions available to it including but not limited to prosecution and fines, injunctions, after-the-fact permits, orders for corrective

measures or a request to the National Flood Insurance Program for denial of flood insurance availability to the guilty party. The City must act in good faith to enforce these official controls and to correct ordinance violations to the extent possible so as not to jeopardize its eligibility in the National Flood Insurance Program.

- a. When a violation is either discovered by or brought to the attention of the Zoning Administrator, the Zoning Administrator shall immediately investigate the situation and document the nature and extent of the violation of the official control. As soon as it is reasonably possible, this information will be submitted to the appropriate State Department of Natural Resources and Federal Emergency Management Agency regional office along with the city's plan of action to correct the violation to the degree possible.
- b. The Zoning Administrator shall notify the suspected party of the requirements of this chapter and all other official controls and the nature and extent of the suspected violation of these controls. If the structure and/or use is under construction or development, the Zoning Administrator may order the construction or development immediately halted until a proper permit or approval is granted by the city. If the construction or development is already completed, the Zoning Administrator may either: 1) issue an order identifying the corrective actions that must be made within a specified time period to bring the use or structure into compliance with the official controls; or 2) notify the responsible party to apply for an after the fact permit/development approval within a specified period of time not to exceed 30 days.

#### **SECTION 1413.00 AMENDMENTS**

**1413.01 Floodplain Designation - Restrictions on Removal:** The floodplain designation on the Official Zoning Map must not be removed from floodplain areas unless it can be shown that the designation is in error or that the area has been filled to or above the elevation of the regulatory flood protection elevation and is contiguous to lands outside the floodplain. Special exceptions to this rule may be permitted by the Commissioner of the Department of Natural Resources (DNR) if the Commissioner determines that, through other measures, lands are adequately protected for the intended use.

**1413.02 Amendments Require DNR Approval:** All amendments to this ordinance must be submitted to and approved by the Commissioner of the Department of Natural Resources (DNR) prior to adoption. The Commissioner must approve the amendment prior to community approval.

**1413.03 Map Revisions Require Ordinance Amendments.** The floodplain district regulations must be amended to incorporate

any revisions by the Federal Emergency Management Agency to the floodplain maps adopted in Section 1402.03 of this ordinance.

expense; and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

**1360.15 Remedies Not Exclusive.** The remedies listed in this section are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the City of Circle Pines to seek cumulative remedies. The City of Circle Pines may recover all attorney's fees, court costs and other expenses associated with enforcement of this section, including sampling and monitoring expenses.

### **1370.00 Floodplain Management.**

#### **1370.01 Regulation**

Subd. 1 The City of Circle Pines adopts by reference Rice Creek Watershed District Rule E regarding Floodplain Management.

Subd. 2 The application for the modification or alteration of Floodplain will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule E.

#### **1370.02 Penalty.**

Subd. 1 Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

#### **1370.03 Other Controls.**

Subd. 1 In the event of any conflict between the provisions of this ordinance and the provisions of an erosion control, stormwater management, wetland, or shoreland protection ordinance adopted by the City Council the more restrictive standard prevails.

#### **1370.04 Severability.**

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

### **1380.00 Erosion and Sediment Control.**

#### **1380.01 Regulation**

## **APPENDIX D**

### Stormwater Management Ordinance

d. Any commercial, recreational, community or religious facility allowed as part of the community unit development shall conform to all applicable federal and state regulations including, but not limited to the following:

- 1) licensing provisions or procedures;
- 2) waste disposal regulations;
- 2) water supply regulations;
- 4) building codes;
- 5) safety regulations;
- 6) regulations concerning the appropriation and use of Protected Waters as defined in Minn. Stat. Chap. 105; and
- 7) Applicable regulations of the Minnesota Environmental Quality Board.

Subd. 4 Final Plan. The final plan for a community unit plan shall not be modified, amended, repealed or otherwise altered unless approved in writing by the developer, the municipality and the Commissioner of Natural Resources.

Subd. 5 Centralized Shoreline Recreation Facilities. There are centralized shoreline recreation facilities such as beaches, docks and boat launching facilities.

#### **1340.06 Variances and Conditional Uses.**

Subd. 1 Notice to Commissioner, Variances. A copy of all notices of a public hearing to consider a variance to the provisions of the Shoreland Overlay District or a conditional use in the Shoreland Overlay District shall be sent to the Commissioner of Natural Resources such that the notice is received by the Commissioner at least ten (10) days prior to such hearings.

Subd. 2 Notice to Commissioner, Amendments. A copy of all amendments to this Chapter and final decisions granting variances or conditional uses within the Shoreland Overlay District shall be sent to the Commissioner of Natural Resources within ten (10) days of the amendment or final action.

### **Section 1350-Stormwater Management Ordinance**

**1350.01 Findings**. The City of Circle Pines hereby also adopts by reference, and as amended, Rice Creek Watershed District Rule C related to Stormwater Management Plans. The rules and regulations related to the review of Stormwater Management Plans will be reviewed by the Local Governing Unit (LGU) in

accordance with Rice Creek Watershed District Rules.

**1350.02 Purpose.** The purpose of this ordinance is to promote, preserve and enhance the natural resources within the City of Circle Pines and protect them from adverse effects occasioned by poorly sited development or incompatible activities by regulating land disturbing or development activities that would have an adverse and potentially irreversible impact on water quality and unique and fragile environmentally sensitive land; by minimizing conflicts and encouraging compatibility between land disturbing and development activities and water quality and environmentally sensitive lands; and by requiring detailed review standards and procedures for land disturbing or development activities proposed for such areas, thereby achieving a balance between urban growth and development and protection of water quality and natural areas.

**1350.03 Scope and Effect.** Variances. Minnesota Statutes 103B.211, subdivision 1(a)(3), any variance must be approved by the RCWD Board.

**1350.04 Penalty.** Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

**1350.05 Other Controls.** In the event of any conflict between the provisions of this ordinance and the provisions of an erosion control or shoreland protection ordinance adopted by the City Council the more restrictive standard prevails.

**1350.06 Severability.** The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

## **Section 1360 - Regulation of Discharge into Storm Sewer System**

**1360.01 Statutory Authorization and Purpose.** The purpose of this section is to provide for the health, safety, and general welfare of the citizens of the City of Circle Pines through the regulation of non-stormwater discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This section establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the MS4 permit issued to the City of Circle Pines by the Minnesota Pollution Control Agency (MPCA) under the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this section are:

- a) To regulate the contribution of pollutants to the MS4 by stormwater discharges by any user.
- b) To prohibit illicit connections and discharges to the MS4.
- c) To establish legal authority to carry out all inspection, surveillance, monitoring, and enforcement procedures necessary to ensure compliance with this section.
- d) This Section is adopted pursuant to the authorization and policies contained in Minnesota Statutes Chapters 103B and 462; Minnesota Rules, Parts 6120.2500-6120.3900, Minnesota Rules Chapters 8410, 8420 and 7050.0210.

**1360.02 Definitions.** The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

*Best Management Practices (BMPs)* are 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 storm water, receiving waters, or storm water 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* is activity subject to NPDES Construction Permits. These include 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 Materials* 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.

*Illicit Connections* are defined as either of the following:

- a) 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 sewage, process wastewater, wash water 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 an authorized enforcement agency; or

- b) 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 an authorized enforcement agency.

*Industrial Activity* means activities subject to NPDES Industrial Stormwater Permits as defined in 40 CFR, Section 122.26 (b)(14).

*Municipal Separate Storm Sewer System (MS4)* means the system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned and operated by the City of Circle Pines and designed or used for collecting or conveying stormwater, and that is not used for collecting or conveying sewage.

*National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit* means a permit issued by Minnesota Pollution Control Agency that authorizes the discharge of pollutants to waters of the United States, 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 anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

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

*Storm Drainage System* means publicly-owned facilities by which stormwater is collected and/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 form of natural precipitation, and resulting from such precipitation.

*Stormwater Management Plan* means a document which describes the best management practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, and/or receiving waters to the maximum extent practicable.

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

*Watercourse* means a ditch, stream, creek, or other defined channel intended for the conveyance of water, runoff, groundwater discharge or similar hydraulic or hydrologic purpose.

**1360.03 Applicability.** This section shall apply to all water entering the storm drainage system generated on any developed and undeveloped lands unless explicitly exempted by the City of Circle Pines.

**1360.04 Responsibility for Administration.** The City of Circle Pines shall administer, implement, and enforce the provisions of this section. Any powers granted or duties imposed upon the City of Circle Pines may be delegated in writing by the city administrator to persons or entities acting in the beneficial interest of or in the employ of the city.

**1360.05 Compatibility with Other Regulations.** This section is not intended to modify or repeal any other ordinance, rule, regulation, or other provision of law. The requirements of this section are in addition to the requirements of any other ordinance, rule, regulation, or other provision of law, and where any provision of this section 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.

**1360.06 Severability.** The provisions of this section are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this section or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this section.

**1360.07 Ultimate Responsibility.** The standards set forth herein and promulgated pursuant to this section are minimum standards; therefore this section does not intend or imply that compliance by

any person will ensure that there will be no contamination, pollution, or unauthorized discharge of pollutants.

### **1360.08 Discharge Prohibitions.**

Subd 1. Prohibition of Illegal Discharges. No person shall throw, drain, or otherwise discharge, cause, or allow others under its control to throw, drain, or otherwise discharge into the MS4 any pollutants or waters containing any pollutants, other than stormwater. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

- a) The following discharges are exempt from discharge prohibitions established by this section: water line flushing, landscape irrigation, diverted stream flows, rising groundwater, uncontaminated groundwater infiltration, uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, and street wash water.
  - 1) Discharge of swimming pools, crawl spaces, sump pumps, footing drains, and other sources that may be determined to contain sediment or other forms of pollutants may NOT be discharged directly to a gutter or storm sewer. This discharge must be allowed to flow over a vegetated area to allow filtering of pollutants, evaporation of chemicals, and infiltration of water consistent with the stormwater requirements of the City of Circle Pines.
- b) Discharges or flow from firefighting, and other discharges specified in writing by the City of Circle Pines as being necessary to protect public health and safety.
- c) Discharges associated with dye testing; however, this activity requires a verbal notification to the City of Circle Pines prior to the time of the test.
- d) The prohibition shall not apply to 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 Minnesota Pollution Control Agency (MPCA), 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.

### Subd. 2 Prohibition of Illicit Connections.

- 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 considered to be in violation of this section if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.
  - d) Improper connections in violation of this section must be disconnected and redirected, if necessary, to an approved onsite wastewater management system or the sanitary sewer system upon approval of the City of Circle Pines.
  - e) Any drain or conveyance that has not been documented in plans, maps or equivalent, and which may be connected to the storm sewer system, shall be located by the owner or occupant of that property upon receipt of written notice of violation from the City of Circle Pines requiring that such locating be completed. Such notice will specify a reasonable time period within which the location of the drain or conveyance is to be determined, that the drain or conveyance be identified as storm sewer, sanitary sewer or other, and that the outfall location or point of connection to the storm sewer system, sanitary sewer system or other discharge point be identified. Results of these investigations are to be documented and provided to the City of Circle Pines.

**1360.09 Watercourse Protection.** Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within their property free of trash, debris, yard waste generated by the owner and/or lessee, excessive planted vegetation, and other manmade obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee 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 with the exception of natural vegetation and trees.

**1360.10 Industrial or Construction Discharges.**

Subd. 1 Submission of NOI to the City

- a) Any person subject to an industrial or construction activity NPDES storm water 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 City of Circle Pines prior to the allowing of discharges to the MS4.
- b) The operator of a facility, including construction sites, required to have an NPDES permit to discharge storm water associated with industrial activity shall submit a copy of the Notice of Intent (NOI) to the City of Circle Pines at the same time the operator submits the original Notice of Intent to the EPA as applicable.

- c) The copy of the Notice of Intent may be delivered to the City of Circle Pines either in person or by mailing it to:

Notice of Intent to Discharge Stormwater  
City of Circle Pines  
200 Civic Heights Circle  
Circle Pines, MN 55014

- d) The Failure to provide a copy of the Notice of Intent to the City of Circle Pines as required herein shall be a violation of this Ordinance.

#### **1360.11 Compliance Monitoring.**

Subd. 1 Right of Entry. On behalf of the City of Circle Pines, the City Administrator, or his or her designee shall be permitted to enter and inspect facilities subject to regulation under this section as often as may be necessary to determine compliance with this section.

Subd. 2 Search Warrants. If the City of Circle Pines, the City Administrator, or the designee has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this section, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the City of Circle Pines may seek issuance of a search warrant from any court of competent jurisdiction.

**1360.12 Requirement to Prevent, Control, and Reduce Stormwater Pollutants by the Use of Best Management Practices.** On behalf of the City of Circle Pines, the City Administrator, or his or her designee will adopt requirements identifying best management practices 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 United States. The owner or operator of such activity, operation, or facility shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs.

Further, any person responsible for a property or premise that is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the MS4. 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. These BMPs shall be part of a stormwater management plan (SWMP) as necessary for compliance with requirements of the NPDES permit.

**1360.13 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 storm water, the storm drain system, or waters of the United States, 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 of Circle Pines in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the City within three (3) business days of the phone notice. 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 recurrence. Such records shall be retained for at least three (3) years. Failure to provide notification of a release as provided above is a violation of this ordinance.

**1360.14 Violations and Penalties.** Any person violating any provision of this article is guilty of a misdemeanor.

a) Emergency cease and desist orders. When the City Administrator or his or her designee finds that any person has violated, or continues to violate, any provision of this section, or any order issued hereunder, or that the person's past violations are likely to recur, and that the person's violation(s) has (have) caused or contributed to an actual or threatened discharge to the MS4 or waters of the state which reasonably appears to present an imminent or substantial endangerment to the health or welfare of persons or to the environment, the City Administrator or his or her designee may issue an order to the violator directing it immediately to cease and desist all such violations.

b) Suspension due to the detection of illicit discharge. Any person discharging to the MS4 in violation of this section may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. Such suspension may also be imposed if it is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger.

c) Violations deemed a 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 section 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; and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

**1360.15 Remedies Not Exclusive.** The remedies listed in this section are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the City of Circle Pines to seek cumulative remedies. The City of Circle Pines may recover all attorney's fees, court costs and other expenses associated with enforcement of this section, including sampling and monitoring expenses.

### **1370.00 Floodplain Management.**

#### **1370.01 Regulation**

Subd. 1 The City of Circle Pines adopts by reference Rice Creek Watershed District Rule E regarding Floodplain Management.

Subd. 2 The application for the modification or alteration of Floodplain will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule E.

#### **1370.02 Penalty.**

Subd. 1 Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

#### **1370.03 Other Controls.**

Subd. 1 In the event of any conflict between the provisions of this ordinance and the provisions of an erosion control, stormwater management, wetland, or shoreland protection ordinance adopted by the City Council the more restrictive standard prevails.

#### **1370.04 Severability.**

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

### **1380.00 Erosion and Sediment Control.**

#### **1380.01 Regulation**

## **APPENDIX E**

### Wetland Management Ordinance

Subd. 1 The City of Circle Pines adopts by reference Rice Creek Watershed District Rule D regarding Erosion and Sediment Control.

Subd 2. The application for the modification or alteration of Erosion and Sediment Control will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule D.

**1380.02 Penalty**

Subd. 1 Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

**1380.03 Other Controls.**

Subd. 1 In the event of any conflict between the provisions of this ordinance and the provisions of a floodplain, wetland, stormwater management, or shoreland protection ordinance adopted by the City Council the more restrictive standard prevails.

**1380.04 Severability.**

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

**1390.00 Wetland Management.**

**1390.01 Regulation**

Subd. 1 The City of Circle Pines adopts by reference Rice Creek Watershed District Rule F regarding Wetland Alteration.

Subd. 2 The application for the modification or alteration of Wetland Management will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule F, and the Wetland Conservation Act. (WCA)

**1390.02 Penalty.**

Subd. 1 Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

**1390.03 Other Controls.**

Subd. 1 In the event of any conflict between the provisions of this ordinance and the provisions of an erosion control, stormwater management, floodplain, or shoreland protection ordinance adopted by the City Council the more restrictive standard prevails.

**1390.04 Severability.**

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

## **APPENDIX F**

### Erosion and Sediment Control Ordinance

expense; and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

**1360.15 Remedies Not Exclusive.** The remedies listed in this section are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the City of Circle Pines to seek cumulative remedies. The City of Circle Pines may recover all attorney's fees, court costs and other expenses associated with enforcement of this section, including sampling and monitoring expenses.

### **1370.00 Floodplain Management.**

#### **1370.01 Regulation**

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Subd. 2 The application for the modification or alteration of Floodplain will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule E.

#### **1370.02 Penalty.**

Subd. 1 Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

#### **1370.03 Other Controls.**

Subd. 1 In the event of any conflict between the provisions of this ordinance and the provisions of an erosion control, stormwater management, wetland, or shoreland protection ordinance adopted by the City Council the more restrictive standard prevails.

#### **1370.04 Severability.**

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

### **1380.00 Erosion and Sediment Control.**

#### **1380.01 Regulation**

Subd. 1 The City of Circle Pines adopts by reference Rice Creek Watershed District Rule D regarding Erosion and Sediment Control.

Subd 2. The application for the modification or alteration of Erosion and Sediment Control will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule D.

**1380.02 Penalty**

Subd. 1 Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

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Subd. 2 The application for the modification or alteration of Wetland Management will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule F, and the Wetland Conservation Act. (WCA)

**1390.02 Penalty.**

Subd. 1 Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

## **APPENDIX G**

### Golden Lake Stormwater Retrofit Assessment



# Golden Lake Stormwater Retrofit Assessment

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*Prepared by:*



*for the*

*RICE CREEK WATERSHED DISTRICT*

Partial funding provided by the Clean Water Fund (from the Clean Water, Land, and Legacy Amendment).

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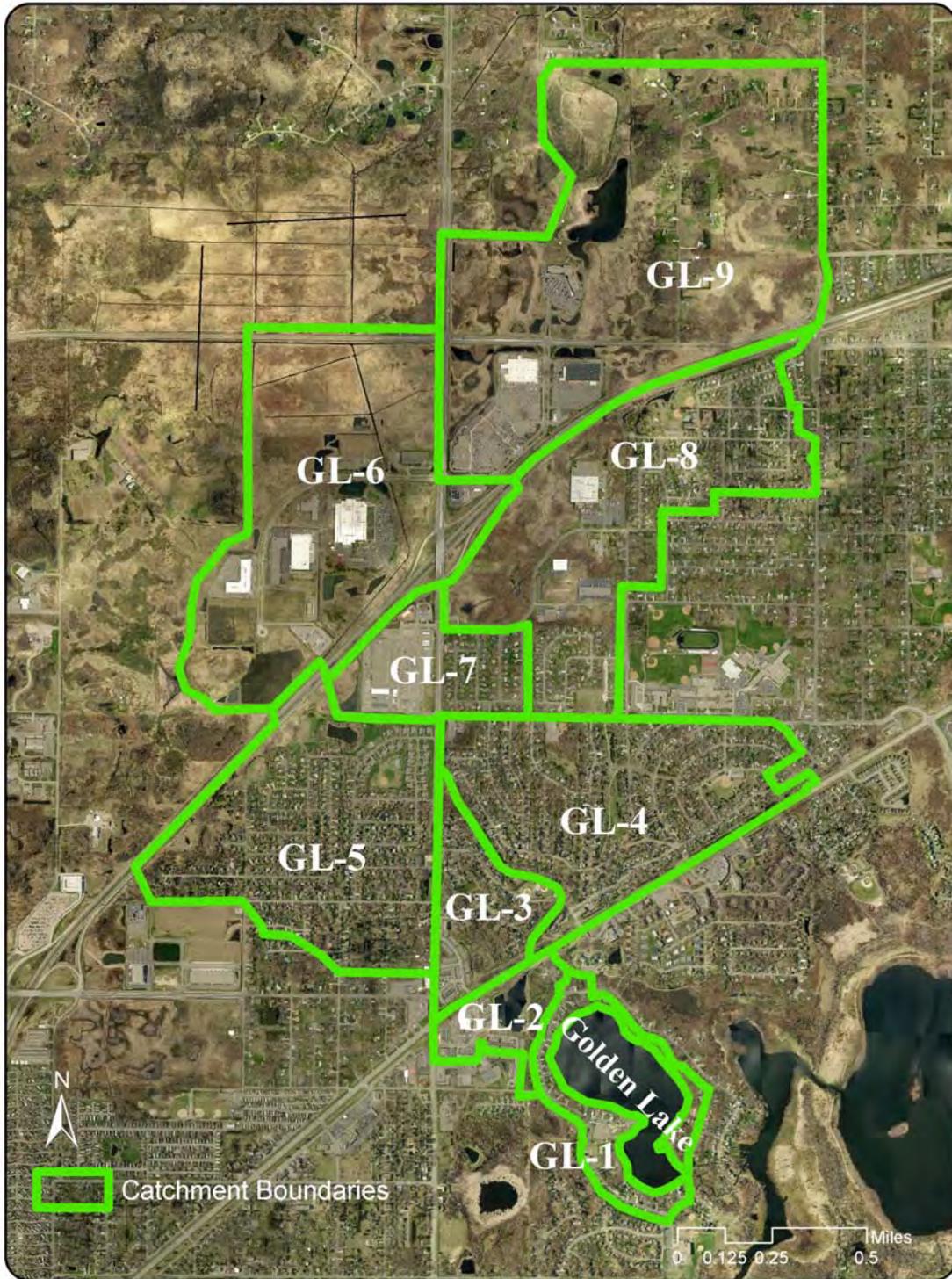
December 2011

**Cover photo:** The southern basin of Golden Lake, as seen from Golden Lake Park.

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Map of stormwater catchment areas referred to in this report.



## Executive Summary

This study provides recommendations for cost effectively improving treatment of stormwater from neighborhoods surrounding Golden Lake before it is discharged into the lake. Golden Lake is an important recreational lake in Circle Pines, Minnesota, but suffers from high nutrient levels, algae blooms, and poor water clarity. The lake is listed by the State of Minnesota as impaired for excess nutrients. These problems have serious negative effects on recreational use of the lake, the fishery, and property values. An in-depth TMDL study of phosphorus sources has been completed. One of the phosphorus sources identified was stormwater runoff. This stormwater assessment systematically examines these sources, investigates ways to improve stormwater treatment, and prioritizes opportunities by cost-effectiveness.

Golden Lake has a long history of water quality improvement efforts, and this project builds upon the successes of those past projects. No one effort will rehabilitate this lake (or most others), and therefore a suite of efforts is needed. Past efforts have included fish community manipulation, lake aeration, restricting motorized boat traffic, excavation of sediment at the primary stormwater discharge point into the lake, stormwater retrofits, new stormwater treatment basins, and others. This study takes these past efforts into account, especially by incorporating existing stormwater practices into modeling efforts.

This stormwater assessment focuses on “stormwater retrofitting” and cost effectiveness ranking. Stormwater retrofitting refers to adding stormwater treatment to an already built-up area, where little open land exists. This process is investigative and creative. Stormwater retrofitting success is sometimes improperly judged by the number of projects installed or by comparing costs alone. Those approaches neglect to consider how much pollution is removed per dollar spent. In this stormwater assessment we estimated both costs and pollutant reductions, and used them to calculate cost effectiveness of each possible project.

We delineated the areas that drain to Golden Lake through stormwater conveyances. Then, we divided those areas into nine smaller stormwater drainage areas, or “catchments.” For each catchment, we modeled stormwater volume and pollutants using the software WinSLAMM. First, we modeled existing conditions, including existing stormwater treatment practices. Currently, the 1,070 acre area contributes an estimated 512 acre feet of runoff, 330 pounds of phosphorus and 97,243 pounds of total suspended solids to the lake each year. Then we modeled possible stormwater retrofits to estimate reductions in volume, total phosphorus (TP), and total suspended solids (TSS). Finally, we estimated the cost of each retrofit project, including 30-year lifespan operations and maintenance. Projects were ranked by cost effectiveness with respect to total phosphorus reduction.

A variety of stormwater retrofit approaches were identified. They included:

- Maintenance of, or alterations to, existing stormwater treatment practices.
- Residential curb-cut rain gardens,
- Permeable asphalt, and

- Iron enhanced sand filters.

If all of these practices were installed, significant pollution reduction could be accomplished. Admittedly, not all projects will be installed. Rather, they could be installed in order of cost effectiveness (pounds of pollution reduced per dollar spent). Other, larger sources of these pollutants to the lake exist too, and the community will need to balance the effectiveness of all project types.

This report provides conceptual sketches or photos of recommended stormwater retrofitting projects. The intent is to provide an understanding of the approach. If a project is selected, site-specific designs must be prepared. This typically occurs after committed partnerships are formed to install the project. Committed partnerships must include willing landowners when installed on private property.

It's noteworthy that any projects that benefit Golden Lake will also benefit important downstream waterbodies. Golden Lake discharges into Rice Creek, which has an impaired macroinvertebrate and fish community. Rice Creek discharges to the Mississippi River. Various reaches of the Mississippi River are impaired for E. coli bacteria, suspended solids, and phosphorus. Stormwater retrofitting in the Golden Lake watershed will include practices that help alleviate all of these problems.

The table on the next page summarizes potential projects. Potential projects are organized from most cost effective to least, based on cost per pound of total phosphorus removed. The benefits of each project were estimated as if that project was installed alone with no other projects upstream of it in the same catchment. Installation of projects in series will result in lower total treatment than the simple sum of treatment across the individual projects due to treatment train effects. Reported treatment levels are dependent upon optimal siting and sizing. More detail about each project can be found in the catchment profile pages of this report. Projects that were deemed unfeasible due to prohibitive size, number, or were too expensive to justify installation are not included in the table on the next page.

**Catchments GL-1 through GL-7: Summary of preferred stormwater retrofit opportunities ranked by cost-effectiveness with respect to total phosphorus (TP) reduction.** Total suspended solids (TSS) reduction is also shown. For more information on each project refer to the catchment profile pages earlier in this report.

Project ID	Catchment ID	Retrofit Type (refer to catchment profile pages for additional detail)	Projects Identified	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Estimated Installation Cost	Estimated cost/ 1,000lb-TSS/year (30-year)	Estimated cost/ lb-TP/year (30-year)
1	GL-5*	Pond Modification - Iron Enhanced Sand Filter	1	17.6 - 23.9	0	0.0	\$39,180 - \$64,180	N/A	\$145 - \$177
2	GL-2	Pond Modification - Iron Enhanced Sand Filter	1	35.2	0	0.0	\$89,180	N/A	\$167
3	GL-4*	Residential Rain Gardens	5 - 15	5.4 - 13.5	865 - 2,281	4.1 - 10.8	\$25,020 - \$71,420	\$1,398 - \$1,537	\$224 - \$260
4	GL-3	Residential Rain Gardens	5	4.1	674	3.2	\$25,020	\$1,794	\$295
5	GL-7	Residential Rain Gardens	5	3.9	676	3.2	\$25,020	\$1,788	\$310
6	GL-5*	Residential Rain Gardens	5 - 10	3 - 5.6	687 - 1,354	4.1 - 7.6	\$25,020 - \$48,220	\$1,741 - \$1,760	\$403 - \$421
7	GL-4*	New Pond with Expanded Drainage Area and Iron Enhanced Sand Filter	1	27.1	3,679	0.0	\$172,655 - \$228,215	\$3,129 - \$4,135	\$425 - \$629
8	GL-4*	New Pond with Expanded Drainage Area	1	13.9	3,679	0.0	\$120,780 - \$176,340	\$2,189 - \$3,195	\$579 - \$845
9	GL-4*	New Pond	1	9.7	2,249	0.0	\$95,630 - \$151,190	\$2,835 - \$4,482	\$657 - \$1,039
10	GL-1*	Golden Lake Park Rain Garden	1	0.7	371	1.1	\$19,960	\$1,996	\$1,139
11	GL-1*	Golden Lake Park Permeable Asphalt	1	0.7	432	1.2	\$133,014	\$10,752	\$6,531

\* Pollution reduction benefits and costs can not be summed with other projects in the same catchment because they are alternative options for treating the same source area.

# About this Document

This Stormwater Retrofit Assessment is a watershed management tool to help prioritize stormwater retrofit projects by performance and cost effectiveness. This process helps maximize the value of each dollar spent.

## Document Organization

This document is organized into three major sections, plus references and appendices. Each section is briefly described below.

### Methods

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The methods section outlines general procedures used when assessing the subwatershed. It overviews the processes of retrofit scoping, desktop analysis, retrofit reconnaissance investigation, cost/treatment analysis, and project ranking.

### Catchment Profiles

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The Golden Lake subwatershed was divided into stormwater catchments for the purpose of this assessment. Each catchment was given a unique ID number. For each catchment, the following information is detailed:

#### *Catchment Description*

Within each catchment profile is a table that summarizes basic catchment information including acres, land cover, parcels, and estimated annual pollutant and volume loads. A brief description of the land cover, stormwater infrastructure, and any other important general information is also described here. Existing stormwater practices are noted, and their estimated effectiveness presented.

#### *Retrofit Recommendations*

The recommendation section describes the conceptual retrofit(s) that were scrutinized. It includes tables outlining the estimated pollutant removals by each, as well as costs. A map provides promising locations for each retrofit approach.

### Retrofit Ranking

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This section ranks stormwater retrofit projects across all catchments to create a prioritized project list. The list is sorted by cost per pound of phosphorus removed for each project over a duration of 30 years. The final cost per pound treatment value includes installation and maintenance costs.

There are many possible ways to prioritize projects, and the list provided in this report is merely a starting point. Other considerations for prioritizing installation may include:

- Non-target pollutant reductions
- Timing projects to occur with other road or utility work
- Project visibility
- Availability of funding
- Total project costs
- Educational value

## **References**

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This section identifies various sources of information synthesized to produce the assessment protocol utilized in this analysis.

## **Appendices**

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This section provides supplemental information and/or data used during the assessment.

# Methods

## Selection of Subwatershed

Many factors are considered when choosing which subwatershed to assess for stormwater retrofits. Water quality monitoring data, non-degradation report modeling, and TMDL studies are just a few of the resources available to help determine which water bodies are a priority. Assessments supported by a Local Government Unit with sufficient capacity (staff, funding, available GIS data, etc.) to greater facilitate the assessment also rank highly. For some communities a stormwater assessment complements their MS4 stormwater permit. The focus is always on a high priority waterbody.

For this assessment, neighborhoods which drain to Golden Lake were chosen for study. Golden Lake is a high priority because of its potential recreational and fisheries value, known water quality impairments, and because improvements at Golden Lake will also benefit downstream waterbodies including Rice Creek and the Mississippi River, which are also impaired. In the Golden Lake TMDL study, stormwater was identified as a source of phosphorus that needs to be reduced to reach lake goals. The communities in the watershed, the Rice Creek Watershed District, and the Anoka Conservation District are committed and equipped to improve stormwater management.

**Stormwater runoff from impervious surfaces like pavement and roofs can carry a variety of pollutants. While stormwater treatment to remove these pollutants is adequate in some areas, other areas were built before modern-day stormwater treatment technologies and requirements or have undersized treatment devices.**



## Subwatershed Assessment Methods

The process used for this assessment is outlined below and was modified from the Center for Watershed Protection's *Urban Stormwater Retrofit Practices*, Manuals 2 and 3 (Schueler, 2005, 2007). Locally relevant design considerations were also incorporated into the process (*Minnesota Stormwater Manual*).

### Step 1: Retrofit Scoping

Retrofit scoping includes determining the objectives of the retrofits (volume reduction, target pollutant, etc.) and the level of treatment desired. It involves meeting with local stormwater managers, city staff and watershed management organization members to determine the issues in the subwatershed. This step also helps to define preferred retrofit treatment options and retrofit performance criteria. In order to create a manageable area to assess in large subwatersheds, a focus area may be determined.

In this assessment, the focus area was all areas that drain to Golden Lake through stormwater conveyances. This restricts the study area to neighborhoods immediately surrounding the lake, and encompasses the areas of highest density development in the lake's watershed. We divided this area into 9 catchments using a combination of stormwater infrastructure maps and observed topography. In areas where topography seemed flat, catchments were delineated by observing the direction of water flow during rainfall. Later in the study, some of these catchments were combined because they were adjacent and did not drain to the lake through stormwater conveyances and therefore few, if any, stormwater retrofits would be recommended.

Targeted pollutants for this study were total phosphorus and total suspended solids. Total phosphorus was chosen because the lake exceeds state water quality standards for phosphorus and this nutrient fuels algae blooms. Total suspended solids was also chosen as a target pollutant because it contributes to lake turbidity and many other pollutants, such as heavy metals, are transported by these particles. Volume of stormwater was tracked throughout this study because it is necessary for pollutant loading calculations and potential retrofit project considerations.

### Step 2: Desktop Retrofit Analysis

The desktop analysis involves computer-based scanning of the subwatershed for potential retrofit catchments and/or specific sites. This step also identifies areas that don't need to be assessed because of existing stormwater infrastructure. Accurate GIS data are extremely valuable in conducting the desktop retrofit analysis. Some of the most important GIS layers include: 2-foot or finer topography, hydrology, soils, watershed/subwatershed boundaries, parcel boundaries, high-resolution aerial photography and the stormwater drainage infrastructure (with invert elevations).

#### Desktop retrofit analysis features to look for and potential stormwater retrofit projects.

Feature	Potential Retrofit Project
Existing Ponds	Add storage and/or improve water quality by excavating pond bottom, modifying riser, raising embankment, and/or modifying flow routing.
Open Space	New regional treatment (pond, bioretention).
Roadway Culverts	Add wetland or extended detention water quality treatment upstream.
Outfalls	Split flows or add storage below outfalls if open space is available.
Conveyance system	Add or improve performance of existing swales, ditches and non-perennial streams.
Large Impervious Areas (campuses, commercial, parking)	Stormwater treatment on site or in nearby open spaces.
Neighborhoods	Utilize right of way, roadside ditches, curb-cut rain gardens, or filter systems before water enters storm drain network.

### Step 3: Retrofit Reconnaissance Investigation

After identifying potential retrofit sites through this desktop search, a field investigation was conducted to evaluate each site and identify additional opportunities. During the investigation, the drainage area and stormwater infrastructure mapping data were verified. Site constraints were assessed to determine the most feasible retrofit options as well as eliminate sites from consideration. The field investigation may have also revealed additional retrofit opportunities that could have gone unnoticed during the desktop search.

#### General list of stormwater BMPs considered for each catchment/site.

Stormwater Treatment Options for Retrofitting		
Area Treated	Best Management Practice	Potential Retrofit Project
5-500 acres	Extended Detention	12-24 hr detention of stormwater with portions drying out between events (preferred over wet ponds). May include multiple cell design, infiltration benches, sand/peat/iron filter outlets and modified choker outlet features.
	Wet Ponds	Permanent pool of standing water with new water displacing pooled water from previous event.
	Wetlands	Depression less than 1-meter deep and designed to emulate wetland ecological functions. Residence times of several days to weeks. Best constructed off-line with low-flow bypass.
0.1-5 acres	Bioretention	Use of native soil, soil microbe and plant processes to treat, evapotranspire, and/or infiltrate stormwater runoff. Facilities can either be fully infiltrating, fully filtering or a combination thereof.
	Filtering	Filter runoff through engineered media and pass it through an under-drain. May consist of a combination of sand, soil, compost, peat, and iron.
	Infiltration	A trench or sump that is rock-filled with no outlet that receives runoff. Stormwater is passed through a conveyance and pretreatment system before entering infiltration area.
	Swales	A series of vegetated, open channel practices that can be designed to filter and/or infiltrate runoff.
	Other	On-site, source-disconnect practices such as rain-leader disconnect rain gardens, rain barrels, green roofs, cisterns, stormwater planters, dry wells, or permeable pavements.

### Step 4: Treatment Analysis/Cost Estimates

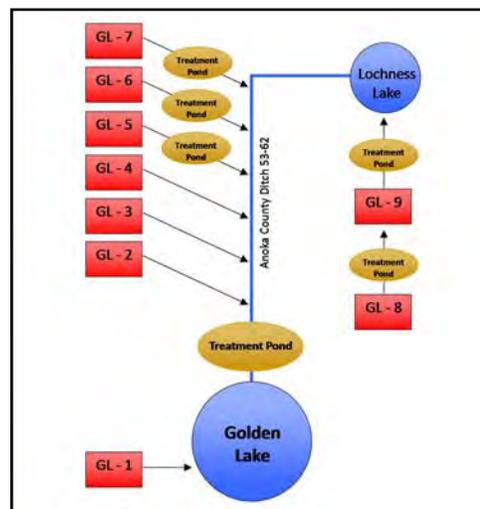
Sites most likely to be conducive to addressing the cities' and watershed district's goals and appear to have simple-to-moderate design, installation, and maintenance were chosen for a cost/benefit analysis. Estimated costs included design, installation, and maintenance annualized across a 30-year period. Estimated benefits included are pounds of phosphorus and total suspended solids removed, though projects were ranked only by cost per pound of phosphorus removed annually.

#### Treatment analysis

Each proposed project's pollutant removal estimates were estimated using the stormwater model WinSLAMM. WinSLAMM uses an abundance of stormwater data from the upper Midwest and elsewhere to quantify runoff volumes and pollutant loads from urban areas. It is useful for determining

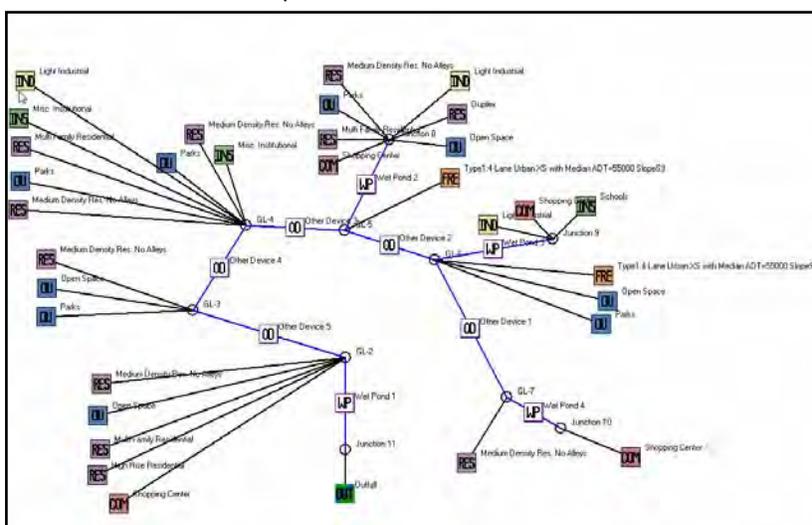
the effectiveness of proposed stormwater control practices. It has detailed accounting of pollutant loading from various land uses, and allows the user to build a model “landscape” that reflects the actual landscape being considered. The user is allowed to place a variety of stormwater treatment practices that treat water from various parts of this landscape. It uses rainfall and temperature data from a typical year, routing stormwater through the user’s model for each storm.

The image to the right displays a simplified flow network for all catchments analyzed in this assessment. Anoka County Ditch 53-62 flows throughout the Golden Lake subwatershed, and as a result the connectivity of the catchments to Golden Lake is greatly increased. With the exceptions of GL-8 and GL-9, which first pass through Lochness Lake prior to entering Anoka County Ditch 53-62, the catchments are highly connected to Golden Lake. Several stormwater treatment ponds exist throughout the subwatershed, and the effectiveness of each is further detailed within the catchment profiles section.



The newest version of WinSLAMM (version 10), which allows routing of multiple catchments and stormwater treatment practices, was used for this assessment because of the unique

connectivity amongst the catchments identified in the focus area under investigation. Anoka County Ditch 53-62 connects many of the catchments in this assessment and routes them directly to a large stormwater treatment pond prior to entering Golden Lake. Therefore, volume and pollutant loads to Golden Lake from any given catchment must take into consideration the large stormwater treatment pond’s effectiveness. The screen shot to the right displays a network of catchments used in this assessment to accurately model the effectiveness of the large stormwater treatment pond directly upstream of Golden Lake (represented by “Wet Pond 1”).



WinSLAMM modeling network of the Golden Lake subwatershed that represents existing conditions. Each colored square connected to a junction circle via a line represents a land cover type within a catchment (e.g. RES = residential, OU = other urban, COM = commercial, INS = institutional, IND = industrial, and FRE = freeway). All land cover types that collectively meet at a junction represent all land covers within a particular catchment. Catchments are labeled at the junction circle (e.g. GL-2). All water from catchments GL-2 through GL-7 was routed through “Wet Pond 1” prior to discharge into Golden Lake at the “Outfall.” This pond is located southeast of Lake Drive between Golden Lake Road and Village Parkway.

The initial step was to create a “base” model which estimated pollutant loading from each catchment in its present-day state without taking into consideration any existing stormwater treatment. To accurately model the land uses in each catchment, we delineated each land use in each catchment using geographic information systems

(specifically, ArcMap), and assigned each a WinSLAMM standard land use file. A site specific land use file was created by adjusting total acreage and accounting for local soil types. This process resulted in a model that included estimates of the acreage of each type of source area (roof, road, lawn, etc.) in each catchment. For certain source areas critical to our models we verified that model estimates were accurate by calculating actual acreages in ArcMap, and adjusting the model acreages if needed.

Once the “base” model was established, an “existing conditions” model was created by incorporating any existing stormwater treatment practices in the catchment. For example, street cleaning with mechanical or vacuum street sweepers, rain gardens, underground sumps, stormwater treatment ponds, and others were included in the “existing conditions” model if they were present in the catchment.

Finally, each proposed stormwater treatment practice was added to the “existing conditions” model and pollutant reductions were generated. Because neither a detailed design of each practice nor in-depth site investigation was completed, a generalized design for each practice was used. Whenever possible, site-specific parameters were included. Design parameters were modified to obtain various levels of treatment. It is worth noting that we modeled each practice individually, and the benefits of projects may not be additive, especially if serving the same area. Reported treatment levels are dependent upon optimal site selection and sizing.

#### WinSLAMM stormwater computer model inputs

General WinSLAMM Model Inputs	
Parameter	File/Method
Land use acreage	ArcMap
Precipitation/Temperature Data	Minneapolis 1959 – the rainfall year that best approximates a typical year.
Winter season	Included in model. Winter dates are 11-4 to 3-13.
Pollutant probability distribution	WI_GEO01.ppd
Runoff coefficient file	WI_SL06 Dec06.rsv
Particulate solids concentration file	WI_AVG01.psc
Particle residue delivery file	WI_DLV01.prr
Street delivery files	WI files for each land use.

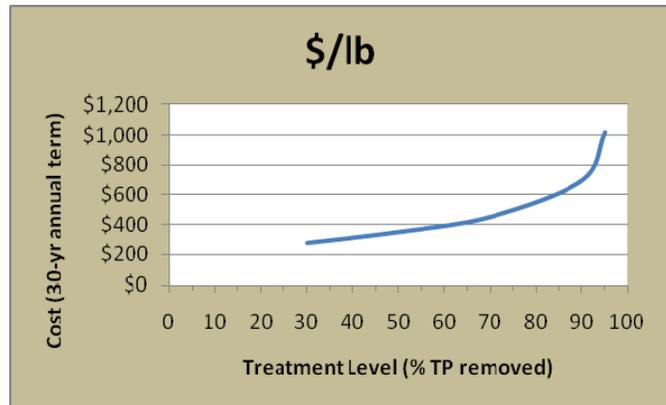
#### Cost Estimates

Cost estimates were annualized costs that incorporated design, installation, installation oversight, and maintenance over a 30-year period. In cases where promotion to landowners is important, such as rain gardens, those costs were included as well. In cases where multiple, similar projects are proposed in the same locality, promotion and administration costs were estimated using a non-linear relationship that accounted for savings with scale. Design assistance from an engineer is assumed for practices in-line with the stormwater conveyance system, involving complex stormwater treatment interactions, or posing a risk for upstream flooding. It should be understood that no site-specific construction investigations were done as part of this stormwater assessment, and therefore cost estimates account for only general site considerations.

The costs associated with several different pollution reduction levels were calculated. Generally, more or larger practices result in greater pollution removal. However the costs of obtaining the highest levels of treatment are often prohibitively expensive (see figure). By comparing costs of different treatment levels, the cities and watershed organization can best choose the project sizing that meets their goals.

### Step 5: Evaluation and Ranking

The cost per pound of phosphorus treated was calculated for each potential retrofit project. Only projects that seemed realistic and feasible were considered. The recommended level was the level of treatment that would yield the greatest benefit per dollar spent while being considered feasible and not falling below a minimal amount needed to justify crew mobilization and outreach efforts. Local officials may wish to revise the recommended level based on water quality goals, finances, or public opinion.



## Catchment Profiles and How to Read Them

The following pages are the “Catchment Profiles.” These profiles provide the most important details of this report, including:

- Summary of existing conditions, including existing stormwater infrastructure, and estimated pollutant export to Golden Lake
- Map of the catchment
- Recommended stormwater retrofits, pollutant reductions, and costs.

Following all of the catchment profiles is a summary table that ranks all projects in all catchments by cost effectiveness.

To save space and avoid being repetitive, explanations of the catchment profiles are provided below. We strongly recommend reviewing this section before moving forward in the report.

The analyses of each catchment are broken into “base, existing, and proposed” conditions. They are defined as follows:

- |                              |   |
|------------------------------|---|
| <u>Base conditions</u> -     | Volume and pollutant loadings from the catchment landscape without any stormwater practices.      |
| <u>Existing conditions</u> - | Volume and pollutant loadings after already-existing stormwater practices are taken into account. |
| <u>Proposed conditions</u> - | Volume and pollutant loadings after proposed stormwater retrofits.                                |

Many analyses for this assessment were performed at two geographic scales, “catchment and network.” They are defined as follows:

- |                                   |   |
|-----------------------------------|---|
| <u>Catchment level analyses</u> - | Volume and pollutant loads exiting the catchment at the catchment boundary. There may be other stormwater practices existing or proposed farther downstream, but this analysis ignores them.  |
| <u>Network level analyses</u> -   | Volume and pollutant loads that reach Golden Lake through the entire network. These will be much larger numbers than loadings from any one catchment because it is the sum of multiple catchments that discharge at the same point into the lake, and might receive treatment from the same practice. This analysis takes into account stormwater treatment ponds that are in-line with the ditch and upstream of Golden Lake. Most notably, there is a large network outfall pond that treats all water from most catchments just before it enters Golden Lake. The network level analysis includes catchments GL-2 through GL7. Catchment GL-1 is not included in the network level analyses because it is the area immediately around the lake, and does not drain through any network-level outfall ponds. Catchments GL-8 & GL-9 are excluded from network level analyses because they drain to Lochness Lake, where substantial water chemistry changes likely occur. |

The pollutant load reduction for a proposed stormwater retrofit will often be greater at the catchment level than at the network level. This is because there is a large stormwater pond that treats water from most catchments just before it enters Golden Lake (network outfall pond). For example, a proposed project may capture 10 pounds of phosphorus at the catchment level, but that doesn't necessarily mean 10 fewer pounds of phosphorus will reach the lake because some of that phosphorus was already being removed by the network outfall pond. Benefits of a proposed project must be judged by their pollutant reductions and cost effectiveness at the network level.

The example catchment profile on the following pages explains important features of each profile.

# HOW TO READ THE CATCHMENT PROFILES

## EXAMPLE Catchment A

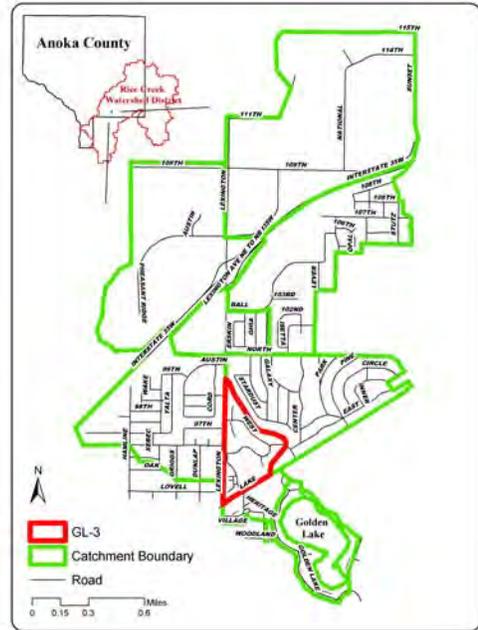
Existing Catchment Summary	
Acres	58.90
Dominant Land Cover	Residential
Parcels	237
Volume (acre-feet/yr)	18.37
TP (lb/yr)	25.00
TSS (lb/yr)	6461.00

### DESCRIPTION

Example Catchment is primarily comprised of medium-density, single-family residential development...

### EXISTING STORMWATER TREATMENT

Existing stormwater treatment practices within Example Catchment consist of street cleaning with a mechanical sweeper in the spring and fall and a network of stormwater treatment ponds...



Catchment ID banner.

Volume and pollutants generated from this catchment under existing conditions.

Catchment locator map.

# HOW TO READ THE CATCHMENT PROFILES

## Catchment Specific Existing Conditions

**Catchment-level analysis of existing conditions.**

	Existing Conditions	Base Loading	Treatment	Net Treatment %	Existing Loading
<b>Treatment</b>	TP (lb/yr)	25.2	0.2	1%	<b>25.0</b>
	TSS (lb/yr)	7,186	725.0	10%	<b>6,461</b>
	Volume (acre-feet/yr)	18.4	0.0	0%	<b>18.4</b>
	Number of BMP's	1			
	BMP Size/Description	Street cleaning, stormwater pond			

Volume of water and pounds of pollutants generated from the catchment without any stormwater management practices (base conditions).

Pollutants and volume removed by existing stormwater management practices (existing conditions).

Pollutants and volume exiting the catchment after existing practices.

Percent reductions by existing practices.

**Network-level analysis of existing conditions.**

## Network-Wide Existing Conditions (GL-2 through GL-7)

	Existing Conditions	Base Loading	Treatment	Net Treatment %	Existing Loading
<b>Treatment</b>	TP (lb/yr)	623.7	313.0	50%	<b>310.7</b>
	TSS (lb/yr)	216,101	124,172.0	57%	<b>91,929</b>
	Volume (acre-feet/yr)	494.5	0.0	0%	<b>494.5</b>
	Number of BMP's	All BMPs in catchments GL-2 through GL-7			
	BMP Size/Description	Street cleaning and extended wet detention ponds just before outfall into Golden Lake			

Same definitions as above, except here the numbers refer to pollutants and volumes exiting catchments GL-2 through GL-7 in the network collectively. The existing practices include stormwater ponds that treat water from multiple catchments, including the network outfall pond just before water is discharged into Golden Lake.

# HOW TO READ THE CATCHMENT PROFILES



Map shows catchment boundaries, stormwater infrastructure, and the locations of proposed stormwater retrofits.

Proposed stormwater retrofits. The project ID number (3 in this case) corresponds to this project's ranking study-wide. This project was the third most cost effective project at phosphorus removal identified in this study.

## RETROFIT RECOMMENDATIONS

### ***Project ID #3 – Curb-Cut Rain Garden Network***

***Drainage Area*** – 33.7 acres

***Location*** – 5 locations throughout residential area

***Property Ownership*** – Private

***Description*** – The residential land cover within this catchment is best suited to residential, curb-cut rain gardens (see Appendix B for design options). Seven optimal rain garden locations were identified (see map below). Generally, ideal curb-cut rain garden locations are immediately up-gradient of a catch basin serving a large drainage area. Considering typical land owner participation rates we analyzed a scenario where 5 rain gardens were installed in catchment GL-3. Volume and pollutant reductions resulting from the rain garden installations are highlighted in the tables below.

### ***EXAMPLE Conceptual and example images –***



Before rain



During rain

# HOW TO READ THE CATCHMENT PROFILES

## EXAMPLE Catchment Specific Cost/Benefit Analysis

Volume or pollutant removal this project will achieve.

The project's rank (3) is shown again and three "levels" of this project are compared: 6, 9, or 12 rain gardens, for example.

Cumulative pollutant removal achieved by this project and already-existing practices.

Cost/Benefit Analysis		Project ID					
		3 6 Rain Gardens		3 9 Rain Gardens		3 12 Rain Gardens	
		New trtmt	Net trtmt %	New trtmt	Net trtmt %	New trtmt	Net trtmt %
Treatment	TP (lb/yr)	5.4	39%	6.8	43%	7.7	46%
	TSS (lb/yr)	1,684	41%	2,127	45%	2,408	48%
	Volume (acre-feet/yr)	4.2	33%	5.4	38%	6.1	41%
	Number of BMP's	6		9		12	
	BMP Size/Description	1,500 sq ft		2,250 sq ft		3,000 sq ft	
	BMP Type	Complex Bioretention		Complex Bioretention		Complex Bioretention	
Cost	Materials/Labor/Design	\$27,210		\$40,710		\$54,210	
	Promotion & Admin Costs	\$2,450		\$2,870		\$3,290	
	Total Project Cost	\$29,660		\$43,580		\$57,500	
	Annual O&M	\$450		\$675		\$900	
	Term Cost/1,000lb-TSS/yr	\$855		\$1,000		\$1,170	
	Term Cost/lb-TP/yr	<b>\$266</b>		<b>\$313</b>		<b>\$364</b>	

Project installation cost estimation.

Cost effectiveness at suspended solids removal. The project cost is divided by suspended solids removal in pounds (30 yrs). Includes operations and maintenance over the project life (30 years unless otherwise noted).

Cost effectiveness at phosphorus removal. The project cost is divided by phosphorus removal in pounds (30 yrs). Includes operations and maintenance over the project life (30 years unless otherwise noted).

Compare cost effectiveness of various project "levels" in these rows for TSS (2<sup>nd</sup> row from bottom) or TP (bottom row) removal. Compare cost effectiveness numbers between projects to determine the best value.

**HOW TO READ THE CATCHMENT PROFILES**

**EXAMPLE Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

Cost/Benefit Analysis		Project ID					
		3 6 Rain Gardens		3 9 Rain Gardens		3 12 Rain Gardens	
		New trtmt	Net trtmt %	New trtmt	Net trtmt %	New trtmt	Net trtmt %
Treatment	TP (lb/yr)	5.4	39%	6.8	43%	7.7	46%
	TSS (lb/yr)	1,684	41%	2,127	45%	2,408	48%
	Volume (acre-feet/yr)	4.2	33%	5.4	38%	6.1	41%
	Number of BMP's	6		9		12	
	BMP Size/Description	1,500 sq ft		2,250 sq ft		3,000 sq ft	
	BMP Type	Complex Bioretention		Complex Bioretention		Complex Bioretention	
Cost	Materials/Labor/Design	\$27,210		\$40,710		\$54,210	
	Promotion & Admin Costs	\$2,450		\$2,870		\$3,290	
	Total Project Cost	\$29,660		\$43,580		\$57,500	
	Annual O&M	\$450		\$675		\$900	
	Term Cost/1,000lb-TSS/yr	\$855		\$1,000		\$1,170	
	Term Cost/lb-TP/yr	<b>\$266</b>		<b>\$363</b>		<b>\$414</b>	

This table is the same as the previous catchment-level table, except it examines the costs and benefits of proposed stormwater retrofits at the network level. **This table should be used to compare projects in catchments GL-2 through GL-7 because it represents volume and pollutant removals at the point where the water enters Golden Lake.**

Map of stormwater catchment areas (GL-1 thru GL-9) and potential retrofit projects referred to in this report. The numbers next to each potential project represent ranking with respect to the cost per pound of total phosphorus removed per year. Catchment profiles on the following pages provide additional detail.



## Catchment GL-1

### Existing Catchment Summary

Acres	56.20
Dominant Land Cover	Residential
Parcels	137
Volume (acre-feet/yr)	17.32
TP (lb/yr)	18.96
TSS (lb/yr)	5,314

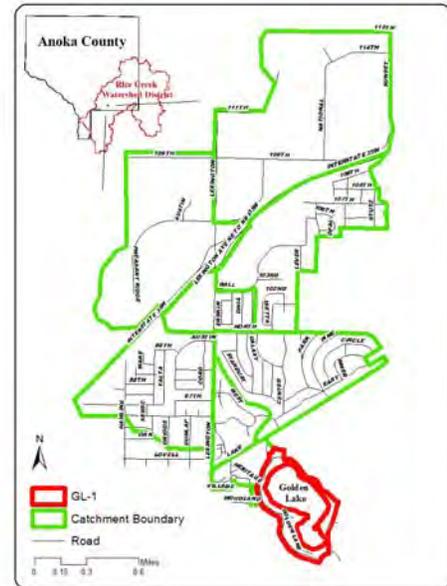
### CATCHMENT DESCRIPTION

Catchment GL-1 consists of the area surrounding Golden Lake that drains directly to the lake. Medium-density, single-family residential development is the primary land cover type within GL-1. Golden Lake Park is also included in this area.

### EXISTING STORMWATER TREATMENT

Catchment GL-1 has some of the most elaborate existing stormwater treatment of all the catchments identified in this study. A 2008 street and utility improvement project along West Golden Lake Road resulted in the installation of several stormwater treatment practices. In addition to the spring and fall street cleaning schedule, three curb-cut residential rain gardens, three sumps, and a 5,600 square foot underground infiltrating drain tile field were constructed.

The high density of catch basins that were installed as part of the 2008 street reconstruction project make GL-1 a poor candidate for curb-cut rain gardens because of the many small drainage areas (i.e. an optimally placed curb-cut rain garden would have a small drainage area). Yet, the three curb-cut rain gardens that were installed were placed in locations that have the largest drainage areas. However, the inlets and sediment accumulation (see images to right) within the basins likely require additional maintenance to ensure stormwater runoff is able to enter the gardens. Existing pollutant loads from this catchment to Golden Lake are shown in the table below.



	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	27.5	8.6	31%	<b>19.0</b>
	TSS (lb/yr)	8,647	3,333	39%	<b>5,314</b>
	Volume (acre-feet/yr)	21.1	3.8	18%	<b>17.3</b>
	Number of BMP's	8			
	BMP Size/Description	3 Rain Gardens, 3 Sumps, Street Cleaning, and Infiltrating Drain Tile Field			

### RETROFIT RECOMMENDATIONS



**Project ID #10 – Golden Lake Park - Parking Lot Rain Garden**

**Drainage Area** - 0.86 acres

**Location** – Golden Lake Park on West side of Golden Lake

**Property Ownership** – City of Circle Pines

**Description** – Space is available within Golden Lake Park to treat runoff generated by the 0.86 acre parking lot that drains directly to Golden Lake. A rain garden placed to the side of the lake access ramp (BR in the map below) would collect run-off from the parking lot and provide stormwater treatment via infiltration. The rain garden was modeled as a single 1,000 square foot garden. See Appendix B for rain garden design options. Volume and pollutant reductions resulting from the rain garden installation are highlighted in the table below.

**Proposed Site Images -**



<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>10 Rain Garden</b>					
		<b>New trtmt</b>	<b>Net %</b>			<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	0.7	33%				
	TSS (lb/yr)	371	43%				
	Volume (acre-feet/yr)	1.1	23%				
	Number of BMP's	1					
	BMP Size/Description	1,000 sq ft					
	BMP Type	Complex Bioretention					
<b>Cost</b>	Materials/Labor/Design	\$18,210					
	Promotion & Admin Costs	\$1,750					
	Total Project Cost	\$19,960					
	Annual O&M	\$75					
	Term Cost/1,000lb-TSS/yr	\$1,996					
	Term Cost/lb-TP/yr	<b>\$1,139</b>					

**Project ID #11 – Golden Lake Park Parking Lot Permeable Asphalt**

**Drainage Area** - 0.86 acres

**Location** – Golden Lake Park on West side of Golden Lake

**Property Ownership** – City of Circle Pines

**Description** – An alternative option to the rain garden described above would be permeable asphalt within the 0.86 acre parking lot (PA in the map below). Generally, permeable pavements can treat water from an area of impervious surface three times the size of the permeable pavement. Therefore, 0.22 acres (9,366 square feet) of permeable asphalt would be sufficient to treat the 0.86 acre parking lot. The model included maintenance, such as restorative vacuuming on an annual basis. See appendix A for more details on the design of permeable pavements. Catchment-wide volume and pollutant removal are shown in the table below.

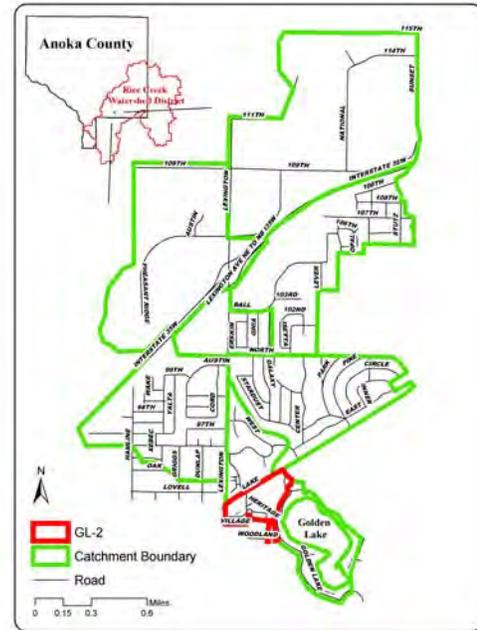
**Proposed Site Images –**



<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>11 Permeable Asphalt</b>					
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	0.7	34%				
	TSS (lb/yr)	432	44%				
	Volume (acre-feet/yr)	1.2	24%				
	Number of BMP's	1					
	BMP Size/Description	9,366 sq ft					
	BMP Type	Permeable Asphalt					
<b>Cost</b>	Materials/Labor/Design	\$131,334					
	Promotion & Admin Costs	\$1,680					
	Total Project Cost	\$133,014					
	Annual O&M	\$215					
	Term Cost/1,000lb-TSS/yr	\$10,752					
	Term Cost/lb-TP/yr	<b>\$6,531</b>					

# Catchment GL-2

Existing Catchment Summary	
Acres	40.80
Dominant Land Cover	Open Space
Parcels	132
Volume (acre-feet/yr)	26.40
TP (lb/yr)	23.90
TSS (lb/yr)	7,743



### DESCRIPTION

Catchment GL-2 is located upstream of Golden Lake and consists primarily of open space with substantial areas of commercial and multi-family residential land cover. The large open space present in catchment GL-2 is dominated by the City of Circle Pines Wetland Mitigation Project (RCWD No. 97-149).

### EXISTING STORMWATER TREATMENT

Street cleaning in the spring and fall is conducted by the City of Circle Pines. In addition, Anoka County Ditch 53-62 flows into the five acre wet pond located in catchment GL-2. The pond provides water quality treatment for the all drainage areas studied in this report, other than GL-1, which drains directly to Golden Lake.

Existing volume and pollutant loading from this catchment are displayed in the two tables below. The network-wide existing conditions table highlights the effects of the five acre wet pond located within GL-2 that treats all water from Ditch 53-62 prior to entering Golden Lake.

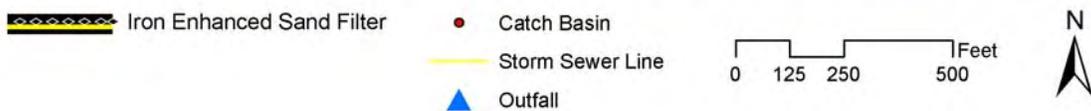
### Catchment Specific Existing Conditions

<i>Existing Conditions</i>		Base Loading	Treatment	Net Treatment %	Existing Loading
<b>Treatment</b>	TP (lb/yr)	24.0	0.1	0%	<b>23.9</b>
	TSS (lb/yr)	8,281	538	6%	<b>7,743</b>
	Volume (acre-feet/yr)	26.4	0.0	0%	<b>26.4</b>
	Number of BMP's	1			
	BMP Size/Description	Street cleaning			

**Network-Wide Existing Conditions (GL-2 through GL-7)**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	623.7	313.0	50%	<b>310.7</b>
	TSS (lb/yr)	216,101	124,172	57%	<b>91,929</b>
	Volume (acre-feet/yr)	494.5	0.0	0%	<b>494.5</b>
	Number of BMP's	All BMPs in catchments GL-2 through GL-7			
	BMP Size/Description	Street cleaning and extended wet detention ponds			

### RETROFIT RECOMMENDATIONS

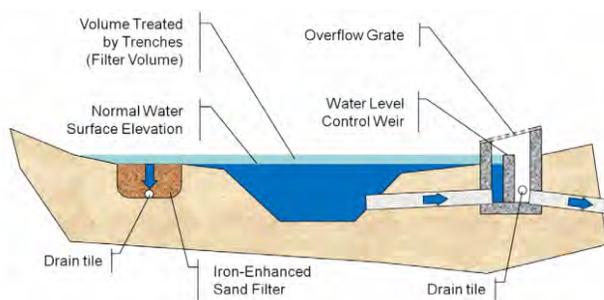


**Project ID #2 – Iron enhanced sand filter for existing pond****Drainage Area** – 1,013.3 acres**Location** – East side of wet detention pond located Northeast of Golden Lake in catchment GL-2**Property Ownership** – City of Circle Pines

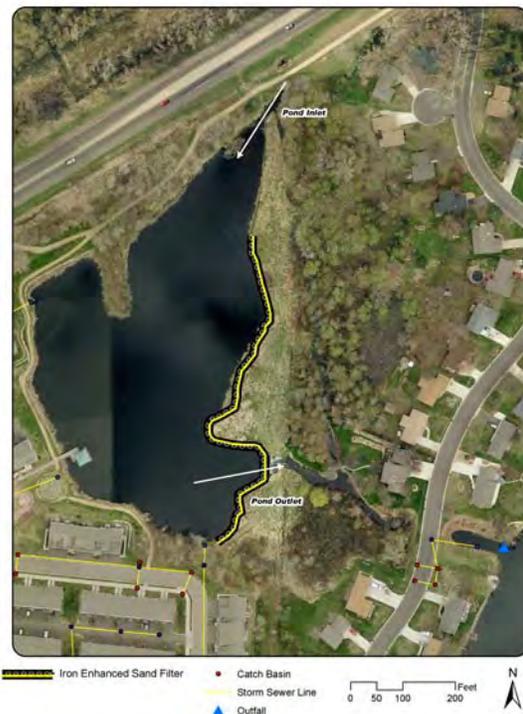
**Description** – Retrofitting the existing wet pond with an iron enhanced sand filter along the eastern edge of the pond would significantly increase the pond’s efficiency at removing dissolved phosphorus (Erickson & Gulliver 2010). A significant percentage of phosphorus in stormwater is dissolved (30%-45%).

The iron enhanced sand filter would be installed at an elevation slightly above the normal water level of the pond so that following a storm event the increase in depth of the pond would be first diverted to the iron enhanced sand filter. The filter would have drain tile installed along the base of the trench and would outlet downstream of the current pond outlet. Large storm events that overwhelm the iron enhanced sand filter’s capacity would exit the pond via the existing outlet.

Based on available space and the large contributing drainage area, a 700 foot long by 10 foot wide by 2 foot deep filter with one foot of live storage above the iron enhanced sand filter was modeled. Network-wide volume and pollutant removal are shown in the table below. Please note that no estimates are included for modifications to the outlet structure of the existing pond, and the cost estimates assume the city would complete the installation. The iron enhanced sand filter would need to be an engineered project, and the existing pond outlet may be deemed unsuitable for this type of practice which would result in the additional expense of a new outlet. Nevertheless, the large drainage area treated by this pond (1,013.3 acres) combined with the effectiveness of the iron enhanced sand filter will likely make this one of the most cost effective options regardless of the need to replace the pond’s outlet structure.

**Conceptual and Proposed Site Images -**

(Erickson &amp; Gulliver 2010)

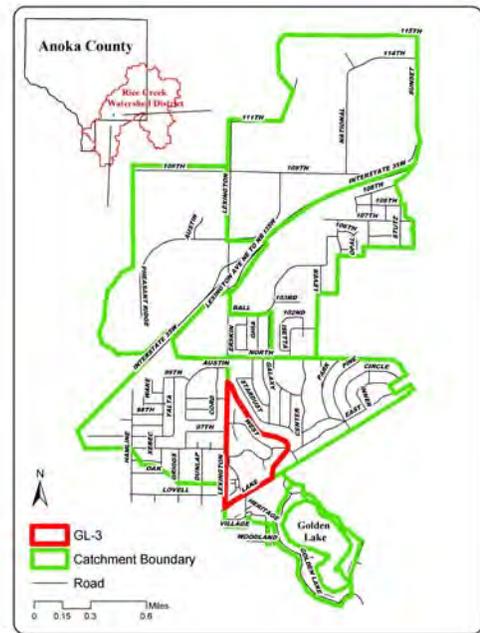


**Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>2 Iron Enhanced Sand Filter</b>					
		<b>New trtmt</b>	<b>Net %</b>				
<b>Treatment</b>	TP (lb/yr)	35.2	56%				
	TSS (lb/yr)	0	57%				
	Volume (acre-feet/yr)	0.0	0%				
	Number of BMP's	1					
	BMP Size/Description	700	linear feet				
	BMP Type	Iron Enhanced Sand Filter					
<b>Cost</b>	Materials/Labor/Design	\$87,500					
	Promotion & Admin Costs	\$1,680					
	Total Project Cost	\$89,180					
	Annual O&M	\$2,917					
	Term Cost/1,000lb-TSS/yr	N/A					
	Term Cost/lb-TP/yr	<b>\$167</b>					

# Catchment GL-3

Existing Catchment Summary	
Acres	58.90
Dominant Land Cover	Residential
Parcels	237
Volume (acre-feet/yr)	18.37
TP (lb/yr)	25.00
TSS (lb/yr)	6,461



**DESCRIPTION**

Catchment GL-3 is primarily comprised of medium-density, single-family residential development with Carl Eck Park positioned on the east side. Ditch 53-62 forms the eastern boundary of catchment GL-3 and Lexington Avenue forms the western boundary. There is a 12.3 acre section of multi-family residential land cover in the southwest corner of the catchment, but this land cover was removed from the analysis because of the existing stormwater treatment described below.

**EXISTING STORMWATER TREATMENT**

Existing stormwater treatment practices within GL-3 consist of street cleaning with a mechanical sweeper in the spring and fall and a network of stormwater treatment ponds that treat the multi-family residential land cover in the southwest corner of the catchment. The stormwater ponds were determined to be isolated from Ditch 53-62, except under extreme conditions when overflow may cause them to reach the ditch. However, there is a large area of open space through which the overflow water would need to travel prior to entering the ditch. For these reasons, the 12.3 acre multi-family residential land cover was removed from this analysis. The tables below highlight existing volume and pollutant loads from catchment GL-3.

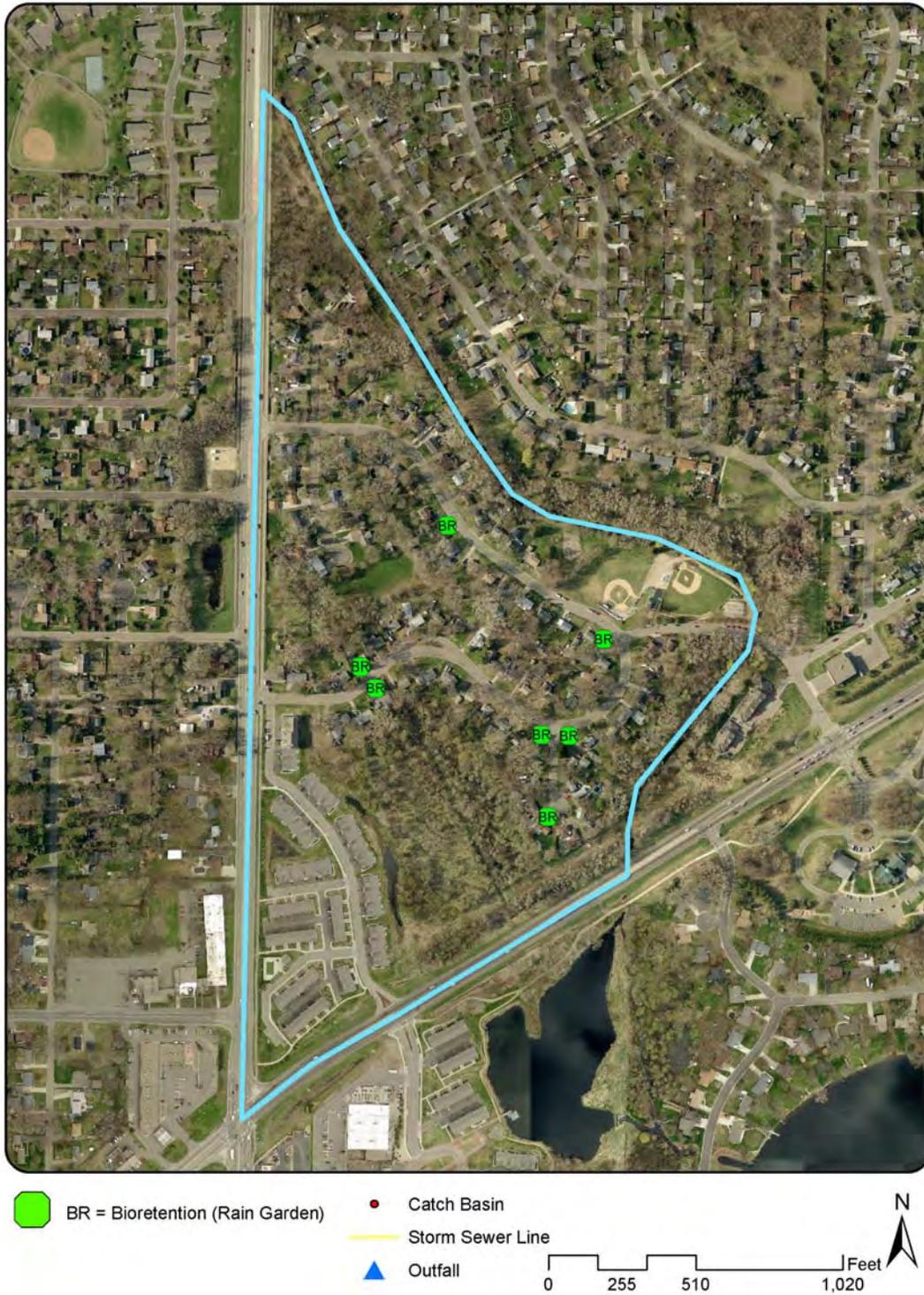
**Catchment Specific Existing Conditions**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	25.2	0.2	1%	<b>25.0</b>
	TSS (lb/yr)	7,186	725	10%	<b>6,461</b>
	Volume (acre-feet/yr)	18.4	0.0	0%	<b>18.4</b>
	Number of BMP's	1			
	BMP Size/Description	Street Cleaning			

**Network-Wide Existing Conditions (GL-2 through GL-7)**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	623.7	313.0	50%	<b>310.7</b>
	TSS (lb/yr)	216,101	124,172	57%	<b>91,929</b>
	Volume (acre-feet/yr)	494.5	0.0	0%	<b>494.5</b>
	Number of BMP's	All BMPs in catchments GL-2 through GL-7			
	BMP Size/Description	Street cleaning and extended wet detention ponds			

### RETROFIT RECOMMENDATIONS



**Project ID #4 – Curb-Cut Rain Garden Network**

**Drainage Area** – 33.7 acres

**Location** – 5 locations throughout medium-density residential land cover in catchment GL-3

**Property Ownership** – Private

**Description** – The residential land cover within this catchment is best suited for residential, curb-cut rain gardens (see Appendix B for design options). Seven optimal rain garden locations were identified (see map above). Generally, ideal curb-cut rain garden locations are immediately up-gradient of a catch basin serving a large drainage area. Considering typical land owner participation rates we analyzed a scenario where 5 rain gardens were installed in catchment GL-3. Volume and pollutant reductions resulting from the rain garden installations are highlighted in the tables below.

**Conceptual images -**



Before rain



During rain

**Catchment Specific Cost/Benefit Analysis**

Cost/Benefit Analysis		Project ID					
		4 5 Rain Gardens					
		New trtmt	Net %			New trtmt	Net %
Treatment	TP (lb/yr)	6.8	28%				
	TSS (lb/yr)	1,273	28%				
	Volume (acre-feet/yr)	3.2	18%				
	Number of BMP's	5					
	BMP Size/Description	1,250 sq ft					
	BMP Type	Complex Bioretention					
Cost	Materials/Labor/Design	\$22,710					
	Promotion & Admin Costs	\$2,310					
	Total Project Cost	\$25,020					
	Annual O&M	\$375					
	Term Cost/1,000lb-TSS/yr	\$950					
	Term Cost/lb-TP/yr	<b>\$178</b>					

**Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

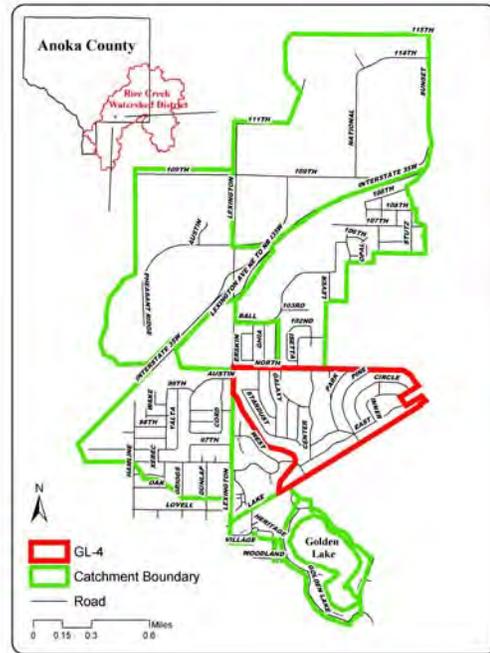
<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>4 5 Rain Gardens</b>					
		<b>New trtmt</b>	<b>Net %</b>				
<b>Treatment</b>	TP (lb/yr)	4.1	51%				
	TSS (lb/yr)	674	58%				
	Volume (acre-feet/yr)	3.2	1%				
	Number of BMP's	5					
	BMP Size/Description	1,250 sq ft					
	BMP Type	Complex Bioretention					
<b>Cost</b>	Materials/Labor/Design	\$22,710					
	Promotion & Admin Costs	\$2,310					
	Total Project Cost	\$25,020					
	Annual O&M	\$375					
	Term Cost/1,000lb-TSS/yr	\$1,794					
	Term Cost/lb-TP/yr	<b>\$295</b>					

# Catchment GL-4

Existing Catchment Summary	
Acres	233.30
Dominant Land Cover	Residential
Parcels	589
Volume (acre-feet/yr)	99.40
TP (lb/yr)	124.20
TSS (lb/yr)	36,595

**DESCRIPTION**

Catchment GL-4 is located directly north of Golden Lake and is part of the eastern boundary of the focus area for this assessment. Ditch 53-62 creates the western boundary of this catchment and all stormwater runoff flows into the ditch. Land cover within catchment GL-4 consists primarily of medium-density, single-family residential and three sizeable parks (North Star, Center, and Inner).



**EXISTING STORMWATER TREATMENT**

Existing stormwater treatment within catchment GL-4 consists of street cleaning with a mechanical street sweeper. However, the large areas of medium-density, single-family residential land cover drain untreated into Anoka County Ditch 53-62, which eventually enters Golden Lake. Several storm sewer outfalls outlet to an open area just north of Anoka County Ditch 53-62. The outfalls carry large sediment loads (see images to right) and have created channels directly to Anoka County Ditch 53-62 with significant erosion.



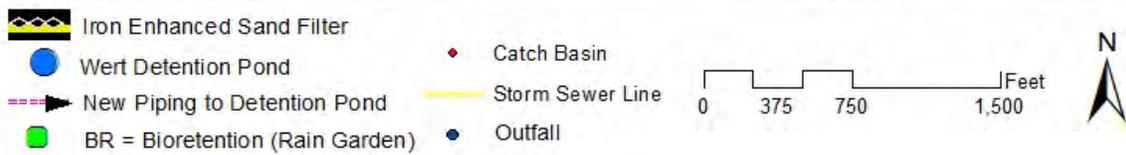
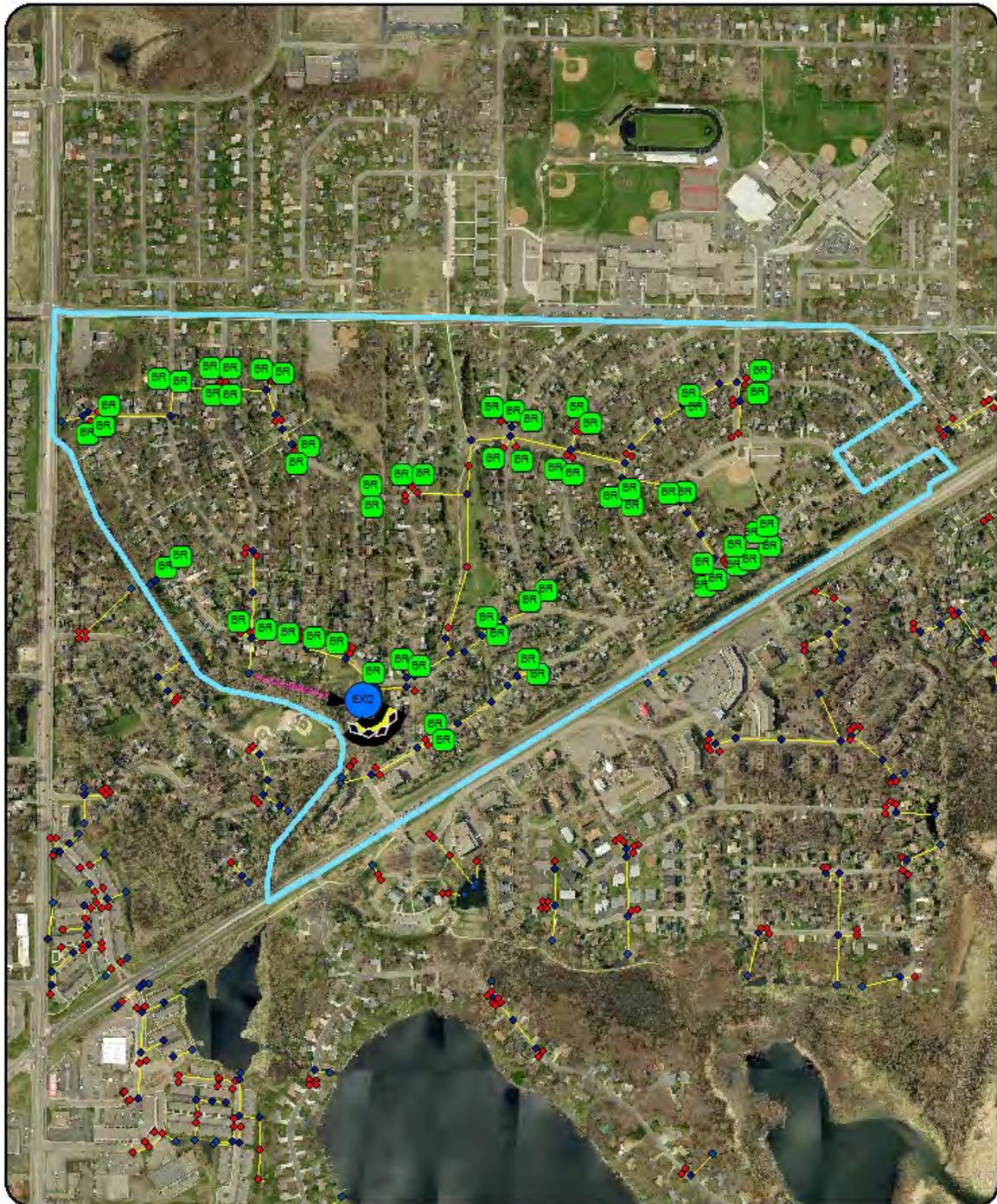
**Catchment Specific Existing Conditions**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	125.1	0.9	1%	<b>124.2</b>
	TSS (lb/yr)	40,441	3,846	10%	<b>36,595</b>
	Volume (acre-feet/yr)	99.4	0.0	0%	<b>99.4</b>
	Number of BMP's	1			
	BMP Size/Description	Street Cleaning			

**Network-Wide Existing Conditions (GL-2 through GL-7)**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	623.7	313.0	50%	<b>310.7</b>
	TSS (lb/yr)	216,101	124,172	57%	<b>91,929</b>
	Volume (acre-feet/yr)	494.5	0.0	0%	<b>494.5</b>
	Number of BMP's	All BMPs in catchments GL-2 through GL-7			
	BMP Size/Description	Street cleaning and extended wet detention ponds			

RETROFIT RECOMMENDATIONS



**Project ID #3 – Curb-Cut Rain Garden Network**

**Drainage Area** – 187.3 acres

**Location** – 15 locations throughout medium-density residential land cover in catchment GL-4

**Property Ownership** – Private

**Description** – The residential land cover within this catchment is best suited for residential, curb-cut rain gardens (see Appendix B for design options). Sixty two optimal rain garden locations were identified (see map above). Generally, ideal curb-cut rain garden locations are immediately up-gradient of a catch basin serving a large drainage area. Considering typical land owner participation rates we analyzed scenarios where 5, 10, and 15 rain gardens were installed in catchment GL-4. Volume and pollutant reductions resulting from the rain garden installations are highlighted in the tables below.

**Example Images -**



Before



After

**Catchment Specific Cost/Benefit Analysis**

<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>3 5 Rain Gardens</b>		<b>3 10 Rain Gardens</b>		<b>3 15 Rain Gardens</b>	
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	9.1	8%	16.3	14%	22.5	19%
	TSS (lb/yr)	1,633	14%	3,025	17%	4,291	20%
	Volume (acre-feet/yr)	4.1	4%	7.6	8%	10.8	11%
	Number of BMP's	5		10		15	
	BMP Size/Description	1,250 sq ft		2,500 sq ft		3,750 sq ft	
	BMP Type	Complex Bioretention		Complex Bioretention		Complex Bioretention	
<b>Cost</b>	Materials/Labor/Design	\$22,710		\$45,210		\$67,710	
	Promotion & Admin Costs	\$2,310		\$3,010		\$3,710	
	Total Project Cost	\$25,020		\$48,220		\$71,420	
	Annual O&M	\$375		\$750		\$1,125	
	Term Cost/1,000lb-TSS/yr	\$740		\$779		\$817	
	Term Cost/lb-TP/yr	<b>\$133</b>		<b>\$145</b>		<b>\$156</b>	

**Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>3 5 Rain Gardens</b>		<b>3 10 Rain Gardens</b>		<b>3 15 Rain Gardens</b>	
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	5.4	51%	9.7	52%	13.5	52%
	TSS (lb/yr)	865	58%	1,593	58%	2,281	59%
	Volume (acre-feet/yr)	4.1	1%	7.6	2%	10.8	2%
	Number of BMP's	5		10		15	
	BMP Size/Description	1,250 sq ft		2,500 sq ft		3,750 sq ft	
	BMP Type	Complex Bioretention		Complex Bioretention		Complex Bioretention	
<b>Cost</b>	Materials/Labor/Design	\$22,710		\$45,210		\$67,710	
	Promotion & Admin Costs	\$2,310		\$3,010		\$3,710	
	Total Project Cost	\$25,020		\$48,220		\$71,420	
	Annual O&M	\$375		\$750		\$1,125	
	Term Cost/1,000lb-TSS/yr	\$1,398		\$1,480		\$1,537	
	Term Cost/lb-TP/yr	<b>\$224</b>		<b>\$243</b>		<b>\$260</b>	

**Project ID #'s 7, 8, and 9 – New Wet Pond (and additional options)**

**Drainage Area** – 233.3 acres

**Location** – Carl Eck Park north of Anoka County Ditch 53-62

**Property Ownership** – City of Circle Pines

**Description** – A large unused space north of Anoka County Ditch 53-62 within Carl Eck Park presents an opportunity for a new stormwater pond. The site is favorable because it is owned by the city (simpler project administration) and would treat a large area of residential land cover prior to draining into the ditch.

Several options were evaluated and represent Proposed Projects 7, 8, and 9. Proposed Project 7 is the most cost effective (with respect to phosphorus removal) and represents a new pond with additional piping to expand the drainage area treated as well as an iron enhanced sand filter around the perimeter of the pond. Proposed Project 8 is the pond with the additional piping to expand the drainage area but no iron enhanced sand filter. Proposed Project 9 is simply installing the pond without the additional piping or iron enhanced sand filter.

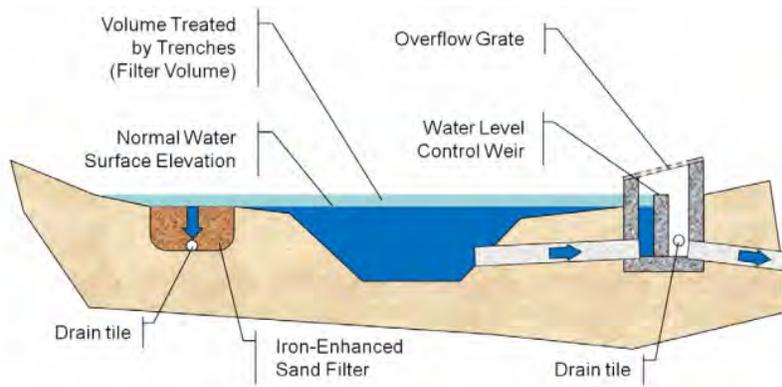
Installation of an iron enhanced sand filter along the eastern edge of the pond would significantly increase the pond's efficiency at removing dissolved phosphorus (Erickson & Gulliver 2010). A significant percentage of phosphorus in stormwater is dissolved (30%-45%).

The iron enhanced sand filter would be installed at an elevation slightly above the normal water level of the wet pond so that following a storm event the increase in depth of the pond would be first diverted to the iron enhanced sand filter. The filter would have drain tile installed along the base of the

trench and would outlet downstream of the current pond outlet. Large storm events that overwhelm the iron enhanced sand filter’s capacity would exit the pond using the existing outlet.

Based on available space, a 415 foot long by 10 foot wide by 2 foot deep filter with one foot of live storage above the iron enhanced sand filter was modeled. Network-wide volume and pollutant removal are shown in the table below. Please note that no estimates are included for modifications to the outlet structure of the existing pond, and the cost estimates assume the city would complete the installation. The iron enhanced sand filter would need to be an engineered project, and the existing pond outlet may be deemed unsuitable for this type of practice which would result in the additional expense of a new outlet. Nevertheless, the large drainage area treated by this pond (233.3 acres) combined with the effectiveness of the iron enhanced sand filter will likely make this one of the more cost effective options regardless of need to replace the pond’s outlet structure. The proposed pond is 0.86 acres (2,750 cubic yard storage capacity). Volume and pollutant reductions for the three proposed projects are highlighted in the tables below.

**Conceptual and Proposed Site Images -**



(Erickson & Gulliver 2010)



**Catchment Specific Cost/Benefit Analysis**

Cost/Benefit Analysis		Network Treatment By BMP					
		9 Pond		8 Pond + Piping		7 Pond + Piping + IESF	
		New trtmt	Net %	New trtmt	Net %	New trtmt	Net %
Treatment	TP (lb/yr)	46.2	38%	59.4	48%	72.6	59%
	TSS (lb/yr)	13,331	42%	17,625	53%	17,625	53%
	Volume (acre-feet/yr)	0.0	0%	0.0	0%	0.0	0%
	Number of BMP's	1-Pond excavated		1-Pond excavated + Additional Piping		1-Pond excavated + Additional Piping + Iron Enhanced Sand Filter	
	BMP Size/Description	2,750	cubic yards	2,750	cubic yards	2,750	cubic yards
	BMP Type	Wet Pond		Wet Pond		Wet Pond	
Cost	Materials/Labor/Design	\$93,950		\$119,100		\$170,975	
	Promotion & Admin Costs	\$1,680		\$1,680		\$1,680	
	Total Project Cost	\$95,630		\$120,780		\$172,655	
	Annual O&M	\$3,188		\$4,026		\$5,755	
	Term Cost/1,000lb-TSS/yr	\$478		\$457		\$653	
	Term Cost/lb-TP/yr	<b>\$138</b>		<b>\$136</b>		<b>\$158</b>	

**Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

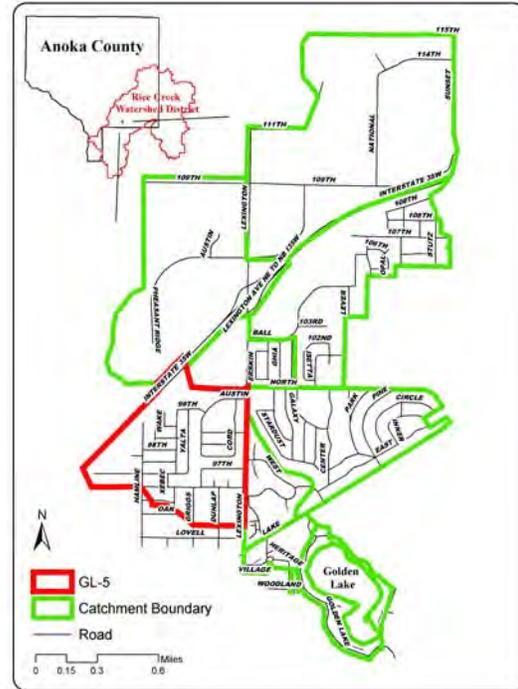
<i>Cost/Benefit Analysis</i>		<i>Network Treatment By BMP</i>					
		9 Pond		8 Pond + Piping		7 Pond + Piping + IESF	
		New trtmt	Net %	New trtmt	Net %	New trtmt	Net %
<i>Treatment</i>	TP (lb/yr)	9.7	52%	13.9	52%	27.1	55%
	TSS (lb/yr)	2,249	59%	3,679	59%	3,679	59%
	Volume (acre-feet/yr)	0.0	0%	0.0	0%	0.0	0%
	Number of BMP's	1-Pond excavated		1-Pond excavated + Additional Piping		1-Pond excavated + Additional Piping + Iron Enhanced Sand Filter	
	BMP Size/Description	2,750 cubic yards		2,750 cubic yards		2,750 cubic yards	
	BMP Type	Wet Pond		Wet Pond		Wet Pond	
<i>Cost</i>	Materials/Labor/Design	\$93,950		\$119,100		\$170,975	
	Promotion & Admin Costs	\$1,680		\$1,680		\$1,680	
	Total Project Cost	\$95,630		\$120,780		\$172,655	
	Annual O&M	\$3,188		\$4,026		\$5,755	
	Term Cost/1,000lb-TSS/yr	\$2,835		\$2,189		\$3,129	
	Term Cost/lb-TP/yr	<b>\$657</b>		<b>\$579</b>		<b>\$425</b>	

# Catchment GL-5

Existing Catchment Summary	
Acres	257.50
Dominant Land Cover	Residential
Parcels	564
Volume (acre-feet/yr)	114.55
TP (lb/yr)	82.50
TSS (lb/yr)	25,590

### DESCRIPTION

Catchment GL-5 is bordered by Interstate 35 East on the eastern boundary and Lexington Avenue on the western boundary. Anoka County Ditch 53-62 forms the northern boundary and the southern boundary is approximately Lovell Road. Land cover in the catchment is comprised primarily of medium-density, single-family residential.



### EXISTING STORMWATER TREATMENT

The 257.5 acres of land in catchment GL-5 drain north to an existing stormwater treatment pond that outlets to Anoka County Ditch 53-62. The pond is located in Centennial Green Park. In addition, street cleaning is conducted with a mechanical street sweeper once each in the spring and fall. The tables below highlight existing volume and pollutant loads from catchment GL-5.

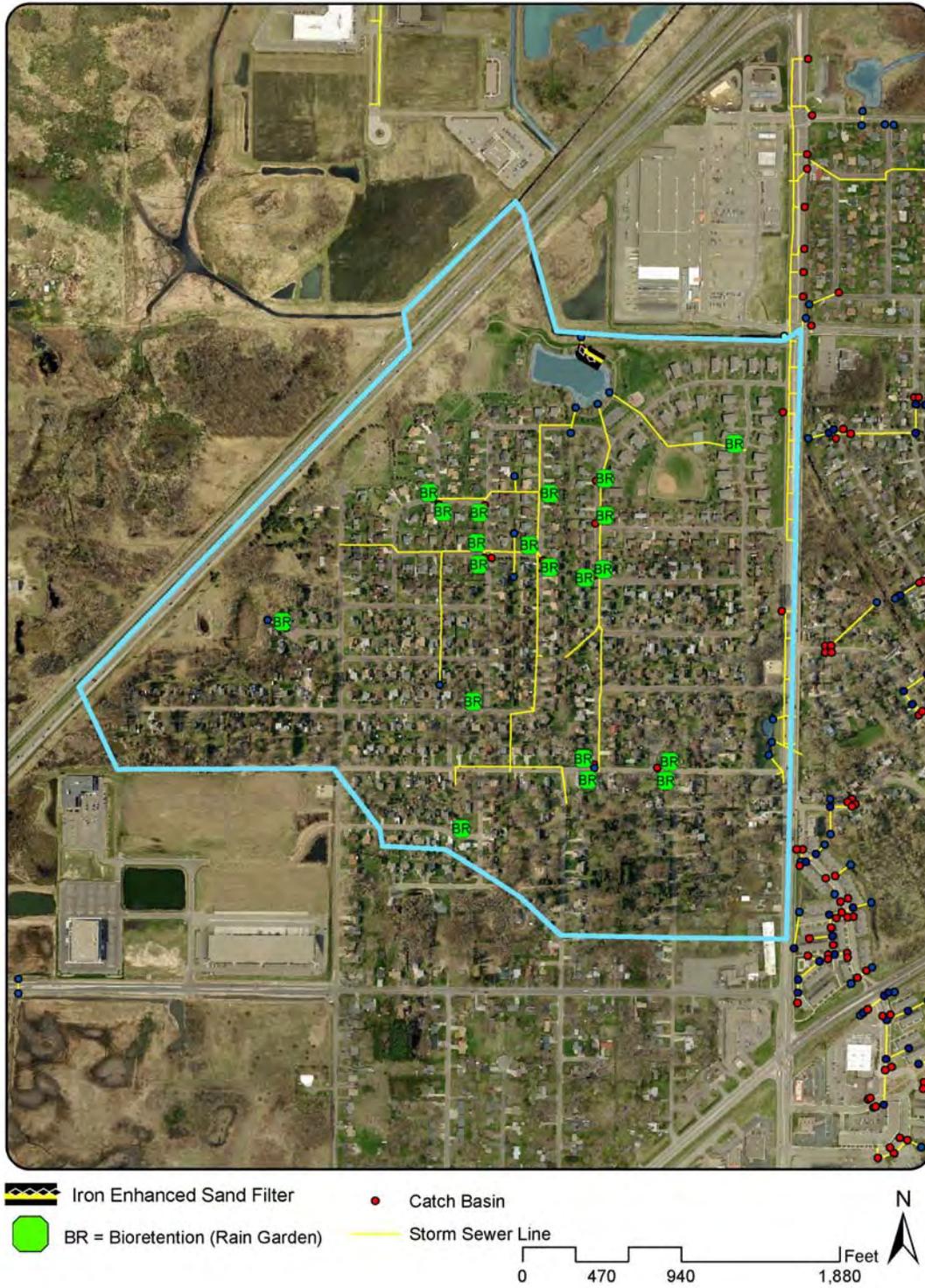
#### Catchment Specific Existing Conditions

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	176.7	94.2	53%	<b>82.5</b>
	TSS (lb/yr)	54,253	28,663	53%	<b>25,590</b>
	Volume (acre-feet/yr)	114.6	0.0	0%	<b>114.6</b>
	Number of BMP's	2			
	BMP Size/Description	Street cleaning and pond			

**Network-Wide Existing Conditions (GL-2 through GL-7)**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	623.7	313.0	50%	<b>310.7</b>
	TSS (lb/yr)	216,101	124,172	57%	<b>91,929</b>
	Volume (acre-feet/yr)	494.5	0.0	0%	<b>494.5</b>
	Number of BMP's	All BMPs in catchments GL-2 through GL-7			
	BMP Size/Description	Street cleaning and extended wet detention ponds			

### RETROFIT RECOMMENDATIONS

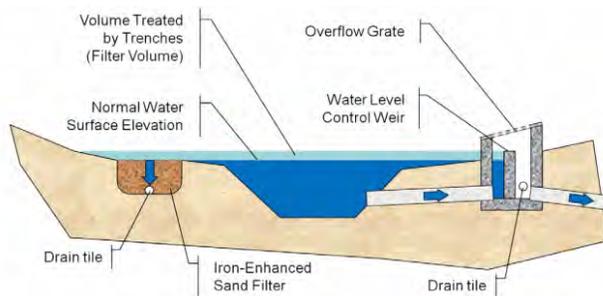


**Project ID #1 – Iron enhanced sand filter (IESF) for existing pond****Drainage Area** – 257.5 acres**Location** – East side of wet detention pond located within Centennial Green Park in catchment GL-5**Property Ownership** – City of Blaine

**Description** – Retrofitting the existing wet detention pond with an iron enhanced sand filter along the eastern edge of the pond would significantly increase the pond’s efficiency at removing dissolved phosphorus (Erickson & Gulliver 2010). A significant percentage of phosphorus in stormwater is dissolved (30%-45%).

The iron enhanced sand filter would be installed at an elevation slightly above the normal water level of the detention pond so that following a storm event the increase in depth of the pond would be first diverted to the iron enhanced sand filter. The filter would have drain tile installed along the base of the trench and would outlet downstream of the current pond outlet. Large storm events that overwhelm the iron enhanced sand filter’s capacity would exit the pond using the existing outlet.

Based on available space, two filter lengths, 300 and 500 feet long, by 10 feet wide by 2 feet deep with one foot of live storage above the iron enhanced sand filter were modeled. Volume and pollutant removal are shown in the tables below. Please note that no estimates are included for modifications to the outlet structure of the existing pond, and the cost estimates assume the city would complete the installation. The iron enhanced sand filter would need to be an engineered project, and the existing pond outlet may be deemed unsuitable for this type of practice which would result in the additional expense of a new outlet. Nevertheless, the large drainage area treated by this pond (257.5 acres) combined with the effectiveness of the iron enhanced sand filter will make this one of the more cost effective options.

***Conceptual and Proposed Site Images -***

(Erickson &amp; Gulliver 2010)



**Catchment Specific Cost/Benefit Analysis**

<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>1 IESF</b>		<b>1 IESF</b>			
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>		
<b>Treatment</b>	TP (lb/yr)	17.6	58%	23.9	67%		
	TSS (lb/yr)	0	53%	0	53%		
	Volume (acre-feet/yr)	0.0	0%	0.0	0%		
	Number of BMP's	1		1			
	BMP Size/Description	300 linear feet		500 linear feet			
	BMP Type	Iron Enhanced Sand Filter		Iron Enhanced Sand Filter			
<b>Cost</b>	Materials/Labor/Design	\$37,500		\$62,500			
	Promotion & Admin Costs	\$1,680		\$1,680			
	Total Project Cost	\$39,180		\$64,180			
	Annual O&M	\$1,250		\$2,083			
	Term Cost/1,000lb-TSS/yr	N/A		N/A			
	Term Cost/lb-TP/yr	<b>\$145</b>		<b>\$177</b>			

**Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>1 IESF</b>		<b>1 IESF</b>			
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>		
<b>Treatment</b>	TP (lb/yr)	17.6	53%	23.9	54%		
	TSS (lb/yr)	0	57%	0	57%		
	Volume (acre-feet/yr)	0.0	0%	0.0	0%		
	Number of BMP's	1		1			
	BMP Size/Description	300 linear feet		500 linear feet			
	BMP Type	Underground Sand Filter		Underground Sand Filter			
<b>Cost</b>	Materials/Labor/Design	\$37,500		\$62,500			
	Promotion & Admin Costs	\$1,680		\$1,680			
	Total Project Cost	\$39,180		\$64,180			
	Annual O&M	\$1,250		\$2,083			
	Term Cost/1,000lb-TSS/yr	N/A		N/A			
	Term Cost/lb-TP/yr	<b>\$145</b>		<b>\$177</b>			

**Project ID #6 – Curb-Cut Rain Garden Network**

**Drainage Area** – 177.7 acres

**Location** – 10 locations throughout medium-density residential land cover in catchment GL-5

**Property Ownership** – Private

**Description** – The residential land cover within this catchment is best suited for residential, curb-cut rain gardens (see Appendix B for design options). Twenty optimal rain garden locations were identified (see map above). Generally, ideal curb-cut rain garden locations are immediately up-gradient of a catch basin serving a large drainage area. Considering typical land owner participation rates we analyzed scenarios where five and ten rain gardens were installed in catchment GL-5. Volume and pollutant reductions resulting from the rain garden installations are highlighted in the tables below.

**Conceptual Images -**



Before



After

**Catchment Specific Cost/Benefit Analysis**

<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>6 5 Rain Gardens</b>		<b>6 10 Rain Gardens</b>			
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	3.1	55%	5.7	57%		
	TSS (lb/yr)	615	54%	1,147	55%		
	Volume (acre-feet/yr)	4.1	4%	7.6	7%		
	Number of BMP's	5		10			
	BMP Size/Description	1,250 sq ft		2,500 sq ft			
	BMP Type	Complex Bioretention		Complex Bioretention			
<b>Cost</b>	Materials/Labor/Design	\$22,710		\$45,210			
	Promotion & Admin Costs	\$2,310		\$3,010			
	Total Project Cost	\$25,020		\$48,220			
	Annual O&M	\$375		\$750			
	Term Cost/1,000lb-TSS/yr	\$1,966		\$2,055			
	Term Cost/lb-TP/yr	<b>\$390</b>		<b>\$414</b>			

**Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

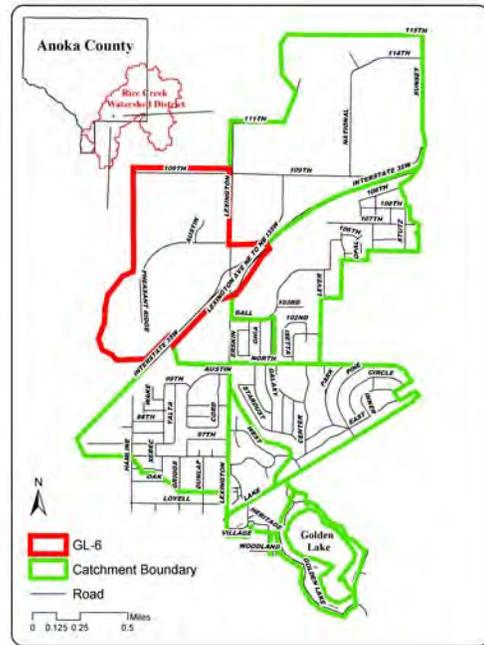
<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>6 5 Rain Gardens</b>		<b>6 10 Rain Gardens</b>			
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	3.0	51%	5.6	51%		
	TSS (lb/yr)	687	58%	1,354	58%		
	Volume (acre-feet/yr)	4.1	1%	7.6	2%		
	Number of BMP's	5		10			
	BMP Size/Description	1,250 sq ft		2,500 sq ft			
	BMP Type	Complex Bioretention		Complex Bioretention			
<b>Cost</b>	Materials/Labor/Design	\$22,710		\$45,210			
	Promotion & Admin Costs	\$2,310		\$3,010			
	Total Project Cost	\$25,020		\$48,220			
	Annual O&M	\$375		\$750			
	Term Cost/1,000lb-TSS/yr	\$1,760		\$1,741			
	Term Cost/lb-TP/yr	<b>\$403</b>		<b>\$421</b>			

# Catchment GL-6

Existing Catchment Summary	
Acres	340.60
Dominant Land Cover	Open Space
Parcels	41
Volume (acre-feet/yr)	157.07
TP (lb/yr)	143.00
TSS (lb/yr)	40,989

### DESCRIPTION

Catchment GL-6 is primarily open space with approximately 75 acres of light industrial land cover, most notably Globe University and Aveda. Anoka County Ditch 53-62 bisects this catchment. The northern boundary is 109<sup>th</sup> Avenue, the southern boundary is Interstate 35 East, the eastern boundary is Lexington Avenue, and the western boundary was determined based on a combination of topographical data and the focus area of this assessment.



### EXISTING STORMWATER TREATMENT

In addition to street cleaning with a vacuum assisted street sweeper once each in the spring and fall, a number of stormwater treatment ponds exist throughout this catchment. The ponds were constructed as part of requirements from the Rice Creek Watershed District for new developments. Therefore, treatment of the stormwater runoff within this catchment is better than many of the other catchments within the assessment focus area. The tables below highlight the existing volume and pollutant loading from catchment GL-6

#### Catchment Specific Existing Conditions

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	212.5	69.5	33%	<b>143.0</b>
	TSS (lb/yr)	80,672	39,683	49%	<b>40,989</b>
	Volume (acre-feet/yr)	157.1	0.0	0%	<b>157.1</b>
	Number of BMP's	2			
	BMP Size/Description	Street cleaning and existing ponds			

**Network-Wide Existing Conditions (GL-2 through GL-7)**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	623.7	313.0	50%	<b>310.7</b>
	TSS (lb/yr)	216,101	124,172	57%	<b>91,929</b>
	Volume (acre-feet/yr)	494.5	0.0	0%	<b>494.5</b>
	Number of BMP's	All BMPs in catchments GL-2 through GL-7			
	BMP Size/Description	Street cleaning and extended wet detention ponds			

**RETROFIT RECOMMENDATIONS**

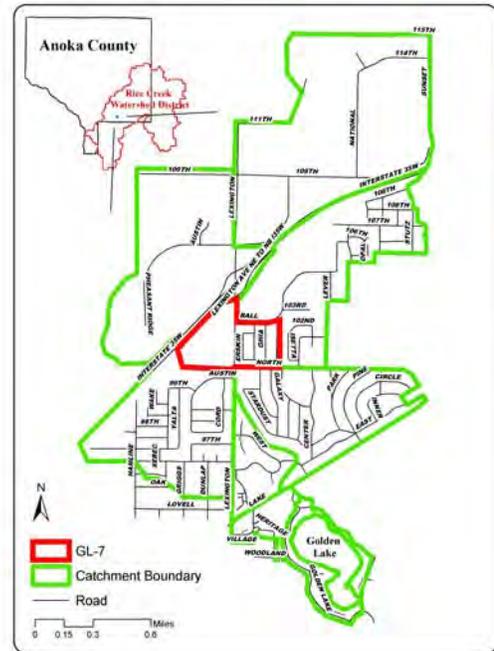
No retrofit recommendations were made for catchment GL-6. The existing stormwater treatment pond network is providing substantial treatment and appears to be functioning well based on model results and observations by maintenance staff within GL-6. More specifically, Aveda maintenance staff members have rarely observed the stormwater treatment pond network outlet to Anoka County Ditch 53-62. Therefore, the volume and pollutant loads in the above table are likely over-estimating the loads to Golden Lake. The WinSLAMM model assumes the ponds are at capacity and any additional water input results in overflow to the ditch. The existing treatment and large areas of open space within this catchment resulted in no recommended retrofits.

# Catchment GL-7

Existing Catchment Summary	
Acres	82.20
Dominant Land Cover	Commercial
Parcels	117
Volume (acre-feet/yr)	78.70
TP (lb/yr)	33.80
TSS (lb/yr)	12,191

### DESCRIPTION

Catchment GL-7 is a relatively small catchment that consists of similar acreages of commercial and medium-density, single-family residential land cover. Fleet Farm represents the majority of the commercial land cover, located near the west side of the catchment, and Anoka County Ditch 53-62 flows along the southwest side of the catchment.



### EXISTING STORMWATER TREATMENT

Existing stormwater treatment practices within catchment GL-7 consist of street cleaning with a vacuum assisted street sweeper once each in the spring and fall and a stormwater treatment pond located to the west of the Fleet Farm building that provides treatment for that property. In addition, multiple parking lot rain gardens are located throughout the Fleet Farm parking lot. Visual inspection suggested that most of the gardens are functioning well, but the large garden between the main parking lot and the car wash may require maintenance. The medium-density, single-family residential area in the eastern portion of the catchment has no additional stormwater treatment. The volume and pollutant loads from this catchment are highlighted in the tables below.

#### Catchment Specific Existing Conditions

	Existing Conditions	Base Loading	Treatment	Net Treatment %	Existing Loading
Treatment	TP (lb/yr)	60.2	26.4	44%	<b>33.8</b>
	TSS (lb/yr)	25,268	13,077	52%	<b>12,191</b>
	Volume (acre-feet/yr)	78.7	0.0	0%	<b>78.7</b>
	Number of BMP's	2			
	BMP Size/Description	Street Cleaning and Ponds			

**Network-Wide Existing Conditions (GL-2 through GL-7)**

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	623.7	313.0	50%	<b>310.7</b>
	TSS (lb/yr)	216,101	124,172	57%	<b>91,929</b>
	Volume (acre-feet/yr)	494.5	0.0	0%	<b>494.5</b>
	Number of BMP's	All BMPs in catchments GL-2 through GL-7			
	BMP Size/Description	Street cleaning and extended wet detention ponds			

RETROFIT RECOMMENDATIONS



**Project ID #5 – Curb-Cut Rain Garden Network**

**Drainage Area** – 34.7 acres

**Location** – 5 locations throughout medium-density residential land cover in catchment GL-7

**Property Ownership** – Private

**Description** – The residential land cover within this catchment is best suited for residential, curb-cut rain gardens (see Appendix B for design options). Eight optimal rain garden locations were identified (see map above). Generally, ideal curb-cut rain garden locations are immediately up-gradient of a catch basin serving a large drainage area. Considering typical land owner participation rates we analyzed a scenario where five rain gardens were installed in catchment GL-7. Volume and pollutant reductions resulting from the rain garden installations are highlighted in the tables below.

**Conceptual images -**



Before



After

**Catchment Specific Cost/Benefit Analysis**

Cost/Benefit Analysis		Project ID					
		5 Rain Gardens					
		New trtmt	Net %			New trtmt	Net %
Treatment	TP (lb/yr)	6.4	54%				
	TSS (lb/yr)	1,266	57%				
	Volume (acre-feet/yr)	3.2	4%				
	Number of BMP's	5					
	BMP Size/Description	1,250 sq ft					
	BMP Type	Complex Bioretention					
Cost	Materials/Labor/Design	\$22,710					
	Promotion & Admin Costs	\$2,310					
	Total Project Cost	\$25,020					
	Annual O&M	\$375					
	Term Cost/1,000lb-TSS/yr	\$955					
	Term Cost/lb-TP/yr	<b>\$189</b>					

**Network-Wide Cost/Benefit Analysis (GL-2 through GL-7)**

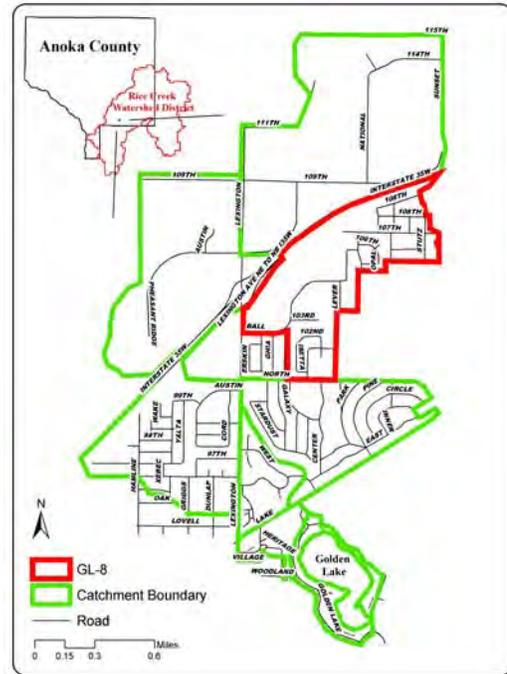
<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>5 5 Rain Gardens</b>					
		<b>New trtmt</b>	<b>Net %</b>			<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	3.9	51%				
	TSS (lb/yr)	676	58%				
	Volume (acre-feet/yr)	3.2	1%				
	Number of BMP's	5					
	BMP Size/Description	1,250 sq ft					
	BMP Type	Complex Bioretention					
<b>Cost</b>	Materials/Labor/Design	\$22,710					
	Promotion & Admin Costs	\$2,310					
	Total Project Cost	\$25,020					
	Annual O&M	\$375					
	Term Cost/1,000lb-TSS/yr	\$1,788					
	Term Cost/lb-TP/yr	<b>\$310</b>					

# Catchment GL-8

Existing Catchment Summary	
Acres	283.30
Dominant Land Cover	Residential
Parcels	403
Volume (acre-feet/yr)	129.71
TP (lb/yr)	107.10
TSS (lb/yr)	34,744

**DESCRIPTION**

Catchment GL-8 is located in the north eastern part of the focus area for this assessment. As a result, stormwater runoff from catchment GL-8 flows to the north into GL-9, then into Lochness Lake, and finally into Ditch 53-62 before ultimately entering Golden Lake. Therefore, any proposed retrofits in either GL-8 or GL-9 should be viewed first for their benefits to Lochness Lake and secondarily for their benefits to water quality in Golden Lake.



Catchment GL-8 is primarily comprised of medium-density, single-family residential development with a large portion of open space also present.

**EXISTING STORMWATER TREATMENT**

Existing stormwater treatment practices within GL-8 consist of street cleaning with a vacuum assisted sweeper in the spring and fall and a network of stormwater treatment ponds that treat a large portion of the commercial, institutional, and residential land cover types. Again, catchment GL-8 is not as directly connected to Golden Lake as catchments GL-1 through GL-7 because it passes through Lochness Lake prior to entering Anoka County Ditch 53-62. Catchment GL-8 was not modeled as part of the GL-2 through GL-7 network.

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	179.3	72.2	40%	<b>107.1</b>
	TSS (lb/yr)	62,331	27,587	44%	<b>34,744</b>
	Volume (acre-feet/yr)	129.7	0.0	0%	<b>129.7</b>
	Number of BMP's	2			
	BMP Size/Description	Street cleaning and existing ponds			

### RETROFIT RECOMMENDATIONS



**Project A – Curb-Cut Rain Garden Network**

**Drainage Area** – 132.5 acres

**Location** – 10 locations throughout medium-density residential land cover in catchment GL-8

**Property Ownership** – Private

**Description** – The residential land cover within this catchment is best suited for residential, curb-cut rain gardens (see Appendix B for design options). Nineteen optimal rain garden locations were identified (see map above). Generally, ideal curb-cut rain garden locations are immediately up-gradient of a catch basin serving a large drainage area. Considering typical land owner participation rates we analyzed scenarios where five and ten rain gardens were installed in catchment GL-8. Volume and pollutant reductions resulting from the rain garden installations are highlighted in the table below.

**Example Curb-Cut Rain Garden Images -**



Before rain



During rain

<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>A</b>		<b>A</b>			
		<b>5 Rain Gardens</b>		<b>10 Rain Gardens</b>			
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	2.8	42%	4.5	43%		
	TSS (lb/yr)	581	45%	1,003	46%		
	Volume (acre-feet/yr)	3.7	3%	6.2	5%		
	Number of BMP's	5		10			
	BMP Size/Description	1,250 sq ft		2,500 sq ft			
	BMP Type	Complex Bioretention		Complex Bioretention			
<b>Cost</b>	Materials/Labor/Design	\$22,710		\$45,210			
	Promotion & Admin Costs	\$2,310		\$3,010			
	Total Project Cost	\$25,020		\$48,220			
	Annual O&M	\$375		\$750			
	Term Cost/1,000lb-TSS/yr	\$2,081		\$2,350			
	Term Cost/lb-TP/yr	<b>\$432</b>		<b>\$524</b>			

**Project B – Permeable Asphalt at 4501 Ball Rd. NE in Blaine**

**Drainage Area** – 4.7 acres

**Location** – 4501 Ball Rd. NE, Blaine

**Property Ownership** – Private

**Description** – The large parking lot located at 4501 Ball Rd. NE in Blaine generates large volumes of runoff and high pollutant loads (see map below). At the same time, the parking and loading space is a necessity for the business located on that property. Therefore, permeable pavement was considered as a replacement for some of the traditional pavement to reduce stormwater volumes and provide water quality treatment. Permeable pavements can treat water from an area of impervious surface approximately three times the size of the permeable pavement. Therefore, 1.17 acres (51,048 square feet) of permeable asphalt would be sufficient to treat the 4.7 acre parking lot. The model included maintenance, such as restorative vacuuming on an annual basis. See appendix A for more details on the design of permeable pavements. Catchment-wide volume and pollutant removal are shown in the table below.

**Proposed Site Image -**



<b>Cost/Benefit Analysis</b>		<b>Project ID</b>					
		<b>B Permeable Asphalt</b>					
		<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>	<b>New trtmt</b>	<b>Net %</b>
<b>Treatment</b>	TP (lb/yr)	6.9	44%				
	TSS (lb/yr)	3,409	50%				
	Volume (acre-feet/yr)	6.7	5%				
	Number of BMP's	1					
	BMP Size/Description	51,048 sq ft					
	BMP Type	Permeable Asphalt					
<b>Cost</b>	Materials/Labor/Design	\$714,882					
	Promotion & Admin Costs	\$1,680					
	Total Project Cost	\$716,562					
	Annual O&M	\$1,174					
	Term Cost/1,000lb-TSS/yr	\$7,351					
	Term Cost/lb-TP/yr	<b>\$3,644</b>					

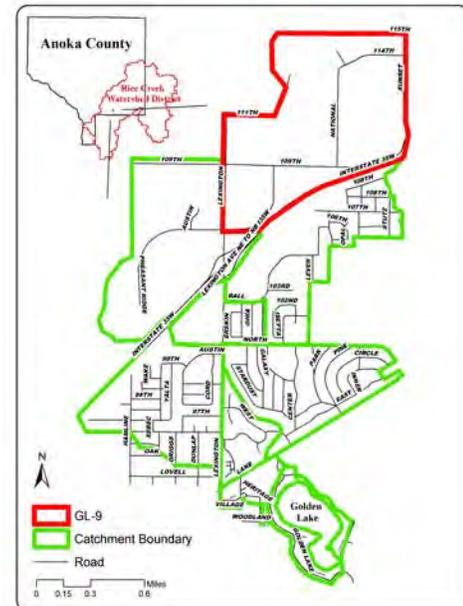
## Catchment GL-9

Existing Catchment Summary	
Acres	503.40
Dominant Land Cover	Open Space
Parcels	86
Volume (acre-feet/yr)	192.61
TP (lb/yr)	192.20
TSS (lb/yr)	45,867

### DESCRIPTION

Catchment GL-9 is primarily comprised of open space, but there are significant areas of commercial (55 acres) and medium-density, single-family residential (80 acres) land cover.

Catchment GL-9 is the farthest from Golden Lake within the focus area of this assessment. Stormwater runoff from catchment GL-9 flows to the north into Lochness Lake, and finally into Ditch 53-62 before ultimately entering Golden Lake. Therefore, any proposed retrofits in GL-9 should be viewed first for their benefits to Lochness Lake and secondarily for their benefits to water quality in Golden Lake.



### EXISTING STORMWATER TREATMENT

Existing stormwater treatment practices within GL-9 consist of street cleaning with a vacuum assisted sweeper in the spring and fall and a network of stormwater treatment ponds that treat a large portion of the commercial and school land cover types. Again, catchment GL-9 is not as directly connected to Golden Lake as catchments GL-1 through GL-7 because it passes through Lochness Lake prior to entering Ditch 53-62. Catchment GL-9 was not modeled as part of the GL-2 through GL-7 network.

	<b>Existing Conditions</b>	<b>Base Loading</b>	<b>Treatment</b>	<b>Net Treatment %</b>	<b>Existing Loading</b>
<b>Treatment</b>	TP (lb/yr)	244.3	52.1	21%	<b>192.2</b>
	TSS (lb/yr)	72,311	26,444	37%	<b>45,867</b>
	Volume (acre-feet/yr)	192.6	0.0	0%	<b>192.6</b>
	Number of BMP's	2			
	BMP Size/Description	Street cleaning and existing ponds			

## RETROFIT RECOMMENDATIONS

The large areas of open space, the existing treatment by the network of stormwater ponds surrounding the commercial land cover, and the treatment presumably provided by Lochness Lake resulted in no recommended retrofits within catchment GL-9.

## Retrofit Ranking

The tables on the next page summarize the assessment results. The benefits of each project were estimated if that project were installed alone, with no other projects upstream of it in the same catchment. Reported treatment levels are dependent upon optimal siting and sizing. More detail about each project can be found in the catchment profile pages of this report. Projects that were deemed unfeasible due to prohibitive size, number, or were too expensive to justify installation are not included in the table on the next page.

Please note that retrofits from GL-8 (residential rain gardens and permeable asphalt) are included in a separate table. Catchments GL-8 and GL-9 are presented separately because they drain to Lochness Lake, where substantial water chemistry changes likely occur, upstream of Golden Lake. Catchments GL-8 and GL-9 were not modeled as part of the GL-2 through GL-7 network. Therefore, any benefits the proposed retrofits within GL-8 provide should be first viewed from the standpoint of Lochness Lake and secondarily from the standpoint of benefits to Golden Lake.

**Catchments GL-1 through GL-7: Summary of preferred stormwater retrofit opportunities ranked by cost-effectiveness with respect to total phosphorus (TP) reduction.** Total suspended solids (TSS) reduction is also shown. For more information on each project refer to the catchment profile pages earlier in this report.

Project ID	Catchment ID	Retrofit Type (refer to catchment profile pages for additional detail)	Projects Identified	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Estimated Installation Cost	Estimated cost/ 1,000lb-TSS/year (30-year)	Estimated cost/ lb-TP/year (30-year)
1	GL-5*	Pond Modification - Iron Enhanced Sand Filter	1	17.6 - 23.9	0	0.0	\$39,180 - \$64,180	N/A	\$145 - \$177
2	GL-2	Pond Modification - Iron Enhanced Sand Filter	1	35.2	0	0.0	\$89,180	N/A	\$167
3	GL-4*	Residential Rain Gardens	5 - 15	5.4 - 13.5	865 - 2,281	4.1 - 10.8	\$25,020 - \$71,420	\$1,398 - \$1,537	\$224 - \$260
4	GL-3	Residential Rain Gardens	5	4.1	674	3.2	\$25,020	\$1,794	\$295
5	GL-7	Residential Rain Gardens	5	3.9	676	3.2	\$25,020	\$1,788	\$310
6	GL-5*	Residential Rain Gardens	5 - 10	3 - 5.6	687 - 1,354	4.1 - 7.6	\$25,020 - \$48,220	\$1,741 - \$1,760	\$403 - \$421
7	GL-4*	New Pond with Expanded Drainage Area and Iron Enhanced Sand Filter	1	27.1	3,679	0.0	\$172,655 - \$228,215	\$3,129 - \$4,135	\$425 - \$629
8	GL-4*	New Pond with Expanded Drainage Area	1	13.9	3,679	0.0	\$120,780 - \$176,340	\$2,189 - \$3,195	\$579 - \$845
9	GL-4*	New Pond	1	9.7	2,249	0.0	\$95,630 - \$151,190	\$2,835 - \$4,482	\$657 - \$1,039
10	GL-1*	Golden Lake Park Rain Garden	1	0.7	371	1.1	\$19,960	\$1,996	\$1,139
11	GL-1*	Golden Lake Park Permeable Asphalt	1	0.7	432	1.2	\$133,014	\$10,752	\$6,531

\* Pollution reduction benefits and costs can not be summed with other projects in the same catchment because they are alternative options for treating the same source area.

**Catchments GL-8 and GL-9: Summary of preferred stormwater retrofit opportunities ranked by cost-effectiveness with respect to total phosphorus (TP) reduction.** Total suspended solids (TSS) reduction is also shown. For more information on each project refer to the catchment profile pages earlier in this report.

Project ID	Catchment ID	Retrofit Type	Projects Identified	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Estimated Cost	Estimated cost/ 1,000lb-TSS/year (30-year)	Estimated cost/ lb-TP/year (30-year)
A	GL-8	Residential Rain Gardens	5 - 10	2.8 - 4.5	581 - 1,003	3.7 - 6.2	\$25,020 - \$48,220	\$2,081 - \$2,350	\$493 - \$524
B	GL-8	Parking Lot Permeable Asphalt	1	6.9	3,409	6.7	\$716,562	\$7,351	\$3,644

## References

- Erickson, A.J. and J.S. Gulliver. 2010. Performance Assessment of an Iron-Enhanced Sand Filtration Trench for Capturing Dissolved Phosphorus. University of Minnesota St. Anthony Falls Laboratory Engineering, Environmental and Geophysical Fluid Dynamics Project Report No. 549. Prepared for the City of Prior Lake, Prior Lake, MN.
- Golden Lake TMDL. 2009. Prepared by Emmons & Olivier Resources, Inc. for the Minnesota Pollution Control Agency.
- Minnesota Stormwater Steering Committee. 2005. *Minnesota Stormwater Manual*. Minnesota Pollution Control Agency. St. Paul, MN.
- Schueler et. al. 2005. *Methods to Develop Restoration Plans for Small Urban Watersheds. Manual 2, Urban Subwatershed Restoration Manual Series*. Center for Watershed Protection. Ellicott City, MD.
- Schueler et. al. 2007. *Urban Stormwater Retrofit Practices. Manual 3, Urban Subwatershed Restoration Manual Series*. Center for Watershed Protection. Ellicott City, MD.

## **APPENDIX H**

### MOU for Local Water Planning and Regulation



May 6, 2016

Jim Keinath  
200 Civic Heights Circle  
Circle Pines, MN 55014

**RE: City of Circle Pines Execution of MOU for Local Water Planning & Regulation**

Dear Mr. Keinath,

On May 5, 2016 the Rice Creek Watershed District received the final executed copy of a Memorandum of Understanding (MOU) between the Rice Creek Watershed District and the City of Circle Pines for Local Water Planning and Regulation. The final execution of this MOU (enclosed) means that the District will cease to issue permits within the municipal boundary for RCWD Rules C, D, E, and F effective May 9, 2016. Please note that District will retain permitting authority for all other RCWD rules, specifically, RCWD Rules G and I as they pertain to the Crossings of Natural and Artificial Conveyance Systems and the Public Drainage system, respectively.

Final execution of this MOU means that the City will now fully enforce its own ordinances pursuant to the Rice Creek Watershed District Resolution 2016-04 dated January 27, 2016; City Ordinance No. 149 dated February 9<sup>th</sup>, 2016; and City Ordinance No. 150 dated April 26, 2016. Please understand that the District is available for any questions regarding the enforcement of the City's ordinances as it relates to the adopted RCWD Rules C, D, E, and F. Additionally, the District can make any files available to the City as it may pertain to any future project sites.

Moving onward, the District will look forward to working with the City on the following items:

- 1. The closure of any existing permits within the City that were issued by the Rice Creek Watershed District.**
  - This will include working with the District Inspector on providing any outstanding items necessary for permit closure as it pertains to the City of Circle Pines.
- 2. Meeting the volume banking deficit of 24,623 cubic feet that the City incurred from the 2012 Street and Utility Improvement Project, RCWD Permit #12-020.**
  - This will include closure of the Baldwin Park re-use facility, RCWD Permit #10-009 and any other permits that will help remove the debit. If the debit cannot be satisfied by permits issued by the District, then the City will need to make up for that deficit in future projects and provide evidence that the volume was provided and is sufficient to meet the debit.
- 3. Written memo from the District Engineer, based on the meeting on April 27, 2016 with the City engineer, where the City discussed their 2016 Street Project and planned permit.**
  - The purpose of the meeting and the memo is to ensure that the City understands District expectations and how the District Rules are to be implemented through the City's ordinances.

- 4. Completion of an Audit to occur in early 2017 for city permits issued under this MOU for calendar year 2016 pursuant to the MOU.**
  - The Audit will include review of up to 2 permits issued by the City under the City ordinances which adopt RCWD Rules C, D, E, and F. As part of this Audit, the District will want a list of the relevant permits issued by the City and will need enough detail to ensure that compliance with the RCWD Rules was achieved. The information contained in the memo from the District Engineer based on the meeting on April 27, 2016 as related to the 2016 Street Project will also be evaluated as part of the calendar year 2016 audit.
- 5. Wetland Conservation Act Technical Evaluation Panel (TEP).**
  - Since the City will now be the Local Government Unit (LGU) responsible for administering the Wetland Conservation Act (WCA) within its boundary, the District will need to be a part of the noticing on any wetland applications—as will all other members on the TEP. Please follow the Board of Water and Soil Resources and WCA guidance on noticing applications and obtaining the LGU status. The District would appreciate receiving a copy of the LGU transfer from BWSR once this occurs.
- 6. Potential project partnerships between the City and the District.**
  - The Anoka Conservation District prepared a Golden Lake Stormwater Retrofit Assessment which outlines potential project locations for stormwater management, the District would be happy to partner on grant opportunities if the City would be interested. This Assessment helped leverage Clean Water Grant Funds with the City of Blaine for an Iron Enhanced Sand Filter project. The District has two competitive grant programs in which the City and landowners can participate in—the Clean Water Grant program (smaller scale, rolling application accepted) and the Urban Stormwater Remediation Cost-Share grant (larger scale, cycle application period).

The District looks forward to continued partnership with the City and is available for any questions as needed.

Sincerely,



Phil Belfiori  
District Administrator

Encl. Final Executed MOU

CC: Jim Keinath, City of Circle Pines

## **MEMORANDUM OF UNDERSTANDING**

### **Between the Rice Creek Watershed District and the City of Circle Pines for Local Water Planning and Regulation**

This Memorandum of Understanding (MOU) is made by and between the Rice Creek Watershed District, a watershed district with purposes and powers as set forth at Minnesota Statutes Chapters 103B and 103D ("District"), and the City of Circle Pines, a statutory city of the State of Minnesota ("City").

#### ***Recitals and Statement of Purpose***

**WHEREAS** pursuant to Minnesota Statutes §103B.231, on January 4, 2010, the District adopted, and on November 12, 2014 it amended, its watershed management plan (WMP) detailing the existing physical environment, land use and development in the watershed and providing for water resource management to protect water resources, improve water quality, prevent flooding and otherwise achieve the goals of Minnesota Statutes Chapters 103B, 103D and 103E;

**WHEREAS** to achieve the policies and purposes of the WMP and pursuant to Minnesota Statutes §103D.341, the District has adopted and implements rules requiring permits for and otherwise regulating land disturbance;

**WHEREAS** pursuant to Minnesota Statutes §103G.2242 and associated statutes and rules, the District serves as the local government unit (LGU) for implementation of the Minnesota Wetland Conservation Act (WCA) except within the boundaries of a municipality that has undertaken to fulfill the role of LGU;

**WHEREAS** the City has developed a local water management plan under Minnesota Statutes §103B.235, titled "Water Resource Management Plan for the City of Circle Pines, Minnesota" and dated January 2016 that describes the existing and proposed physical environment and land use within the City and sets forth an implementation plan for bringing local water management into conformance with the WMP ("Local Plan");

**WHEREAS** on January 27, 2016, the District Board of Managers conditionally approved the Local Plan by adoption of Resolution 2016-04, which resolution is attached and incorporated herein;

**WHEREAS** Minnesota Statutes §103B.211 and the WMP provide that at the City's election and on the District's approval of the Local Plan, the District shall cease to apply its rules within the City boundaries, except as the District and City have agreed, and further that the District and City shall agree as to which will act as the WCA LGU;

**WHEREAS** pursuant to Minnesota Statutes §103B.235 and the WMP, District approval of the Local Plan requires a finding that the official controls of the City will protect water resources to a degree equivalent to that of the District rules, and further is conditioned on District approval of inspection and administrative procedures for the City's effective implementation and enforcement of its official

controls, and on mutual establishment of a framework for the District's periodic review of the City's regulatory program; and

**WHEREAS** District approval of the Local Plan is conditioned on execution of this MOU setting forth the respective roles and responsibilities of the District and the City in regulating potential water resource impacts within the City;

**NOW THEREFORE** the parties enter into this MOU in order to document the understanding of the parties as to the roles and responsibilities of each.

#### *Terms*

1. The City may exercise all present and future authority it otherwise may possess to issue permits for and regulate activities affecting water resources within the City.
2. The City in its Local Plan commits to adopting ordinances materially identical to those attached hereto as Exhibit A. The District will cease to apply its Rules C (Stormwater Management Plans), D (Erosion and Sediment Control Plans), E (Floodplain Alteration) and F (Wetland Alteration) within municipal boundaries when:
  - a. The District has confirmed that the City's ordinances are adopted and in effect; and
  - b. The District and City have agreed on written protocols for: (i) City procedures to administer and enforce its water resource ordinances, including maintenance of those stormwater practices constructed or installed for compliance with City ordinances pursuant to this MOU and that the City owns or has assumed the obligation to maintain; (ii) City transmission of information to the District regarding changes to the City's hydrology or conveyance systems that the District finds warranted to keep its watershed models and data systems current; and (iii) procedures for District review of City regulatory program implementation.
3. The City shall serve as the WCA LGU within municipal boundaries.
4. The District shall retain its regulatory authority in the following circumstances:
  - a. With respect to all District rules other than Rules C, D, E and F;
  - b. As to work by any public body that the City does not have the legal authority to regulate;
  - c. If the work requires a variance from City water resource ordinances;
  - d. If the City, in a specific case or programmatically, requests that the District exercise its regulatory jurisdiction;
  - e. If, in accordance with Section 8 of the WMP, the District Board of Managers finds that the City is not implementing its Local Plan; or

f. As required for the District to meet its legal obligations under its NPDES municipal stormwater (MS4) permit or any other independent law.

5. The City need not issue a permit for its own work, but shall document its review demonstrating that the work conforms to its water resource ordinances.

6. The District retains approval authority with respect to a comprehensive stormwater management plan under Rule C.5(f).

7. In issuing a permit under its stormwater management or floodplain alteration ordinance, the City shall require the drainage system repair easement set forth at Rules C.10 and E.4, as amended, to be conveyed to the District, which easement shall be subject to prior District review and approval.

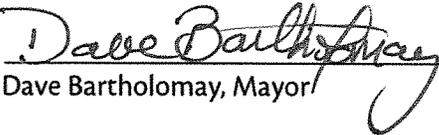
8. If the District revises its Rule C, D, E or F in a manner that it considers significant and so advises the City in writing, the City shall revise its own ordinance to maintain equivalent water resource protection. If the District has not approved the City's revision within six months or such other time as the parties may agree, the District may reassume regulatory jurisdiction with respect to the affected rule.

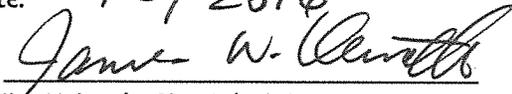
9. The District retains all authority that it may possess under Minnesota Statutes Chapters 103B, 103D and 103E and any other provision of law, except as explicitly reposed in the City under this Agreement.

10. This MOU may be amended only by a writing signed by both of the parties. Otherwise, this MOU will expire, and the District will reassume regulatory jurisdiction under its Rules C, D, E and F, two years after the District's adoption of its next decennial WMP revision or at such other time as the parties may agree.

**IN WITNESS WHEREOF**, the parties hereto execute this MOU.

**CITY OF CIRCLE PINES**

By   
Dave Bartholomay, Mayor

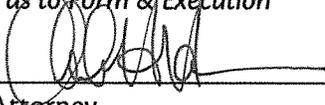
Date: 5/5/2016  
By   
Jim Keinath, City Administrator

Date: 4/19/2016

**RICE CREEK WATERSHED DISTRICT**

By   
Patricia Preiner, President  
Board of Managers

Date: 4/19/2016

Approved as to Form & Execution  
By   
Its Attorney

**RESOLUTION NO. 2016-04**

**RICE CREEK WATERSHED DISTRICT  
BOARD of MANAGERS**

**APPROVING the CITY of CIRCLE PINES  
LOCAL WATER MANAGEMENT PLAN**

Manager Waller offered the following resolution and moved its adoption, seconded by Manager Bradley :

**WHEREAS** pursuant to Minnesota Statutes §103B.231, on January 4, 2010, the Rice Creek Watershed District ("District") adopted, and on November 12, 2014 it amended, its watershed management plan (WMP) detailing the existing physical environment, land use and development in the watershed and providing for water resource management to protect water resources, improve water quality, prevent flooding and otherwise achieve the goals of Minnesota Statutes Chapters 103B, 103D and 103E;

**WHEREAS** to achieve the policies and purposes of the WMP and pursuant to Minnesota Statutes §103D.341, the District has adopted and implements rules requiring permits for and otherwise regulating land disturbance;

**WHEREAS** pursuant to Minnesota Statutes §103G.2242 and associated statutes and rules, the District serves as the local government unit (LGU) implementing the Minnesota Wetland Conservation Act (WCA) except within the boundaries of a municipality that has undertaken to fulfill the role of LGU;

**WHEREAS** the City of Circle Pines ("City") has developed a local water management plan under Minnesota Statutes §103B.235, titled "Water Resource Management Plan for the City of Circle Pines" (January, 2016), that describes the existing and proposed physical environment and land use within the City and sets forth an implementation plan for bringing local water management into conformance with the WMP ("Local Plan");

**WHEREAS** the Metropolitan Council received a copy of the local plan and provided comments on that plan to the District in accordance with Minnesota Statutes §103B.235, and the District finds that the City has adequately addressed those comments;

**WHEREAS** Minnesota Statutes §103B.211 and the WMP provide that if the City so elects, and on the District's approval of the Local Plan, the District shall cease to apply its rules within the City boundaries, except as the District and City have agreed;

**WHEREAS** the WMP further provides that through the Local Plan approval process, the City may assume the role of WCA LGU;

**WHEREAS** the City elects that the District not apply its rules for stormwater management, erosion and sediment control, floodplain alteration or wetland alteration (District Rules C, D, E and F, respectively) within City boundaries, and further elects to act as the WCA LGU;

**WHEREAS** pursuant to Minnesota Statutes §103B.235 and the WMP, to approve the Local Plan, the District must find that City ordinances will protect water resources to a degree equivalent to that of the four cited District rules, and further is conditioned on District approval of City inspection and administrative procedures to implement and enforce its official controls, and on a protocol for the District's periodic review of the City's regulatory program;

**WHEREAS** the WMP also states that if the City elects a sole regulatory role, the parties will sign a memorandum of understanding (MOU) to document and clarify the regulatory roles of each party;

**WHEREAS** draft City ordinances that would amend Section 1350 of the City zoning code and adopt Sections 1370, 1380 and 1390 to that code are attached as Exhibit A hereto; the ordinances would adopt District Rules C, D, E and F by reference; and therefore they would protect water resources to a degree equivalent to those District rules; and

**WHEREAS** the inspection and administration procedures, data updating protocol and regulatory program review protocol are important to establish a sound framework for ongoing District and City regulatory coordination;

**THEREFORE BE IT RESOLVED** that the RCWD Board of Managers hereby approves the City's Local Plan;

**BE IT FURTHER RESOLVED** that approval is conditioned on the parties' execution of an MOU conforming to the draft MOU attached as Exhibit B hereto;

**BE IT FURTHER RESOLVED** that the District will cease to apply Rules C, D, E and F within City boundaries except as stated in the MOU, when the following have occurred:

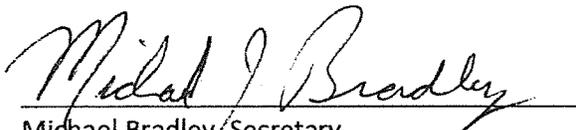
- The MOU has been fully executed;
- The City has adopted ordinances conforming to Exhibit A and protocols approved by the District administrator; and
- The City has transmitted official copies of the ordinances and protocols to the District, and the District has confirmed receipt.

**BE IT FINALLY RESOLVED** that the Board President is authorized to execute the MOU, on advice of counsel.

The question was on the adoption of the Resolution and there were 4 yeas and 0 nays as follows:

	<u>Yea</u>	<u>Nay</u>	<u>Absent</u>	<u>Abstain</u>
BRADLEY	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HAAKE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PREINER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WAGAMON	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WALLER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Upon vote, the Chair declared the resolution passed.

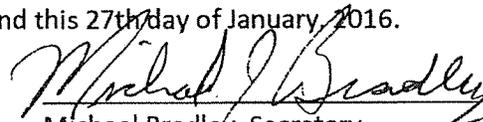
  
Michael Bradley, Secretary

Dated: January 27, 2016

\* \* \* \* \*

I, Michael Bradley, Secretary of the Rice Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with the District and find the same to be a true and correct transcript thereof.

IN TESTIMONY WHEREOF, I hereunto set my hand this 27th day of January, 2016.

  
Michael Bradley, Secretary

CITY OF CIRCLE PINES  
COUNTY OF ANOKA  
STATE OF MINNESOTA

ORDINANCE NO. 150  
(Second Series)

AN ORDINANCE AMENDING SECTION 1380 EROSION AND SEDIMENT CONTROL  
PLANS, AND SECTION 1390 WETLAND MANAGEMENT OF THE ZONING  
ORDINANCE

The City Council of the City of Circle Pines ordains:

**SECTION 1.** The City Council of Circle Pines hereby replaces Section 1380.01, Subdivision 2 of the City Code, to read as follows:

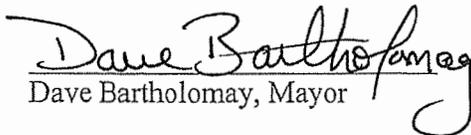
1380.01 Regulation. Subd 2. The application for the modification or alteration of Erosion and Sediment Control will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule D.

**SECTION 2.** The City Council of Circle Pines hereby replaces Section 1390.01, Subdivision 2 of the City Code, to read as follows:

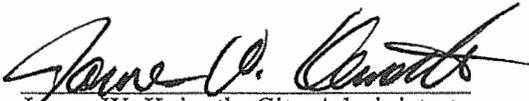
1390.01 Regulation. Subd 2. The application for the modification or alteration of Wetland Management will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule F, and the Wetland Conservation Act. (WCA)

**SECTION 3.** This ordinance shall be effective upon passage and official or summary publication.

Adopted this 26th day of April 2016, by the Circle Pines City Council.

  
Dave Bartholomay, Mayor

ATTEST:

  
James W. Keinath, City Administrator

First Reading: April 26, 2016

Second Reading: Waived

Published: Quad Community Press, May 3, 2016

(SEAL)

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~~CITY OF CIRCLE PINES~~  
COUNTY OF ANOKA  
STATE OF MINNESOTA

ORDINANCE NO. 149  
(Second Series)

AN ORDINANCE AMENDING SECTION 1350 STORMWATER MANAGEMENT,  
SECTION 1370 FLOODPLAIN MANAGEMENT, SECTION 1380 EROSION AND  
SEDIMENT CONTROL PLANS, AND SECTION 1390 WETLAND MANAGEMENT OF  
THE ZONING ORDINANCE

The City Council of the City of Circle Pines ordains:

**SECTION 1.** The City Council of Circle Pines hereby replaces Section 1350.01 and Section 1350.03 of the City Code, to read as follows:

1350.01 Findings. The City of Circle Pines hereby also adopts by reference, and as amended, Rice Creek Watershed District Rule C related to Stormwater Management Plans. The rules and regulations related to the review of Stormwater Management Plans will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rules.

1350.03 Scope and Effect. Variances. Minnesota Statutes 103B.211, subdivision 1(a)(3), any variance must be approved by the RCWD Board.

**SECTION 2.** The City Council of Circle Pines hereby replaces Section 1370.01, Subdivision 2 of the City Code, to read as follows:

1370.01 Regulation. Subd 2. The application for the modification or alteration of Floodplain will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule E.

**SECTION 3.** The City Council of Circle Pines hereby replaces Section 1380.01, Subdivision 2 of the City Code, to read as follows:

1380.01 Regulation. Subd 2. The application for the modification or alteration of Floodplain will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule E.

**SECTION 4.** The City Council of Circle Pines hereby replaces Section 1390.01, Subdivision 2 of the City Code, to read as follows:

1390.01 Regulation. Subd 2. The application for the modification or alteration of Floodplain will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rule E.

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**SECTION 5.** This ordinance shall be effective upon passage and official or summary publication.

Adopted this 9th day of February 2016, by the Circle Pines City Council.

  
Dave Bartholomay, Mayor

ATTEST:

  
James W. Keinath, City Administrator

First Reading: February, 9, 2016

Second Reading: Waived

Published by Summary: Quad Community Press, February 16, 2016

(SEAL)

City of Circle Pines  
County of Anoka  
State of Minnesota

ORDINANCE NO. \_\_\_\_

AN ORDINANCE PROMOTING THE HEALTH, SAFETY AND GENERAL WELFARE OF  
THE CITIZENS OF CIRCLE PINES MINNESOTA, BY AMENDING THE ZONING  
ORDINANCE SECTION 1350 STORMWATER MANAGEMENT ORDINANCE

The City Council of the City of Circle Pines ordains:

SECTION 1. The City Council of Circle Pines hereby amends  
Section 1350 Storm Water Management Ordinance of the City  
of Circle Pines Zoning Code, to read as follows:

**Section 1350-Storm Water Management Ordinance**

**1350.01 Findings.** The City of Circle Pines hereby finds that uncontrolled and inadequately planned use of wetlands, woodlands, natural habitat areas, areas subject to soil erosion and areas containing restrictive soils adversely affects the public health, safety and general welfare by impacting water quality and contributing to other environmental problems, creating nuisances, impairing other beneficial uses of environmental resources and hindering the ability of the City of Circle Pines to provide adequate water, sewage, flood control, and other community services. In addition, extraordinary public expenditures may be required for the protection of persons and property in such areas and in areas which may be affected by unplanned land usage.

The City of Circle Pines hereby also adopts by reference, and as amended, Rice Creek Watershed District Rule C related to Stormwater Management Plans. The rules and regulations related to the review of Stormwater Management Plans will be reviewed by the Local Governing Unit (LGU) in accordance with Rice Creek Watershed District Rules.

**1350.02 Purpose.** The purpose of this ordinance is to promote, preserve and enhance the natural resources within the City of Circle Pines and protect them from adverse effects occasioned by poorly sited development or incompatible activities by regulating land disturbing or development activities that would have an adverse and potentially irreversible impact on water quality and unique and fragile environmentally sensitive land; by minimizing conflicts and encouraging compatibility between land disturbing

and development activities and water quality and environmentally sensitive lands; and by requiring detailed review standards and procedures for land disturbing or development activities proposed for such areas, thereby achieving a balance between urban growth and development and protection of water quality and natural areas.

**1350.03 Scope and Effect.**

Subd. 1 Applicability. Every applicant for a building permit, subdivision approval, or a permit to allow land disturbing activities must submit a storm water management plan to the City Administrator. No building permit, subdivision approval, or permit to allow land disturbing activities shall be issued until approval of the storm water management plan or a waiver of the approval requirement has been obtained in strict conformance with the provisions of this ordinance. The provisions of section of this ordinance apply to all land, public or private, located within the City of Circle Pines.

Subd. 2 Variances. Pursuant to Minnesota Statutes 103B.211, subdivision 1(a)(3), any variance must be approved by the RCWD Board.

**1350.04 Penalty.** Any person, firm or corporation violating any provision of this ordinance shall be fined not less than five dollars nor more than five hundred dollars for each offense, and a separate offense shall be deemed committed on each day during or on which a violation occurs or continues.

**1350.05 Other Controls.** In the event of any conflict between the provisions of this ordinance and the provisions of an erosion control or shoreland protection ordinance adopted by the City Council the more restrictive standard prevails.

**1350.06 Severability.** The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

**SECTION 2.** This ordinance shall be effective upon passage and official publication.

Adopted this \_\_\_\_\_ day of \_\_\_\_\_ 2015, by the Circle

Pines City Council.

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Dave Batholomay, Mayor

ATTEST:

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James W. Keinath, City Administrator

First Reading:  
Second Reading:  
Published:

(SEAL)

City of Circle Pines  
County of Anoka  
State of Minnesota

ORDINANCE NO. \_\_\_\_

AN ORDINANCE PROMOTING THE HEALTH, SAFETY AND GENERAL WELFARE OF  
THE CITIZENS OF CIRCLE PINES MINNESOTA, BY ADOPTING ZONING  
ORDINANCE SECTION 1380 EROSION AND SEDIMENT CONTROL ORDINANCE

The City Council of the City of Circle Pines ordains:

**SECTION 1.** The City Council of Circle Pines hereby adopts its  
Section 1380 Erosion and Sediment Control as an amendment  
to the City of Circle Pines Zoning Code, to read as  
follows:

**1380.00 Erosion and Sediment Control.**

**1380.01 Regulation**

Subd. 1 The City of Circle Pines adopts by reference,  
and as amended, Rice Creek Watershed District Rule D  
regarding Erosion and Sediment Control.

Subd. 2 The regulation, design, construction activity,  
inspection, and final stabilization related to erosion  
and sediment control will be reviewed by the Local  
Governing Unit (LGU) in accordance with Rice Creek  
Watershed District Rule D.

**1380.02 Penalty**

Subd. 1 Any person, firm or corporation violating any  
provision of this ordinance shall be fined not less  
than five dollars nor more than five hundred dollars  
for each offense, and a separate offense shall be  
deemed committed on each day during or on which a  
violation occurs or continues.

**1380.03 Other Controls.**

Subd. 1 In the event of any conflict between the  
provisions of this ordinance and the provisions of a  
floodplain, wetland, stormwater management, or  
shoreland protection ordinance adopted by the City

Council the more restrictive standard prevails.

1380.04 Severability.

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

**SECTION 2.** This ordinance shall be effective upon passage and official publication.

Adopted this \_\_\_\_ day of \_\_\_\_\_ 2015, by the Circle Pines City Council.

\_\_\_\_\_  
Dave Batholomay, Mayor

ATTEST:

\_\_\_\_\_  
James W. Keinath, City Administrator

First Reading:  
Second Reading:  
Published:

(SEAL)

City of Circle Pines  
County of Anoka  
State of Minnesota

ORDINANCE NO. \_\_\_\_

AN ORDINANCE PROMOTING THE HEALTH, SAFETY AND GENERAL WELFARE OF  
THE CITIZENS OF CIRCLE PINES MINNESOTA, BY ADOPTING ZONING  
ORDINANCE SECTION 1370 FLOODPLAIN MANAGEMENT ORDINANCE

The City Council of the City of Circle Pines ordains:

**SECTION 1.** The City Council of Circle Pines hereby adopts its  
Section 1370 Floodplain Management as an amendment to the  
City of Circle Pines Zoning Code, to read as follows:

**1370.00 Floodplain Management.**

**1370.01 Regulation**

Subd. 1 The City of Circle Pines adopts by reference,  
and as amended, Rice Creek Watershed District Rule E  
regarding Floodplain Management.

Subd. 2 The application for the modification or  
alteration of Floodplain will be reviewed by the Local  
Governing Unit (LGU) in accordance with Rice Creek  
Watershed District Rule E.

**1370.02 Penalty.**

Subd. 1 Any person, firm or corporation violating any  
provision of this ordinance shall be fined not less  
than five dollars nor more than five hundred dollars  
for each offense, and a separate offense shall be  
deemed committed on each day during or on which a  
violation occurs or continues.

**1370.03 Other Controls.**

Subd. 1 In the event of any conflict between the  
provisions of this ordinance and the provisions of an  
erosion control, stormwater management, wetland, or  
shoreland protection ordinance adopted by the City  
Council the more restrictive standard prevails.

1370.04 Severability.

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

**SECTION 2.** This ordinance shall be effective upon passage and official publication.

Adopted this \_\_\_\_\_ day of \_\_\_\_\_ 2015, by the Circle Pines City Council.

\_\_\_\_\_  
Dave Batholomay, Mayor

ATTEST:

\_\_\_\_\_  
James W. Keinath, City Administrator

First Reading:  
Second Reading:  
Published:

(SEAL)

City of Circle Pines  
County of Anoka  
State of Minnesota

ORDINANCE NO. \_\_\_\_

AN ORDINANCE PROMOTING THE HEALTH, SAFETY AND GENERAL WELFARE OF  
THE CITIZENS OF CIRCLE PINES MINNESOTA, BY ADOPTING ZONING  
ORDINANCE SECTION 1390 WETLAND MANAGEMENT ORDINANCE

The City Council of the City of Circle Pines ordains:

**SECTION 1.** The City Council of Circle Pines hereby adopts its  
Section 1390 Wetland Management as an amendment to the City  
of Circle Pines Zoning Code, to read as follows:

**1390.00 Wetland Management.**

**1390.01 Regulation**

Subd. 1 The City of Circle Pines adopts by reference,  
and as amended, Rice Creek Watershed District Rule F  
regarding Wetland Alteration.

Subd. 2 The application for the modification or  
alteration of wetlands will be reviewed by the Local  
Governing Unit (LGU) in accordance with Rice Creek  
Watershed District Rule F and the Wetland Conservation  
Act (WCA).

**1390.02 Penalty.**

Subd. 1 Any person, firm or corporation violating any  
provision of this ordinance shall be fined not less  
than five dollars nor more than five hundred dollars  
for each offense, and a separate offense shall be  
deemed committed on each day during or on which a  
violation occurs or continues.

**1390.03 Other Controls.**

Subd. 1 In the event of any conflict between the  
provisions of this ordinance and the provisions of an  
erosion control, stormwater management, floodplain, or  
shoreland protection ordinance adopted by the City  
Council the more restrictive standard prevails.

1390.04 Severability.

Subd. 1 The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application.

**SECTION 2.** This ordinance shall be effective upon passage and official publication.

Adopted this \_\_\_\_ day of \_\_\_\_\_ 2015, by the Circle Pines City Council.

---

Dave Batholomay, Mayor

ATTEST:

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James W. Keinath, City Administrator

First Reading:  
Second Reading:  
Published:

(SEAL)



# City of Circle Pines Protocol Guide for Issuing Permits

Upon completion of a Rice Creek Watershed District Board approved Local Surface Water Management Plan and satisfactory City Ordinances, the City will enter into a Memorandum of Understanding which will cease Rice Creek Watershed District's administration of permits within the City for the following Rice Creek Watershed District Rules:

- Rule C, Stormwater Management Plans
- Rule D, Erosion and Sediment Control Plans
- Rule E, Floodplain Alteration
- Rule F, Wetland Alteration

Pursuant to the Rice Creek Watershed District Watershed Management Plan Chapter 8.3.2 the City of Circle Pines must also formulate inspection and administrative procedures necessary to ensure that the full regulatory standards of the District are met. This should include the following listed below:

1. Written procedural protocol for permit application review
2. Hydrologic/hydraulic data transmittal as it relates to the District model
3. Record keeping and Audit procedure

The District will cease to administer the identified rules within the City and the City must demonstrate an equivalent administration as well as applicant compliance with the Rules. By adopting ordinances, which reference the District rules verbatim, it is important to note that the City will be enforcing its own ordinances. It should be noted that the District may periodically amend any given rule and the City will be responsible to administer the rules through their ordinance to be consistent with their adoption date. The District will communicate any potential rule change through the statutory process for rule adoption. The City will complete the items listed below as requested by the District. If the City were to ever decide that they no longer wanted to administer their ordinances which reference RCWD rules within its jurisdiction, the District would want records of any permit application to be consistent and as detailed as any permit issued by the District.

## **1. RCWD Permit Application Review and Closeout Procedure**

### **a. Permit Application Review**

- i. During the first year or at the time that the first permits are issued by the City, the District and the City will complete a joint permit review to ensure that the City understands the requirements and expectations of the District's rules. This review will consist of the City sitting down with the RCWD permitting engineer to review plans and permit specificities.
- ii. Permit application review must develop a record documenting the project review in comparison with District rules. Permit application review for the City will include a checklist to document the proposal, the applicable rule criterion, and facts relevant to finding the criteria are met

- and in compliance with District rules; a file containing these documents will be maintained for a period of 10 years.
- iii. All administration is to be pursuant to MN § 15.99.
- iv. As part of the development review process, the City Council shall approve the final issuance of a permit.
- v. The City will choose to not incorporate a legal review process for issuing permits.
- vi. The City will provide the District with the required documentation demonstrating the maintenance obligations for Best Management Practices (BMPs), such as stormwater basins, used to meet the permit requirements. The City will also provide documentation on how these BMPs will be maintained.
- vii. Permit applications that trigger the need for an easement in the District's favor, such as those along the public drainage system, will be recognized early in the review process by the City and directed to the District to ensure that the appropriate easement is obtained.

**b. Permit Closeout Procedure**

- i. As part of the final close-out procedures, the City will require as-built plans or some verification that the BMP meets the approved plans and is functioning as designed. As-builts will verify the required treatment volume, emergency overflow elevations, inlet/outlet/sump elevations, drain tile elevations, surface contours, etc.
- ii. The City will require and ensure inspection of a 48 or 72-hour drawdown of all infiltration and filtration features. This will be completed by City contracted personnel.
- iii. The City will provide documentation showing all permit stipulations have been met. Stipulations typically include an as-built survey of stormwater features, quantification of floodplain or wetlands impact and mitigation areas, etc.
- iv. The City will require establishment of 70% vegetative cover prior to permit closure. Once established, all sediment and erosion control measures must be removed.

**2. Hydrologic/Hydraulic Data Transmittal**

The City will provide the items listed below at the District's request.

- Submittals of GIS shape files with the location of the permits.
- Submittal of Rule F, Wetland Alteration, digital file requirements, which include:
  - A GIS shapefile of the all delineated boundaries;
  - For on-site replacement wetland and buffer areas, a GIS or CADD file documenting sign locations.

- The District regularly updates a District Wide Model, and requests the transmittal of any hydrologic and hydraulic data for permitted projects that may pertain to it. This may include things like altering drainage patterns, replacing culverts, etc. Most likely this is only relevant for RCWD Rule C as the District will retain permit authority for culvert structures under Rule G, Crossings of Natural & Artificial Conveyance Systems and Rules I, Drainage Systems.
- RCWD Rule C.2 (c) and (d) includes provisions for cumulative impacts to trigger the rule. Therefore, it is possible for some work to have occurred under the District's jurisdiction, and any additional work thereafter to trigger regulation under the City's assumption of sole rule administration. For that reason, please be advised that the District's files are available for consideration of cumulative impacts.

### **3. Audit Process**

- The City will provide up to 2 of the permits issued by the city annually to the District for review.
- The City will require that all exhibits required as part of a selected permit to be submitted for the audit process. As part of the review process, the City will require, but is not limited to, the following:
  - A full set of project plans.
  - Soil borings at the BMP locations, reflecting compliance with approved design.
  - Drainage maps showing disturbed existing impervious surface and proposed impervious surfaces, and a summary tabulation.
  - Calculations used to determine the required runoff rates/volumes.
  - Identification of the specific location of all BMP(s), and associated formal and/or recorded maintenance agreements.
  - Any increase in impervious area requires either a hydrologic model, or additional calculations to show compliance with Peak Stormwater Runoff Control.
  - Guidance Worksheets or supporting calculations used to determine water quality volumes.
  - As-builts were obtained and show compliance with approved design and water quality treatment volumes.

# **APPENDIX I**

## Permitting Reference Documents



200 Civic Heights Circle, Circle Pines, MN 55014  
 Phone: 763-784-5898 [cityhall@ci.circle-pines.mn.us](mailto:cityhall@ci.circle-pines.mn.us)

For Office Use Only	
Permit App. #:	_____
Date Received:	_____
Amount/Payer:	_____
Check Number:	_____

## Permit Application Form

### Project Information

Project Name: \_\_\_\_\_  
 Project Location: \_\_\_\_\_  
 City or Township: \_\_\_\_\_ County: \_\_\_\_\_  
 Quarter: \_\_\_\_\_ Section: \_\_\_\_\_ Township: \_\_\_\_\_ Range: \_\_\_\_\_  
 Project Purpose: \_\_\_\_\_

Area of Land Disturbance (acres): \_\_\_\_\_ Area of New and/or Reconstructed Impervious Surface (acres): \_\_\_\_\_

### Contact Information (All contacts will receive permit status updates)

**Applicant/Landowner (must be landowner or easement holder of record, and must sign application on**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

**Official Representative (do not complete if same as above):**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

**Permitting Contact (developer, engineer, architect, wetland consultant, etc.):**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Authorized Agent? Yes No  
 Company: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

**Permitting Contact (developer, engineer, architect, wetland consultant, etc.):**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Authorized Agent? Yes No  
 Company: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

## Submittal Requirements

Applications submitted to the City must be complete and contain all required materials for each applicable Rule. See the Rice Creek Watershed District website for additional guidance and complete rules. The City will communicate an incomplete application status to the applicant, and no further action will be taken until additional submittals are received. Applicant must submit one (1) full sized copy (a readable 11" x 17" is acceptable) and either one (1) reduced size copy or an electronic copy of all required information. Projects involving a Wetland Replacement Plan have special noticing requirements, and require the submittal of four (4) copies of all wetland-related submittal materials. Permit applications involving wetland noticing must be submitted a minimum 50 calendar days prior to a regular City Council meeting; permit applications not involving wetland noticing must be submitted a minimum 40 calendar days prior to a regular City Council meeting.

**Permit Fee (check all that apply)**

**Rule C (Stormwater Management Plan)**

*Single Lot, Single Family Residential Development*

Home, accessory structure, driveway \$150

*All other Development*

<1 acre impervious surface \$1,000

1 to 2.5 acre impervious surface \$2,000

>2.5 to 5 acres impervious surface \$3,500

>5 acres impervious surface \$5000 + \$1,000/ac\*

\* capped at \$10,000, round to the nearest whole acre

**Rule D (Erosion Control Plans):**

<2.5 acres of land disturbance \$100

2.5 to 5 acres land disturbance \$250

>10 acres land disturbance \$500

**Rule E (Floodplain Alteration):**

No mitigation required \$0

Mitigation required \$100

**Rule F (Wetland Alteration)**

Exemption \$250

< 1 acre of mitigation required \$875

1 to 5 acres of mitigation required \$1,750

> 5 to 10 acres of mitigation required \$3,500

> 10 acres of mitigation required \$5,250

Banking Plan \$1,750

**Total Permit Fee: \$ \_\_\_\_\_**

Note: Permit fee is the cumulative total of all individual aspects of a project checked above. Government entities are exempt from permit fees.

**Applicant Signature**

"I understand that, as the permittee, I am legally accountable to ensure compliance with terms and conditions of the permit. I understand that I am not authorized to begin the project until I receive the permit and the sign is posted on site. If the project is modified, I will obtain approval by the City before I continue with the project. I authorize the City, and its agents, employees, officers and contractors, to enter the worksite at all reasonable times until permit closure to inspect the work authorized hereunder, and to take any reasonable action to address existing or threatened discharge of sediments or other pollutants into waters or offsite."

"I recognize that, as the permittee, I will be responsible for site conditions and permit compliance until the permit is closed or transferred by written City approval to a subsequent property owner. I confirm that the Applicant address stated on the front of this form is the official address to which all notices and correspondence relating to this application are to be addressed, unless the address of an authorized agent appears below. I certify that I have thoroughly read and understand the above information."

\_\_\_\_\_  
Signature of landowner

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print signer's name

\_\_\_\_\_  
Company (if applicable)

\_\_\_\_\_  
Title

## CITY OF CIRCLE PINES/ PERMIT 18-0\_\_

Expires on \_\_/\_\_/\_\_\_\_

Pursuant to the rules and regulations of the City of Circle Pines and the Rice Creek Watershed District policies and standards, and based upon the statements and information contained in the permit application, letters, maps, and plans submitted by the applicant and other supporting data, all of which are made part hereof by reference, permission is hereby granted to the Permittee named below to conduct the activity described below. **If an extension to the permit is needed, the Permittee should submit a written request to the City at least 2 weeks prior to the expiration date.**

<b>Name of Project</b>			
Project Description			
Project Location			
<b>Permittee Name</b>			<b>Permittee Company</b>
Permittee Address (No. & Street, City, State, Zip Code)			
Permittee Phone No.	Permittee Fax No.	Permittee Cell No.	Permittee E-Mail
<b>In accordance with the attached plan received at the City on (date received):</b>			

**Authorized Signature:**

\_\_\_\_\_  
Kathleen Thompson, Water Resources Engineer  
Date of Issuance: \_\_/\_\_/2018

## STIPULATIONS

The permit will be issued with the following stipulations as conditions of the permit. By accepting the permit, the Permittee agrees to these stipulations:

### GENERAL

1. An as-built survey of all stormwater BMPs (ponds, rain gardens, trenches, swales, etc) is to be submitted to the City for verification of compliance with the approved plans.

### EROSION AND SEDIMENT CONTROL STIPULATIONS

2. Erosion control measures shall be in place prior to grading activities and maintained through project completion. These features can include sediment logs, erosion blankets, sod, riprap, silt fence and temporary or permanent vegetation. Hay bales are no longer recommended due to the impedance of water flow.
3. All exposed soils, including stockpiles, shall be stabilized within 14 days if not being actively worked and after the completion of grading. Slopes steeper than 3:1 shall be stabilized within 7 days.
4. The City Inspector may require additional erosion control features, dependent on site condition.
5. Refer to the MPCA "Protecting Water Quality in Urban Areas" manual at <http://www.pca.state.mn.us/qzqha87> for BMP's.
6. Please contact \_\_\_\_\_, the \_\_\_\_\_, at \_\_\_\_-\_\_\_\_-\_\_\_\_ if you have questions or to discuss site stabilization practices.

### GENERAL PROVISIONS

1. The project shall be in accordance with the plans most recently submitted and approved by the City as part of the record of this project.
2. This permit is not assignable by the Permittee, except with the written consent of the City.
3. The Permittee shall grant access to the site at all reasonable times during and after construction to authorized representatives of the City for inspection of the work authorized hereunder.
4. In all cases where the Permittee, by performing the work authorized by this permit, shall involve the taking, using, or damaging of any property rights or interests of any other person or persons, or of any publicly owned lands or improvements thereon or interests therein, the Permittee, before proceeding, shall obtain the written consent of all persons, agencies, or authorities concerned, and shall acquire all property, rights and interests needed for the work.
5. This permit is permissive only. No liability shall be imposed on the City of any of its officers, agents, or employees, officially or personally, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the Permittee or any of its agents, employees, or contractors. This permit shall not be construed as estopping or limiting any legal claims or right of action of any person against the Permittee, its agents, employees, or contractors, for any damage or injury resulting from any such act or omission, or as estopping or limiting any legal claim or right of action of the City against the Permittee, its agents, employees, or contractors for violation of or failure to comply with the permit or applicable provisions of law.
6. Any stormwater management facilities approved as part of this permit shall be properly maintained in perpetuity to assure that they continue to function as originally designed.
7. After vegetation is in place and erosion control features have been removed, notify the City Inspector. Once the Inspector verifies that site conditions comply with all permit requirements, your cash surety will be returned to the remitter.
8. Failure to comply with the provisions of this permit is a violation of the law and may result in forfeiture of permittee's surety.



## City of Circle Pines Permit Review Checklist

Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_

WSB Project No. \_\_\_\_\_

Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

### **Submittals Received**

Date	Document	Author

### **Procedural**

- Signed plans
- Successful Bidder Signature
- City Doing Work:  Yes  No
- Additional Permits:
  - NPDES
  - Health Dept
  - Mn/DOT
  - County
  - FEMA/DNR

### **Stormwater Management (Rule C)**

1. Plan Review
  - Datum
  - Existing and proposed contours
  - Delineation of drainage boundaries including off-site areas

- Plans and specifications for all proposed stormwater management facilities, including design details for outlet control structures
- Easements
- EOF Locations and Elevations
- Basin NWL and HWLs
- Building Elevations
- Grading Limits
- Utility plan
- Certified Retaining Wall Design

2. Water Quality Treatment

- Sequencing: \_\_\_\_\_
- Required Water Quality Volume: \_\_\_\_\_
- Provided Water Quality Volume: \_\_\_\_\_
- Required Vs. Provided Water Quality Volume: \_\_\_\_\_  Surplus  Deficit
- Credit Provided For Pond Bench Toward Infiltration Requirement:  Yes  No

3. Rate Control

- Modeling calculations provided using NOAA Atlas 14 rainfall data
- Peak Discharge Rates < Existing for 2-year, 10-year, 100-year, and snowmelt events
- Model direct connected impervious separate

4. Infiltration/Retention BMPs

- Soil borings to confirm infiltration rate
- Pretreatment
- Drawdown within 48-hours
- 3' separation from seasonal high water table

5. Water Quality BMPs

- Meets NURP standards including:
  - Dead pool requirements
  - Water quality volume requirements
  - Skimmer
  - Maintenance access

6. Freeboard

- Groundwater Separation
- Building Opening:
  - At least 3' above 100-yr HWL; or
  - At least 2' above 100-yr HWL with following documentation:

- Provide flood storage volume within the freeboard area that is at least 50% of the flood storage volume below the 100-yr HWL; and
- 25% outlet obstruction does not increase the 100-yr HWL by more than 1'; and
- Adequate EOF from basin to provide assurance that 1' freeboard will be maintained for proposed low opening

Low Floor Elevation:

- 4' above the currently observed groundwater elevations in the area
- 2' above the elevation of any known historic high groundwater elevations
- 2' above the critical 100-yr HWL
- 1' above EOF
- For landlocked basins low floor must be 1' above the EOF or 1' above the HWL resulting of back to back 100-yr rainfalls and the 100-yr snowmelt

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**Erosion and Sediment Control (Rule D)**

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- SWPPP Provided
- Identification of all temporary and permanent erosion control measures. Includes, but is not limited to,;
  - Silt Fence
  - Storm Inlet Protection
  - Rock Entrance
  - Street Sweeping
  - Restoration
- Erosion Control Contact Person

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**Floodplain Alteration (Rule E)**

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- Floodplain elevations shown on plan
- Computation of change in flood storage capacity resulting from proposed grading
- Structure or embankments placed within the floodplain capable of passing the 100-year flood without increasing the elevation of the 100-year flood profile.
- 2-foot of freeboard between bottom of structures and 100-year flood profile.

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**Wetland Alteration (Rule F)**

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- Existing and proposed wetland areas shown on plans
- Wetland delineation report authorized for WCA use and consistent with BWSR guidance
- Wetland replacement plan application conforming to WCA requirements
- Functions and values assessment report involving at least one acre of wetland impact

## Chapter 5: Parks & Trails

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### Introduction

#### **City of Circle Pines Park and Trail System**

The City of Circle Pines anticipates very little population growth in the next 10-20 years. Circle Pines currently has a high number of parks located in the city. The city plans to continue our focus on updating and maintaining the existing parks and trails in the city.

The Circle Pines Parks and Trails map contained in this chapter illustrates the number of parks and trails in the city and the connections to the regional system.



# PARKS & TRAILS MAP



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**The Parks & Trails Plan includes the following information:**

1. Regional Parks and Trails
2. Park Classifications
3. Park Inventory
4. Park & Trail Goals
5. Park Plans
  - a. Carl Eck Park
  - b. Inner Park
  - c. Center Park
  - d. Baldwin
  - e. Heritage Commons
  - f. City Hall Park
  - g. Indian Hill Park
  - h. Golden Lake Park
  - i. Aspen Park
  - j. Pheasant Run
  - k. North Star
  - l. Tamarack

## 1. Regional Parks and Trails

***Rice Creek North Regional Trail Corridor:*** Circle Pines is in the fortunate position to be nearby the Rice Creek Chain of Lakes Regional Park Reserve. The Rice Creek North Regional Trail Corridor land, an exceptional regional amenity traverses almost the entire eastern municipal boundary. This parkland has the potential to provide residents with the multitude of recreational opportunities not otherwise available within the city. The parkland serves as a major natural resource area and recreational amenity to the community and plays a significant role within the city’s overall park and trail system plan.

Nearby, the 5,500-acre Rice Creek Chain of Lakes Park Reserve is one of the largest in the seven-county metropolitan area and contains some of the most significant native wildlife habitat and water resources in the regional area. The park offers a wide variety of amenities, including the Wargo Nature Center, Chomonix Golf Course, Rice Creek Campground, and Centerville Lake Beach. Other amenities include picnic areas, boat launch facilities, biking and hiking trails, playgrounds and a fishing pier. A unique partnership with the [YMCA Day Camp Heritage](#) offers another day camp opportunity for the community.

The Anoka County Parks Department is in the process of exploring the addition of single-track mountain bike trails to Rice Creek Chain of Lakes Park Reserve. While still in the planning phase, the proposed trail system would be a total of roughly 7-9 miles of single-track trails in 5 separate nodes within the park. The project would be completed in two phases over the course of a few years. Check out the map of the [proposed trails](#).

The city acknowledges the Council approved master plan boundaries of regional parks, park reserves, trail corridors and special recreation features by guiding the properties with the land use of “park”.

**Rice Creek North Regional Trail:** This is a regional trail that includes segments that are open to the public as well as planned segments that will be developed in the future. The trail enters Circle Pines from the southwest with connections to the local trail system. The regional trail travels through New Brighton, Arden Hills, Shoreview, Circle Pines, and Lino Lakes as it connects Long Lake Regional Park, Rice Creek West Regional Trail, Highway 96 Regional Trail, Lexington Parkway Regional Trail Search Corridor, and Rice Creek Chain of Lakes Park Reserve.

**East Anoka County Regional Trail:** This existing regional trail, open to the public, travels through the western edge of Circle Pines and connects the Anoka County Regional Trail and Rice Creek North Regional Trail.

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## 2. Park Classifications

Neighborhood Park- remains the basic unit of the park system and serves as the recreational and social focus of the neighborhood. Focus is on informal active and passive recreation.

Community Park- Serve broader purpose than neighborhood parks. Focus is on meeting community-based recreational needs, as well as preserving unique landscapes and open spaces.

Natural- Lands set aside for preservation of significant natural resources, remnant landscapes, open spaces, and visual aesthetics/buffering.

Youth Athletic- Contains programmed athletic fields and associated facilities.

### 3. Park Inventory

	Center	Inner	Carl Eck	Indian Hills	Golden Lake	North Star	Baldwin	City Hall	Tamarack	Aspen	Heritage Commons	E Golden Lake	Golden Lake School
Basketball		■			■								
Playground	■	■	■	■	■		■	■					■
Tennis					■								
Volleyball					■								
Baseball		■	■				■						
Hockey		■					■						
Pavilion	■	■	■		■		■				■		
Trails	■	■	■	■	■	■	■	■	■	■	■	■	■
Fishing Pier					■								
Concessions			■		■								
Canoe Launch												■	
Pickleball		■											
Programmed Athletics		■	■				■						
Community Gardens							■	■					
Restrooms			■		■								
Natural Spaces	■	■	■	■	■	■	■	■	■	■	■	■	■

#### **4. Park and Trail Goals**

To provide city residents with parks, trails and natural areas for recreation uses. To encourage outdoor play, visual/physical diversion from the hard surfacing of urban development and to maintain the character, ambience, appearance, and history of the community.

##### *Policy Statements*

Parks, natural resource areas, and related recreation facilities may be acquired and developed by Circle Pines in accordance with the plan for the purpose of shaping community development and establishing an image of balance between urbanization, parks, trail corridors, and natural areas.

Acquisition of specific parcels of land for park uses shall generally be based on the following criteria:

- 1 Quality of the land
2. Natural resources
3. Suitability for desired uses as determined by the Park Board, City Council and Planning Commission.
4. Location

The City shall reserve the right to acquire land within all development areas for park and trail purposes. This includes land acquired through dedication and land acquired through direct purchase by the City.

Park development standards shall be based on the principle of providing and maintaining quality parks and facilities. The principles of universal access/barrier-free design shall generally be applied to all parks and trails.

A reasonable and ongoing effort shall be made to eliminate all physical barriers that deter individuals from using existing or future parks and recreations facilities. Barrier-free design shall generally be applied to all parks and trails.

Design and maintenance procedures shall be consistent with accepted industry standards and be clearly defined and adopted. Design and maintenance of all parks and recreation facilities shall emphasize high quality, user safety, and cost accountability.

The Park Board and staff shall review and comment on all planned development matters that impact park land and trail corridor dedication, acquisition, and development.

## 5. Park Plans

### **Carl Eck Park**

Classification: Youth Athletic

Location: 2 Fire Bard Road (Fire Barn Road and West Road)

Approximate Size: 15.7 acres

#### *Existing Site Features*

1. (2) Little League fields with dugouts
2. Concession/restroom building
3. Children's play area with playground equipment
4. Access drive
5. Warm-up area/general use space
6. Parking area/Parking Lot
7. Wooded area along drainage ditch
8. Bridge across drainage ditch
9. Batting cage
10. Open space with scattered trees

#### *Existing Conditions/Characteristics*

The existing Little League fields are in good shape. The building is an aging structure but was built of durable materials. Improvements continue to be made around the playing fields. Concrete walks have also been added in recent years.

#### *Basis for Park Need*

As defined by the user groups, the demand for youth sports facilities is already high and continuing to grow. The existing fields are heavily programmed during the season of use, which runs from spring through mid-August. Carl Eck Park will continue to play a major role in providing much needed youth athletic facilities with the community. The concession building/restrooms are aging and is heavily used. Updating or replacement will be needed in the next 10 years.

#### *Interrelationship with Other Parks*

Carl Eck is viewed as a youth athletic complex that services the needs of the larger community.

#### *Other development items include improving the:*

Site aesthetics (landscaping, opening up vegetation along ditch, etc.) Continue to work to upgrade trail surfaces

**Inner Park**

Park Classification: Youth athletic

Location: 6 A Inner Drive (Inner Drive and Duen Way)

Approximate Size: 6 acres

*Existing Site Features*

1. Youth Baseball Field
2. Concessions/restroom building
3. Hockey rink
4. Basketball Court
5. Pickleball Courts
6. Children’s play area with play equipment
7. Parking area
8. Open play space
9. Access trail (from Center Park)
10. Access trail (from neighborhood)
11. Small Pavilion

*Existing Conditions/Characteristics*

The existing ballfield is in good shape. The hockey rink/basketball/pickleball surface was built in 2016 and is in good shape. The building is aging but built of durable materials. Improvements have been made around the building (walks and paving) and within the park (picnic tables and benches). The play equipment is new and appears to meet current standards. The parking lot is paved. Site landscaping is limited.

*Basis for Park Need*

Inner Park serves an important function by providing:

- Open space within a developed residential area
- Facilities for youth activities
- Facilities for neighborhood use

The existing athletic facilities are heavily programmed during the season of use. These facilities, along with the others listed, also provide for neighborhood needs. The mix of facilities in conjunction with its location will continue to make this park a valuable component of the park system.

*Interrelationship with Other Parks*

Inner Park should be viewed as one component of an interrelated system of parks that service community needs, as well as offering limited community-wide athletic needs. Its primary use focus is active recreation.

*Development Program*

Since much of the available space has already been developed, future development should concentrate on enhancing what is already there and improving the aesthetic quality of the park. Continue to work to upgrade trail surfaces

## **Center Park**

Park Classification: Neighborhood Park (with active recreation and social focus)

Location: Center Road and Crossway Drive

Approximate Size: 7.25 acres

### *Existing Site Features*

1. Playground Structure
2. Internal trail system (hard surfaced)
3. General Use Turf Area
4. Residential properties surrounding park
5. Trail access point from neighborhood
6. Picnic shelter
7. Baseball/Kickball Backstop

### *Existing Conditions/Characteristics*

Beyond the play equipment, the park offers a picnic shelter. Although the site is relatively level, the grade is often uneven and therefore difficult to use for even informal games. The landscaping is limited with little overall design character.

### *Basis for Park Need*

The location of Center Park makes it of vital importance to servicing neighborhood needs. This park has the potential to provide:

- Neighborhood recreation facilities focused on non-structured individual and family activities
- A social center for neighborhood gatherings
- Open space for informal group play (with limited use for organized or programmed activities)

### *Interrelationship with Other Parks*

Center Park should be viewed as the central focus of the interrelated system of parks that service community needs. Its primary function will be to service the neighborhood level recreation needs and the local social gatherings of the area.

### *Development Program*

One or more of the following facilities/amenities would be appropriate for the future development of Center Park (in no particular order):

- Enhance landscaping
- Hardcourt area (basketball and hard surface outdoor games)
- Lawn games area and volleyball court (grass or sand)
- General amenities (benches, picnic tables, grills, bike rack, drinking fountain, etc.)
- Continue to work to upgrade trail surfaces

## **Baldwin Park**

Park Classification: Youth athletic/neighborhood park

Location: Baldwin Drive and Keith Road

Approximate Size: 28.4 acres

### *Existing Site Features*

1. Baseball field (275')
2. Concessions/restroom building
3. Hockey rink with lights
4. Children's play area with play equipment
5. Access drive
6. Parking area
7. Wetland
8. Lowland forested communities
9. Upland hardwoods
10. Community Gardens
11. Paved trails

### *Existing Conditions/Characteristics*

The existing baseball field is in good shape. The building is a older structure and built of durable materials. Improvements continue to be made in the park, namely a new play structure and pavement around the building. The extensive wetlands provide an opportunity for natural resource preservation and passive recreation (although they preclude the development of additional active recreation facilities).

### *Basis for Park need*

As defined by the user groups, the demand for youth sports facilities is already high and continuing to grow. The existing field is heavily programmed for Centennial Baseball use during the season, which runs from spring through mid-August. The hockey rink, skating area, play equipment and building serve both the adjacent neighborhood and general park users. The surrounding wetlands provide open space. The paved trails in the park connect the neighborhood and park users to the Anoka County Trail System providing miles of hard surface trails.

### *Interrelationship with Other Parks*

Given its unique setting and past development, Baldwin Park serves a cross-section of community needs that cannot be categorized under only one classification. Although the primary land uses are already set, ample opportunity exists to improve the park's function within the park system. Since the park services are in the eastern half of the interrelated park system every effort should be made to maximize its potential.

### *Development Program*

One or more of the following facilities/amenities would be appropriate for future development in Baldwin Park:

- Picnic areas with shelter

- Improved site aesthetics
- Continue to work to upgrade trail surfaces
- Paved Parking Lot
- Rehab or rebuild building with restrooms and concessions

### **Heritage Commons**

Park Classification: Neighborhood Park

Location: Village Parkway

Approximate Size: Less than 1 acre

### **Existing Site Features**

1. Pavilion
2. Clock Tower
3. Obelisk
4. Benches
5. History Walk
6. Mayor's Walk
7. Labyrinth
8. Pier

### *Existing Condition/Characteristic*

Heritage Commons was built in the early 2000's. Most of the elements in the park are in good condition.

### *Basis for Park Need*

Heritage Commons provides a community gathering space in a multifamily/business area. The park was built in the early 2000's and is beginning to show its age. Items of need

- Vegetation management program
- Enhanced landscaping
- Trail restoration

### *Development Programs.*

- Continue to work to upgrade trail surfaces
- Improving the site aesthetics such as the landscape

### *Interrelationship with Other Parks*

Heritage Commons role is to provide a historical connection to the community as well as a gathering place for residents in the service area.

## **City Hall Park**

Park Classification: Community Park

Location: Civic Heights Circle

Approximate Size 14 acres

### *Existing Site Features*

1. City Hall
2. Area Food Shelf
3. Library
4. Post Office
5. Community Garden
6. Parking
7. Entrance circle with ornamental garden feature
8. Drainage pond
9. Sidewalks
10. Playground structure
11. Integrated trail system

### *Existing Conditions/Characteristics*

City Hall, other municipal buildings, and associated parking/drives consume much of the available site. The drainage pond serves as a storm water control basin, but offers ornamental possibilities. With the exception of the community vegetable garden, most of the remainder of the site is covered with turf grasses. Some high quality mature trees add to the overall appeal of the site. The ornamental character of the turn-around in front of the building begins to establish an ornamental character for the site which could be carried throughout more of the site.

### *Basis for Park Need*

The park serves primarily as a community park that provides an outdoor space to compliment and enhance the current civic buildings. It also serves an important neighborhood park function for the west-central portion of this area. Adding ornamental landscape elements will also add to the general appearance of the central civic feature of the community.

### *Interrelationship with Other Parks*

As a community park City Hall Park provides an outdoor space that aids in creating a positive community image and character. As a neighborhood park, it functions in conjunction with Baldwin Park to service the neighborhood-level recreation needs of this area. It also offsets the neighborhood park amenities removed from Tamarack Park.

### *Development Program*

The development program focuses on two primary components:

- Fostering the “city center” concept by enhancing the outdoor spaces surrounding the existing buildings
- Providing recreation amenities to service the needs of the surrounding neighborhood

Some of the facilities/amenities that are in the plan for the future development of City Hall Park:

- Enhanced landscaping
- A small gathering space with the picnic shelter/structure for small community groups and neighborhood gatherings
- General amenities
- New play structure
- Asphalt trail

**Indian Hills Park**

Park Classification: Neighborhood Park

Location: Indian Hills Drive

Approximate Size: 5.4 acres

*Existing Conditions/ Characteristics*

The playground equipment is in good condition. The turf areas are in fair conditions. Natural vegetation surrounds the developed area. A gravel trail provides access to the park and to the regional trail system (which connects the park with other parks in the area).

*Basis for Park Need*

Indian Hills Park services the neighborhood park needs in an area of the community not readily serviced by other parks. It also provides access from the neighborhood to the regional trail system that runs through the Rice Creek Regional Park Reserve.

Interrelationship with Other Parks

The primary role of Indian Hills Park is to provide neighborhood level recreation facilities for this fairly isolated area of the city. It functions in conjunction with Golden Lake School and Golden Lake Park to ensure that neighborhood level recreation needs are met.

Development Program

In addition to the existing facilities, one or more of the following facilities/amenities would be appropriate for the future development of Indian Hills Park:

- Vegetation management program
- Enhanced landscaping
- Lawn games
- Sitting areas/overlooks
- General amenities

**Golden Lake Park**

Park Classification: Community Park

Location: West Golden Lake Road

Approximate Size: 6.8 acres

*Existing Site Features*

1. Parking lot
2. Canoe/boat landing
3. Picnic area
4. 2 Pavilions
5. 2 Playground structures
6. Water play structure
7. Swimming/beach area
8. Fishing dock
9. Tennis court
10. Sand volleyball
11. Half-court basketball
12. Concession building with restrooms
13. Wooded area
14. Fitness Station
15. Trails and sidewalks

*Existing Conditions/Characteristics*

The park is in good condition and was renovated in 2001.

*Basis for Park Need*

- Additional programming in the park.
- Outdoor shower
- Additional amenities
- Enhanced landscape

*Interrelationship with Other Parks*

As a community park Golden Lake Park serves the broader community by providing important special use facilities. At the neighborhood level, the park works in conjunction with the other parks in this area to provide a full pallet of recreational opportunities for nearby residents.

**Aspen Park**

Park Classification: Natural resource area

Location: West Golden Lake Road

Approximate size: 19.4 acres

*Existing Site Features*

1. Lowland/wetland area
2. Internal trail system
3. Upland woodlot
4. Trail connection to neighborhood

### *Existing Conditions/Characteristics*

Aspen Park is largely a natural resource area with past development limited to a trail corridor that links the park with the surrounding neighborhood and park system. The existing woodlot exhibits some nice mature hardwoods. Unfortunately, invasive undergrowth in the woodlot plus elimination of the natural revitalization process (wild fires) is resulting in less diverse ecological systems which threatens the long-term vitality of this natural resource area. Immediate vegetation management is needed to forestall any deterioration.

### *Basis for Park Need*

Aspen Park provides needed open space as well as a natural resource amenity that enhances the overall character of the city. This park has the potential to provide:

- Natural observation and interpretive area
- A trail corridor that links the park developed areas with parks and nature areas
- Aesthetic amenity that softens the hardscape features of the developed city.

### *Interrelationship with Other Parks*

Aspen Park's primary role is to preserve the historic natural resources of the city and provide a park trail corridor and a setting for nature interpretation.

### *Development Program*

One or more of the following facilities/amenities would be appropriate for the future development of Aspen Park

- Natural resources management program
- Improved trail system that links the park with other parks and development areas
- Continue to work to upgrade trail surfaces
- Nature interpretive program
- Sitting areas, which could include small deck overlooks

## **Pheasant Run Park**

Park Classification: Greenway with natural resource component

Location: Canterbury Road

Approximate Size: 11.0 acres

### *Existing Site Features*

1. Lowland/wetland area
2. Internal trail system
3. Upland woodlot
4. Trail connection to neighborhood
5. Trail connection to Golden Lake School and regional park

### *Existing Conditions/Characteristics*

The park is a greenway with a trail corridor that links the park with the surrounding neighborhood and park system. The existing woodlot exhibits some nice mature hardwoods. Unfortunately, as with the other parks, invasive undergrowth in the woodlot

plus elimination of natural revitalization process is resulting in less diverse ecological systems which threatens the long-term vitality of this natural resource area. Vegetation management is needed to forestall any further deterioration.

*Basis for Park Need*

Pheasant Run Park provides a greenway open space and natural resource amenity that enhances the overall character of the city. This park has the potential to provide:

Nature observation and interpretive area

A trail corridor that links the park developed areas with parks and nature areas

Aesthetic amenity that softens the hardscape features of a developed city.

*Interrelationship with Other Parks*

Pheasant Run Park is considered a greenway because its primary function is to provide a park trail corridor. It also preserves the historic natural resources of the city and provides a setting for nature interpretation. It also offers some opportunity for community vegetable gardens.

*Development Program*

One or more of the following facilities/amenities would be appropriate for the future development of Aspen Park:

- Natural resources management program
- Improved trail system that links the park with other parks and development areas
- Continue to work to upgrade trail surfaces
- Sitting areas, which include small deck overlooks
- General amenities
- Community vegetable garden

**North Star Park**

Park Classification: Neighborhood Park

Location: North Star Lane and North Road

Approximate Size: 4.2 acres

*Existing Site Features*

1. Internal trail system (hard surface)
2. Woodlot (with extensive undergrowth)

*Existing Conditions/Characteristics*

*Basis for Park Need*

North Star Park provides much needed open space in a densely populated residential area. This park has the potential to provide:

- Ornamental and natural vegetation

*Interrelationship with Other Parks*

North Star Park primary role is to augment the amenities provided in Center Park. Whereas Center Park is a more active space and social gathering area, North Star would be more passive in character and offer the neighborhood a quiet, less active park area. The trail system provides a route to school.

*Development Program*

Vegetation management program and enhanced landscaping. Continue to work to upgrade trail surfaces.

**Tamarack Park**

Park Classifications: Natural resource area

Location: Oak Ridge Trail and Oak Road

Approximate Size: 17.8 acres

*Existing Site Features*

1. Internal trail system
2. Woodlot (with extensive undergrowth)
3. Wetland/watershed

*Existing Conditions/Characteristics*

The park is largely a wooded/wetland natural resource area. Although the existing woodlot exhibits some nice mature hardwoods and transitional forests, excessive invasive undergrowth is threatening the long-term vitality of the natural resources in this park.

*Basis for Park Need*

Tamarack Park provides open space in a populated residential area as well as natural resource amenity that makes the city an appealing place to live.

This park has the potential to provide:

- Nature observation and interpretive area
- A trail corridor that links the park with developed areas and other parks
- Aesthetic amenity that softens the hardscape features of developed city

*Interrelationship with Other Parks*

Tamarack Park's primary role is to preserve the historic natural resources of the city and provide a park trail corridor and setting for nature interpretations.

*Development Program*

Implement a natural resource management program to preserve the site's natural vegetation.

One or more of the following facilities/amenities would be appropriate for the future development of Tamarack Park:

- Natural resources management program

- Nature interpretive program (signage, observation points)
- Sitting areas
- Continue to work to upgrade trail surfaces

### Capital Improvement Plan

Description	Funding Source	Amount	Year
Baldwin Playground	Playground Equipment Fund	\$80,000	2025
Indian Hills Playground	Playground Equipment Fund	\$30,000	2027
Golden Lake EVO Playground Equipment #2	Playground Equipment Fund	\$75,000	2025
Aspen Park Trail Improvements/ Boardwalk	General Fund	\$80,000	2025
Golden Lake Fishing Pier	General Fund	\$75,000	2026
Tamarack Park Trail Improvements	General Fund	\$80,000	2027
Carl Eck Building/Restrooms	General Fund	\$75,000	2030
Pavilion in City Hall Park	Unfunded/Donations	\$100,000	2030
Center Park Playground	Playground Equipment Fund	\$80,000	2032
Carl Eck Park Playground	Playground Equipment Fund	\$40,000	2033
Golden Lake Exercise Equipment	Playground Equipment Fund	\$15,000	2033
Golden Lake Playground Equipment Burke#1 & Water Play	Playground Equipment Fund	\$100,000	2034
City Hall Playground Equipment	Playground Equipment Fund	\$100,000	2039

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## Chapter 6: Housing

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### Introduction

The housing component of this Plan provides a descriptive overview of the housing landscape of Circle Pines. Housing is discussed in terms its physical characteristics, the households that live here, and affordability. This Plan provides an opportunity to identify the housing **needs** that currently exist within the community. Recognizing the existence of housing needs allows for the development of **housing goals** that can guide City actions through the year 2040. These goals can be achieved by identifying specific **tools and strategies** that the city will consider using when the circumstances and timing allow.

### Existing Housing Assessment

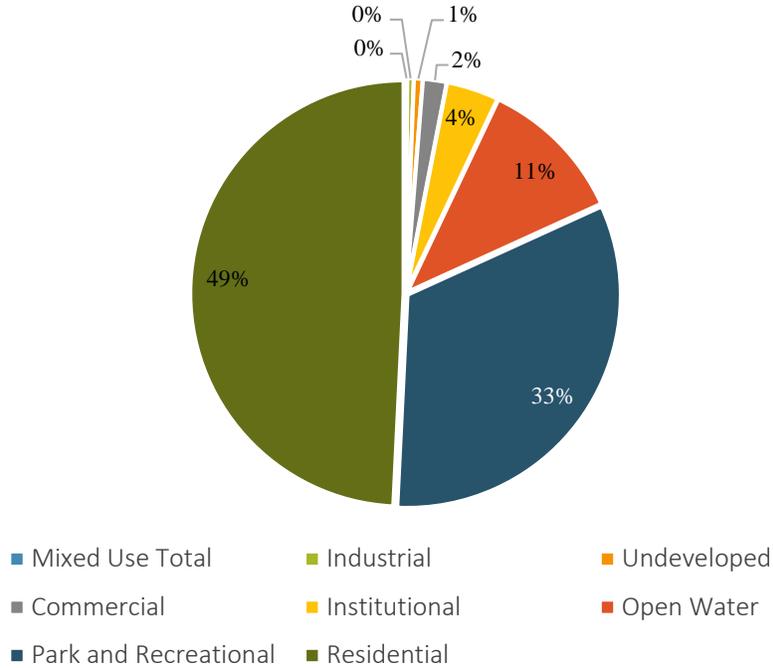
Circle Pines is a developed suburban community defined by its residential character.

### Housing by the Numbers

Half of the land in the city is devoted to residential uses, and the remaining half is largely made up of open and natural spaces. As a fully built community, only one percent of the land in the city remains undeveloped.

**FIGURE 1: EXISTING LAND USE IN CIRCLE PINES (SOURCE: METROPOLITAN COUNCIL 2016 GENERALIZED LAND USE)**

Circle Pines Existing Land Use (by percent of total acres)



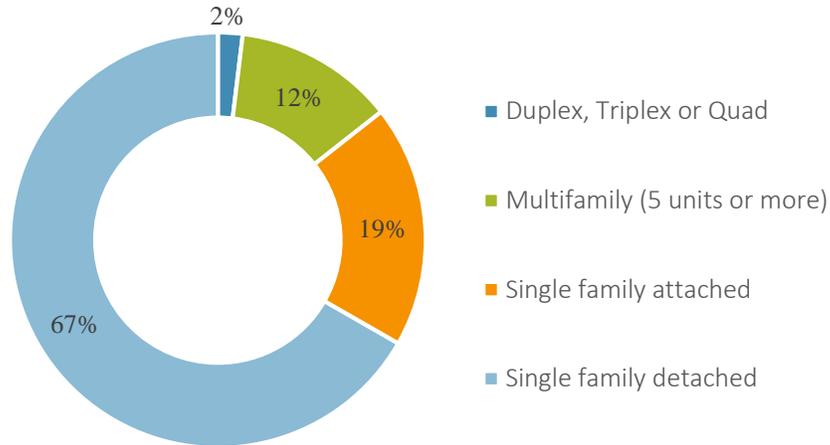
Of the 612 acres devoted to residential uses in Circle Pines, 88 percent of those acres contain single family homes.

Metropolitan Council estimates indicate there were 2,085 units of housing in Circle Pines in 2016. Approximately 1,785 units of the total housing are single-family homes; the remaining 300 are multifamily units, composed of some variety of “attached” housing, whether that be townhomes, multiplex housing, or apartments.

**FIGURE 2: HOUSING UNITS BY TYPE**

### Housing Units

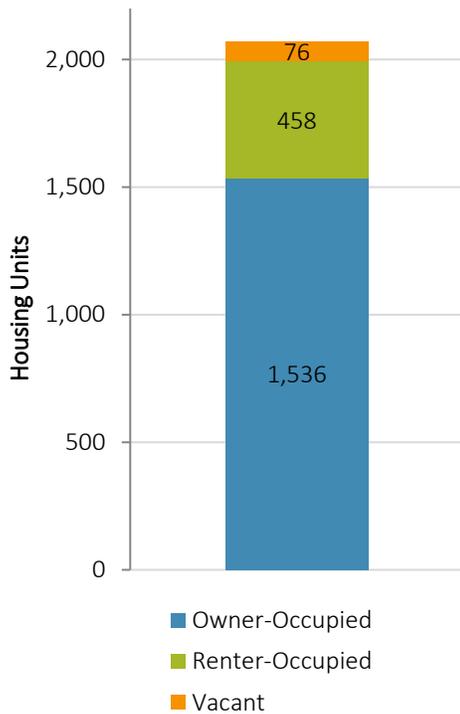
by number of units in structure



*Data source: Metropolitan Council (2016)*

**FIGURE 3: HOUSING TENURE**

### Tenure of Housing Units



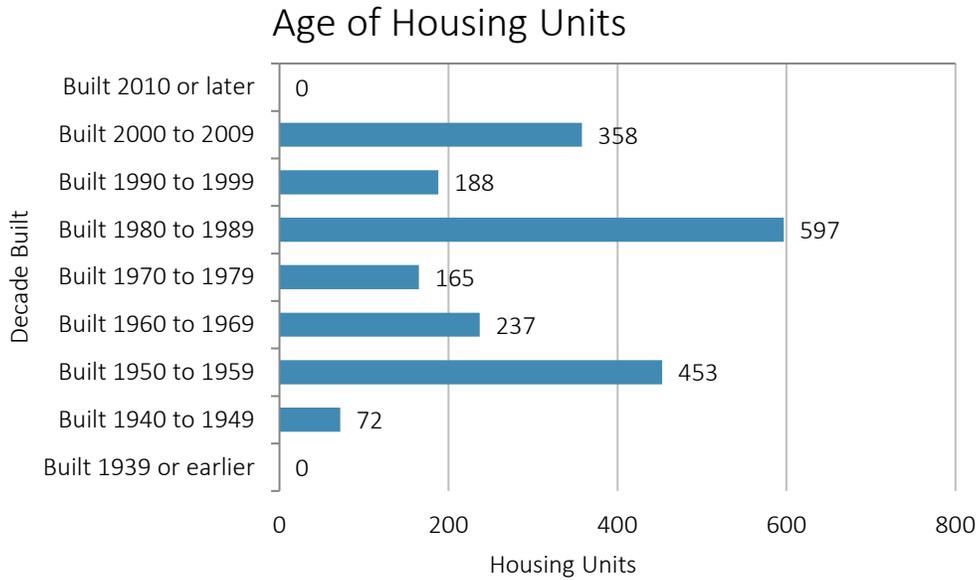
*Data Source: ACS 2012-2016*

Around three-quarters of Circle Pines housing units are owner-occupied, although that percentage has declined significantly in recent years. In 1990, fully 94 percent of housing units in Circle Pines were owner-occupied. As the overall number of housing units in the community has grown from around 1,600 in 1990 to over 2,000 today, renter-occupied housing is has become much more prominent feature of the City’s housing landscape.

In 2016, four percent of the City’s housing units were vacant.

There have been several spikes in housing construction in Circle Pines since the initial incorporation of the city in the 1940s, as shown in Figure 4. These housing spikes largely correspond with larger regional housing construction booms in the 1950s, 1980s and early 2000s. No housing has been built in Circle Pines in or after 2010.

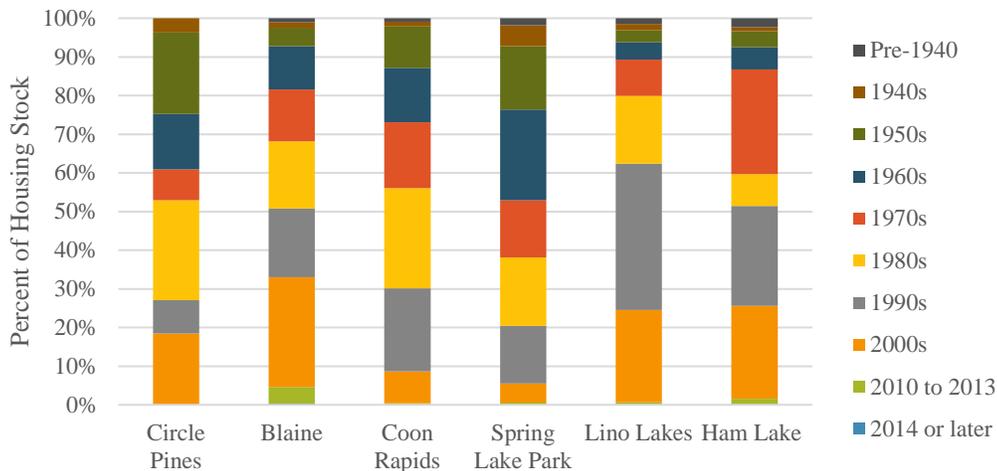
**FIGURE 4: AGE OF HOUSING UNITS IN CIRCLE PINES**



*Data source: ACS 2012-2016 Estimates*

In comparison to most of its neighboring cities, Circle Pines tends to have a greater representation of housing from the pre-1950s era and fewer homes from the 1990s

**FIGURE 5** Age of Housing Stock  
Circle Pines and Surrounding Cities (ACS 2015 Estimates)



decade. Like Coon Rapids and Spring Lake Park, most of Circle Pines’ housing was constructed prior to 1990 but unlike those two cities, Circle Pines has experienced a significant amount of post-1990s construction as well.

***Housing Affordability***

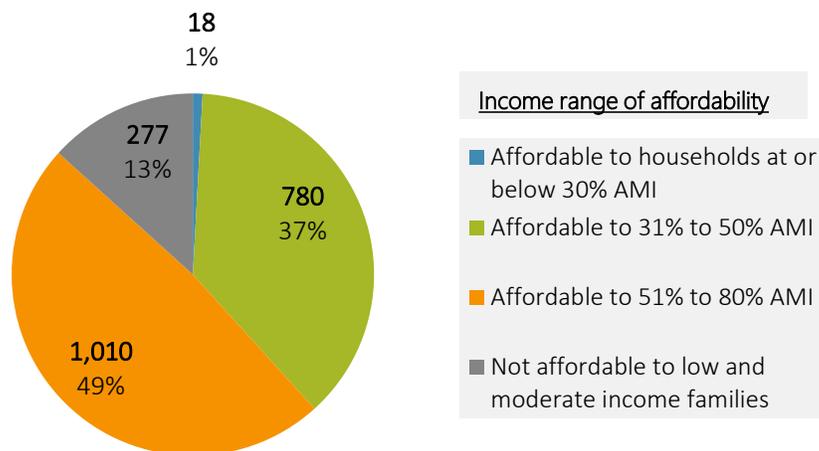
The Metropolitan Council looks at housing affordability through the lens of area median income, or AMI. For a family of four, regional AMI in the Twin Cities is \$85,800. Households that have an income at or below 80% of the regional AMI are the targeted population for affordable housing.

Per the Metropolitan Council’s 2016 Existing Housing Assessment for Circle Pines, fully 87 percent of Circle Pines’ 2,085 housing units are affordable to low- or moderate-income households that are at or below 80 percent of AMI. Of the total housing units in Circle Pines,

- 18 units (1 percent) are affordable to those households at or below 30% of AMI (below \$25,750)
- 780 units (37 percent) are affordable to those households between 31 and 50 percent of AMI (\$25,750 - \$42,900)
- 1,010 units (49 percent) are affordable to those households between 51 and 80 percent of AMI (\$42,900 - \$65,700)
- 277 units (13 percent) are not considered affordable

**FIGURE 6: AFFORDABILITY OF EXISTING HOUSING IN CIRCLE PINES**

Existing Circle Pines housing units by affordability level



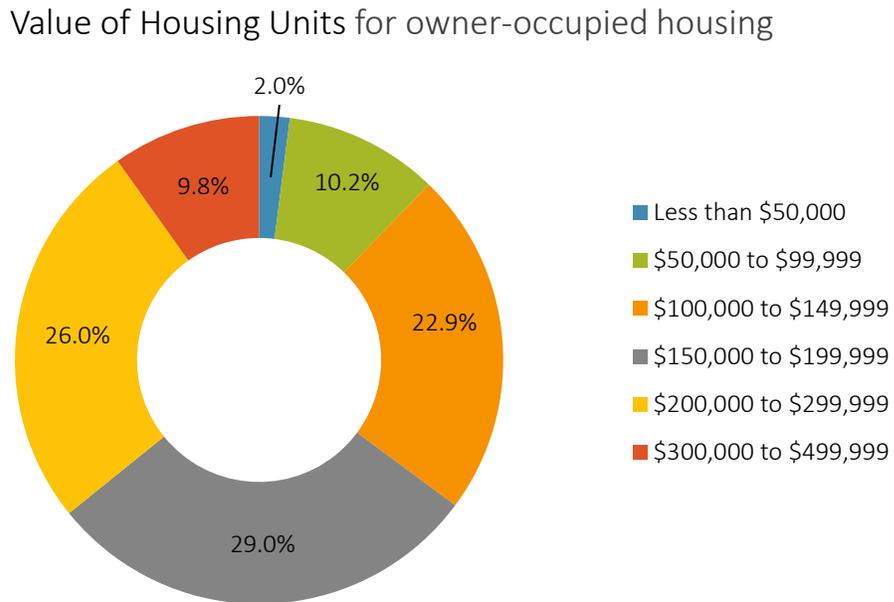
Data source: Metropolitan Council Existing Housing Assessment (2017)

Area median income for a family of four = \$85,800

There are 47 publicly subsidized housing units in Circle Pines, accounting for only 2 percent of total housing units in the City.

Three-quarters of Circle Pines’ housing is owner-occupied. The owner-occupied housing in Circle Pines is comprised of a range of values from across the affordability spectrum, and on the whole, can largely be considered affordable. Figure 7 shows that around two-thirds of homes in Circle Pines are values at or below \$200,000.

**FIGURE 7: VALUE OF OWNER-OCCUPIED HOUSING UNITS**



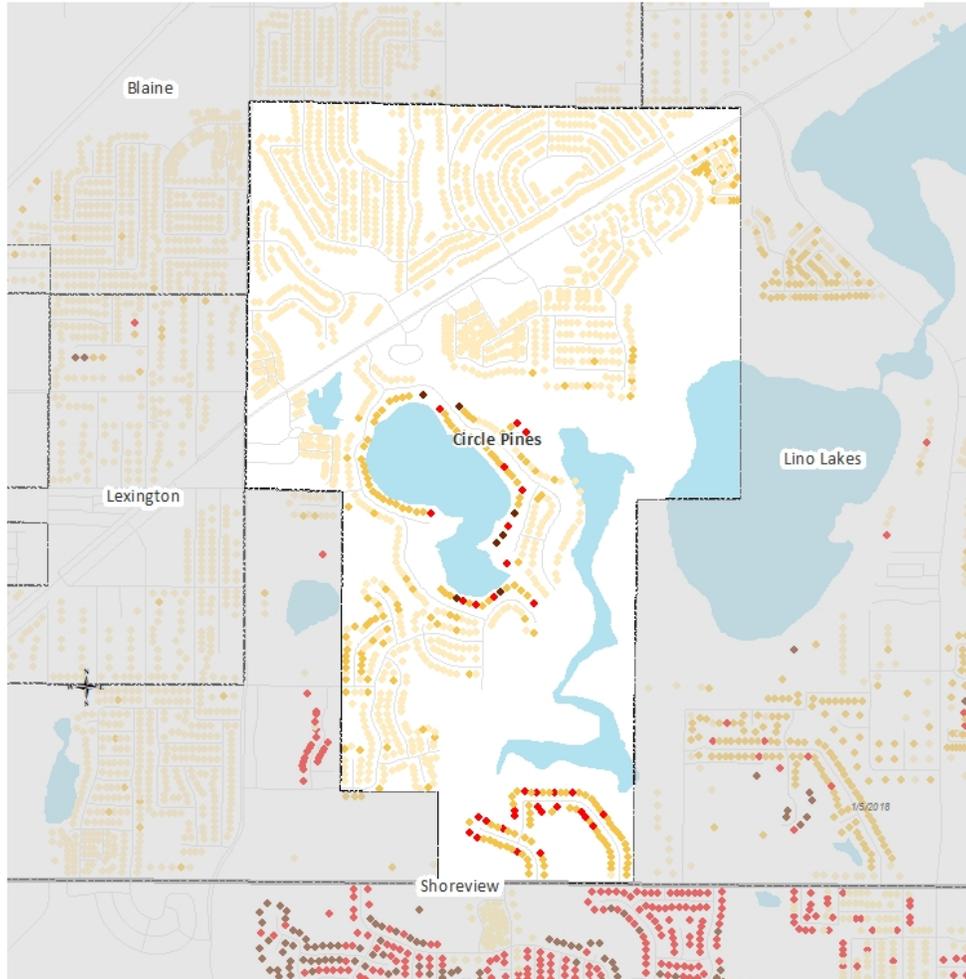
*Data source: ACS 2012-2016 Estimates*

Figure 8 from the Metropolitan Council gives a visual look at home affordability in Circle Pines, with affordability thresholds shown as colored dots ranging from light tan (homes valued at or below \$243,500 and affordable to those households making at or below 80% of AMI) to deep red (homes valued at more than \$450,000). This map shows that a majority of owner-occupied housing in Circle Pines is considered affordable to households at the threshold of 80 percent of AMI and below.

**FIGURE 8: MAP SHOWING RELATIVE VALUE OF OWNER-OCCUPIED HOUSING IN CIRCLE PINES**

**Owner-Occupied Housing by Estimated Market Value**

**Circle Pines**



 County Boundaries	<b>Owner-Occupied Housing Estimated Market Value, 2016</b>	1 in = 0.32 miles	
 City and Township Boundaries	 \$243,500 or Less		
 Streets	 \$243,501 to \$350,000		
 Lakes and Rivers	 \$350,001 to \$450,000		
	 Over \$450,000		

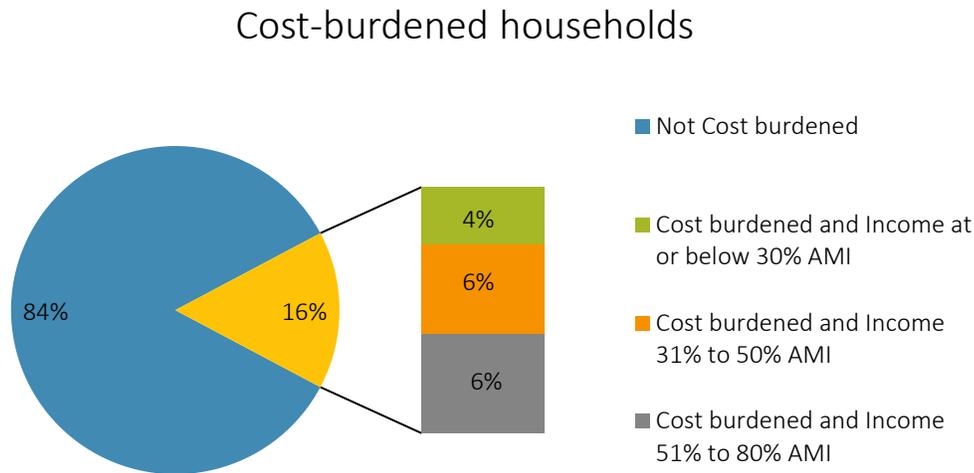
Source: MetroGIS Regional Parcel Dataset, 2018 estimated market values for taxes payable in 2017.  
 Note: Estimated Market Value includes only homes led units with a building on the parcel.

Shifting from a discussion of housing units to households, the Metropolitan Council’s Existing Housing Assessment also provides an evaluation of housing cost-burden in Circle Pines.

While the price of housing units relative to area median income is one measure of housing affordability in a community, another way to examine the impact of housing costs is by looking at cost-burdened households. Households are “cost-burdened” if their housing costs are at or over 30 percent of their income. This is an indicator of households that are spending a disproportionate share of their income on housing. The implications of a housing cost burden are most severe for households in the lowest income tier.

Figure 9 illustrates the share of households in Circle Pines that are cost-burdened (16 percent) and the income tier in which those cost-burdened households fall. While the vast majority of Circle Pines’ households are *not* considered cost-burdened, it is important to consider that factors that contribute to cost burden, including insufficient low-to-moderately priced housing, the mismatch or gap between of household incomes and housing costs, an increasingly tight housing market, and changing community demographics and housing preferences.

**FIGURE 9: HOUSING COST BURDEN IN CIRCLE PINES**



*Regional Housing Allocation*

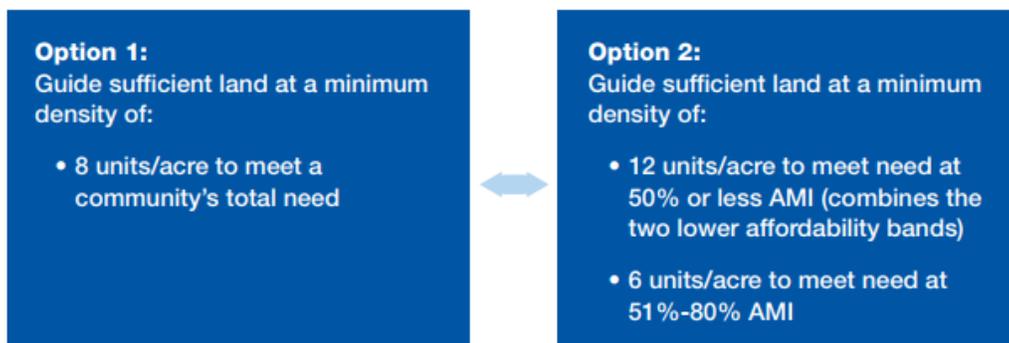
The Metropolitan Council published a Housing Policy Plan in 2014 as a component of *ThriveMSP 2040*, which includes a projection for the region’s need for new affordable housing units between 2021 and 2030. The Housing Policy Plan has

determined the affordable housing requirement for every community by affordability level, based on a household’s relationship to the area median income (AMI). To meet this overall regional need for new affordable housing, Circle Pines (along with most communities across the region) is expected to share the task of developing new affordable housing.

The City’s *existing* affordable housing share is one factor in determining Circle Pines affordable housing allocation, but it is not the sole factor. The Metropolitan Council considers the amount of projected growth in households for the 2021 – 2030 decade as a starting point, and then adjusts the affordable housing allocation based on a community’s existing share of affordable housing as well as the ratio of low-wage jobs to low-wage workers. Circle Pines is expected to grow in the 2021 to 2030 decade (although very modestly), and thus is responsible for a share of the region’s affordable housing allocation. Circle Pines’ 2021-2030 affordable housing share is shown in the table below.

<b>Affordable Housing Need Allocation, 2021-2030</b>	
At or Below 30% AMI	7
From 31 to 50% AMI	2
From 51 to 80% AMI	3
<b>Total Units</b>	<b>12</b>
<i>AMI = Area Median Income</i>	

As shown in the table above, the City must guide sufficient land in its Land Use Plan to accommodate **12 new affordable units** in the 2021-2030 decade. Metropolitan Council guidance establishes density as a proxy for planning for new affordable housing in the community. The Metropolitan Council defines two different mechanisms for guiding sufficient land in a community to meet the affordable housing allocation. As demonstrated in the Land Use chapter of this plan, Circle Pines has met the requirements using Option 1.

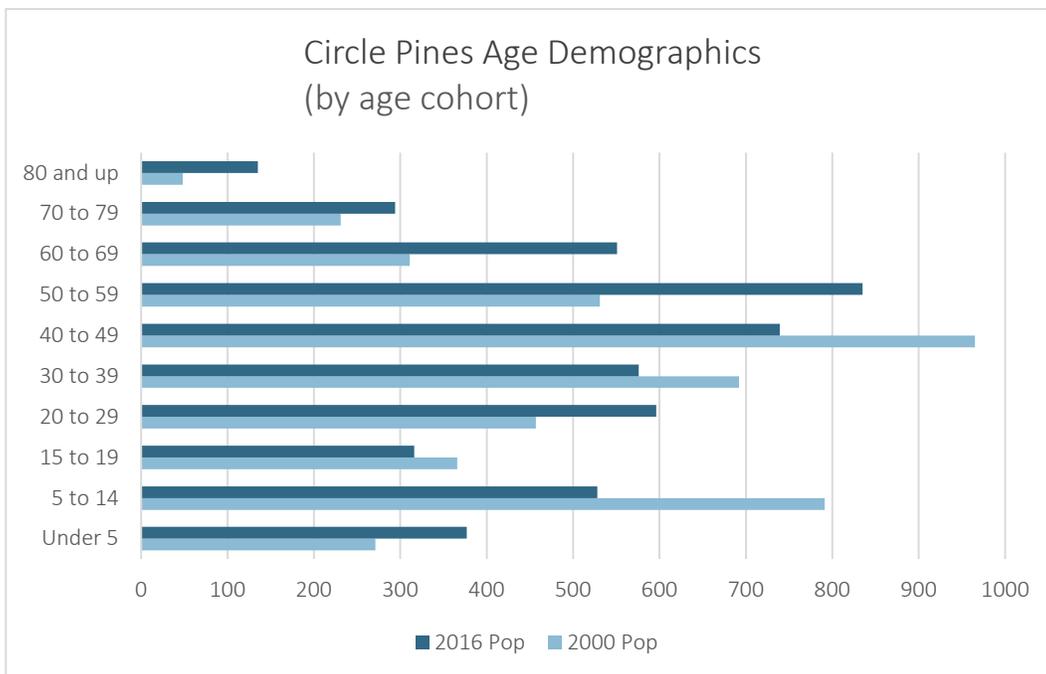


## Trends that Impact Housing

### 1. Aging population

The Twin Cities region overall is experiencing a demographic shift toward a greater proportion of senior residents, and this trend can be observed in Circle Pines where the greatest increases in population from 2000 to present have been in the older age categories (Figure 10 below). As the city experiences an increase in the share of older residents compared to twenty years ago, the housing needs and preferences of its residents may also shift. Seniors may look to downsize or relocate into housing that is appropriately designed for older adults, and may also desire assistance with housing maintenance on older homes. Many will look for opportunities to “age in place,” or remain in the community even as their housing and service needs change. Meeting the needs of older residents will be an increasing necessity over the decades to come.

**FIGURE 10: AGE OF CIRCLE PINES RESIDENTS, 2000 AND 2016**

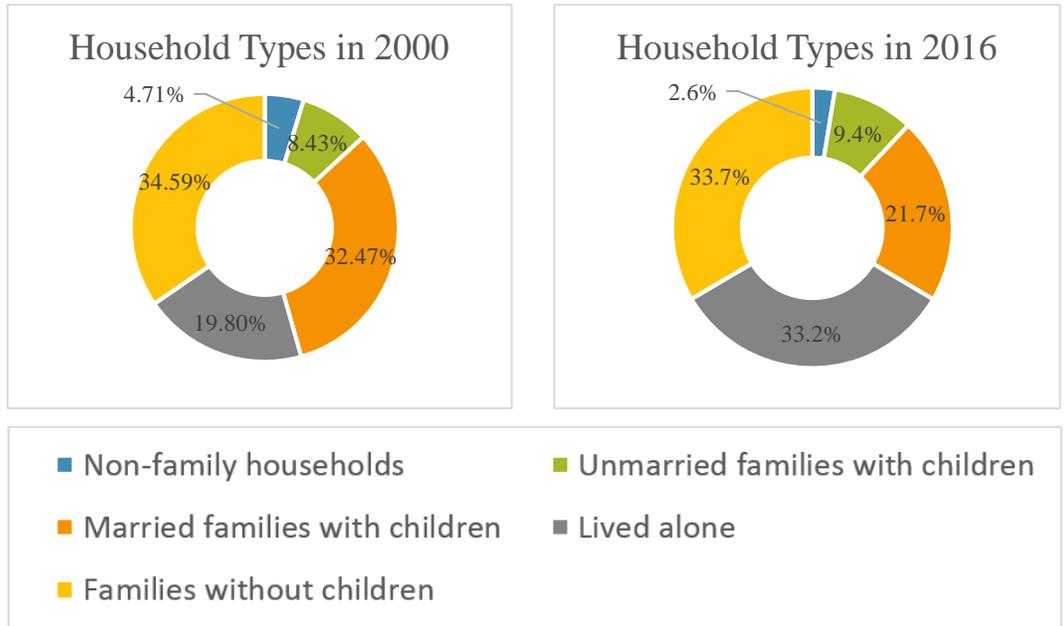


### 2. Shifting definition of “household”

A household may be made up of a single member, or may be comprised of several members who may or may not be related. In 2000, a third of Circle Pines households were married families with children, and 20 percent of households were people who lived alone. Now in 2016, those values have flipped: only 22 percent of households are married families with children, and fully 33 percent of households are people living alone. This mirrors an overall regional trend toward

more single-member households and “non-traditional” household structures. A shift of this nature is likely to have implications for housing demand, as preferences shift away somewhat from the traditional single family home.

**FIGURE 11: HOUSEHOLD TYPES IN CIRCLE PINES, 2000 COMPARED TO 2016**



### 3. *Deferred maintenance*

A large percentage of the homes in Circle Pines were built during or prior to the 1950s. Older homes tend to accrue general upkeep issues and run the risk of losing value if property owners are unable to keep up with maintenance demands. On the other hand, older homes also tend to comprise those housing units considered “naturally affordable” because of their older style and general depreciation of housing value over time. Maintaining the value of the existing housing stock without sacrificing affordability will be a key housing goal over the next 25 years.

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## Housing Goals

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*Provide housing opportunities, which meets the needs of all generations and income levels, particularly varying type of independent and accessible senior housing.*

*The City supports the development of well-designed and appropriately located multi-family housing projects when these developments improve access to affordable housing and transit, creative positive community impacts, and preserve natural resources.*

*As housing preferences change, the city supports taking actions that improve the quality of the existing housing stock and supports the development of housing meets the needs of the population today.*

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## Tools to Achieve Housing Goals

The following tools are available to implement Circle Pine's affordable housing goals.

### Tax Increment Financing

Circle Pines may create a tax increment financing (TIF) district with the TIF bonds issued used to support the construction of affordable housing.

### Anoka County Community Development

Anoka County Community Development offers assistance programs, including CDBG and HOME funds, when funding is available that support housing rehabilitation and affordable housing projects. Circle Pines will continue to work with the County HRA when appropriate and funding, programs and opportunities become available.

### Zoning Regulations

Circle Pines will continue to monitor its zoning and subdivision ordinances to make certain that its regulatory policies align with its housing goals and aspirations as outlined in this Plan. Zoning regulations should be in alignment with and support the City's housing goals.

### First Time Homebuyer, Down Payment Assistance and Foreclosure Prevention Programs

The City encourages residents to access existing programs available through Anoka County Community Action Partnership, as well as the Minnesota Homeownership Center and the StartUp program through Minnesota Housing. The City will continue to form partnerships with external organizations who offer these programs and seek to provide referral information wherever possible. These programs will be especially valuable to households

at or below 80% AMI that would otherwise face extreme hardships in purchasing or maintaining a home.

### **Rental License, Inspection and Code Enforcement**

Circle Pines already offers inspections and enforcement programs as well as a rental licensing program. These programs help to ensure that properties are well-maintained, and that rental tenants have access to safe and fair living environment. The City intends to continue these programs, which help Circle Pines achieve its housing maintenance goals.

### **Anoka County Community Action Partnership**

ACCAP offers a variety of programs and service to Circle Pines community that help to achieve the City's affordable housing goals. ACCAP manages affordable rental properties, offers housing rehabilitation and weatherization funding, home ownership education and foreclosure prevention counseling, and crisis funding. Many of these programs are targeted to low-to-moderate income households. Circle Pines will continue to make appropriate referrals to ACCAP and work with this organization to help achieve the City's affordable Housing goals.

### **Housing Bonds**

HRAs can issue bonds that help to develop and administer affordable housing developments or programs. Cities may make or purchase loans using the proceeds of the bond sales for activities such as new construction, acquisition and rehabilitation, or refinancing bond debt. There are specific affordable unit thresholds that must be met in bond-financed projects. Bond-supported projects would typically support affordable housing for the 50% and 80% AMI bands.

The City will consider issuing bonds at the request of housing developers, using housing bonds to support the development of both rental and ownership housing units that are affordable at or below 50% of the AMI, if the project is financially viable and contributes to a wide spectrum of housing (including types and price points) in the City and bonds are requested by housing developers. The City will also consider using housing bonds for financially viable projects targeting 80% AMI or below which would attract younger residents, or more generally contribute to the mix of housing for all stages of life.

### **Tax Abatement**

Tax abatement is a financing tool that reduces taxes or tax increases for owners of specific properties. Local governments offer the tax reduction to provide a financial incentive for a public benefit, such as creation of housing affordable to low and moderate-income households.

This currently not a preferred financing strategy. The City is unlikely to consider using tax abatement to support development. However, Circle Pines will consider requests for tax abatement in extraordinary circumstances.

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### **MHFA Consolidated Request for Proposals**

This major annual funding request from Minnesota Housing Finance Agency supports affordable housing development.

The City will continue to work with developers in coordination with MHFA in supporting RFP submissions for projects that will bring a significant number of new affordable units, and will urge more support for projects that meet affordability thresholds of 50% AMI or below as a reflection of the City's greatest cost-burdened need.

### **Site Assembly**

Many government agencies use public funds to purchase and assemble re/development sites to further housing goals. This practice can make eventual development easier by removing the complications of site assembly. Unlike many private developers, cities are often able to hold re/development sites until market conditions or site assembly make a project feasible.

The City will consider policies and participation in programs or opportunities that encourage reserving publicly owned properties, and other site assembly techniques for affordable housing. The City will monitor and consider acquisition of properties that can be assembled and developed into a public good project, including the production of affordable housing or maintaining existing affordable housing.

### **Livable Communities Grants**

Circle Pines is willing apply for Livable Communities grants on behalf of developers who provide a level of affordable housing (80% AMI and below) and the guaranteed length of affordability that generates a public benefit greater than the resources required to apply for and administer the livable community grants.

### **Fair Housing Policy**

If the City pursues a Livable Communities grant, Circle Pines will adopt a fair housing policy prior to applying for the funding, which is required of all recipients. Such a policy would allow the city to declare its commitment to fair housing and to plan proactively both to avoid fair housing issues, manage fair housing complaints, and to take advantage of opportunities to increase housing choice.

### **Participation in Housing-related Organizations, Partnerships, and Initiatives**

City staff or elected officials will consider increased involvement in events, collaborations, or programs that support furthering fair and affordable housing. Staying proactively involved in affordable housing discussions with other jurisdictions and agencies will allow Circle Pines to stay apprised of current programs, opportunities, and best practices.

### **Community Land Trust (CLT)**

CLTs provide permanent affordability for income-eligible households. Typically, a CLT is structured where a homeowner owns the building and the land trust leases the land to the homeowner. Households that make at or below 80% of AMI typically qualify for these homes. Two Rivers CLT serves the area of the Twin Cities region that includes Circle Pines. Although there is not an active CLT working within Circle Pines, the City can signal its support for CLT initiatives as a means of providing homeownership affordability in perpetuity in the community.

### **Affordable Housing Preservation**

Affordable housing preservation funding is available through MN Housing, Greater Minnesota Housing's NOAH Impact fund and others.

The City will explore funding opportunities as they become available that could help incentivize owners to preserve existing affordable housing units and maintain/improve their properties.

### **4(d) Tax Incentives**

Non-subsidized properties may be eligible for a tax break if the owner of the property agrees to rent and income restrictions (serving households at 60 percent AMI or below) and receives "financial assistance" from federal, state, or local government.

Circle Pines will consider stating its intent to support the 4d Tax Program as part of a broader strategy for preserving affordable multifamily housing.

### **Low-Income Housing Tax Credits**

Low-Income Housing Tax Credits (LIHTC) provide a reduction in federal tax liability to owners and investors of qualified low-income housing developments. Expiration of these tax credits after the term limits expire can result in displacement of low-income tenants if the owner chooses not to keep the units affordable. As a City, Circle Pines plans to work to preserve LIHTC units as affordable when possible, coordinating with owners, and ease the transition of low-income renters to new housing when preservation is not possible.

## Chapter 7: Economic Competitiveness

### Circle Pines Strives to Maintain and Cultivate a Vibrant Business Community

Successful businesses are important to our community because they provide goods and services, as well as job opportunities, for our citizens. We want our businesses to be profitable, well-served by the city services they receive for their tax dollars, and active members of the community.

#### Goals:

1. Identify redevelopment opportunity areas and set a vision for what these areas are.
2. Encourage environmental remediation of redevelopment areas
3. Target older commercial areas for high quality redevelopment which will improve the tax base and employment opportunities in the City
4. Redevelopment should be done in consultation with the City’s capital improvements plan
5. Promote pedestrian and transit-friendly developments to are interconnected to the current parks and trail system
6. Evaluate the use of TIF and other programs that might provide assistance for commercial areas.

#### Policy

Explore the costs of economic development and housing redevelopment and their benefits. This policy could utilize TIF and Tax Abatement along with other grant programs such as CDBG to accomplish the goals set out below. The City could also potentially benefit from utilizing the economic development or housing redevelopment authority (EDA/HRA).

#### City Bond Rating

The City of Circle Pines is very cautious to maintain and strengthen the City’s bond rating. The City holds an “AA+” bond rating with the S & P and is on track to become a “AAA” rated. The excellent bond rating helps to ensure the City’s debt will be issued at the lower possible interest rate which in turn is a cost savings to the tax payers.

#### Economic Tools:

1. TIF – Tax Increment Financing – The City is granted the power to establish a tax increment finance districts (TIF Districts). The City has used TIF districts to redevelop blighted areas in the past and it has been a very effective tool.
2. Tax Abatement – The City has the power to use Tax Abatement by the State of Minnesota. The purpose of Tax Abatement is to encourage desirable redevelopment that would not otherwise occur without the assistance provided by the Tax Abatement.

### **Economic Growth Opportunities / Redevelopment**

The properties listed below are possible redevelopment sites that have been identified by the city. While the city intends to allow the private market to drive the redevelopment, the city would consider providing assistance and resources to projects on a case-by-case basis and for those projects that meet the goals of this plan. While these sites have been identified for redevelopment additional sites could be added as market conditions change. Identification as a redevelopment site only indicates the potential for redevelopment and does not indicate the existence of the proposed redevelopment.

1. 10100 Lake Drive

This property is located at 10100 Lake Drive directly beneath the City’s water tower. This property closed in 2009 and has remained vacant since that time. April 2019 the building on this property was demolished and the site will soon be ready for redevelopment. This property is zoned C-2 Commercial/Shopping Center District, therefore it could be redeveloped into a restaurant.

2. 9201 Lexington Avenue-Strip Mall

This property was built in 1964 and contains all commercial businesses and is zoned C-2 Commercial/Shopping Center District. This is the oldest commercial property in Circle Pines and therefore could be a candidate for redevelopment.

3. 2 Pines Drive-Glen Oaks Center-Strip Mall

This property was built in 1988 and contains a mixture of commercial businesses. This property is zoned C-2 Commercial/Shopping Center District.

4. 4203 Woodland Road-Alternative Learning Center

This commercial property is currently leased by the Centennial School District and is used as the alternative high school. The school district plans on consolidating the alternate school onto school owned property in the next few years. This property was built in 1974 and sits on about 2 acres. This property is zoned C-3 Commercial/Industrial.

5. 9 Golden Oak, 640 Civic Heights Drive & 2 Vacant lot behind these properties

640 Civic Heights Drive and 9 Golden Oak are zoned commercial and the vacant properties are zoned residential. The current properties were built in the 1980’s and 1990’s and could serve as a site for possible redevelopment.

## Chapter 8: Resilience

### Energy Infrastructure and Resources

The City of Circle Pines recognizes the importance of protecting access for solar energy systems. The decisions regarding the development of these systems will be made on the basis of provisions within the City’s Code. These provisions would include solar orientation, structure separation and height restrictions.

The City has taken steps to help protect and promote energy efficiency in a fully developed community by using tools such as offering low cost energy audits to residents, providing resources and brochures on energy efficiency, and utilizing building codes to keep new construction energy efficient.

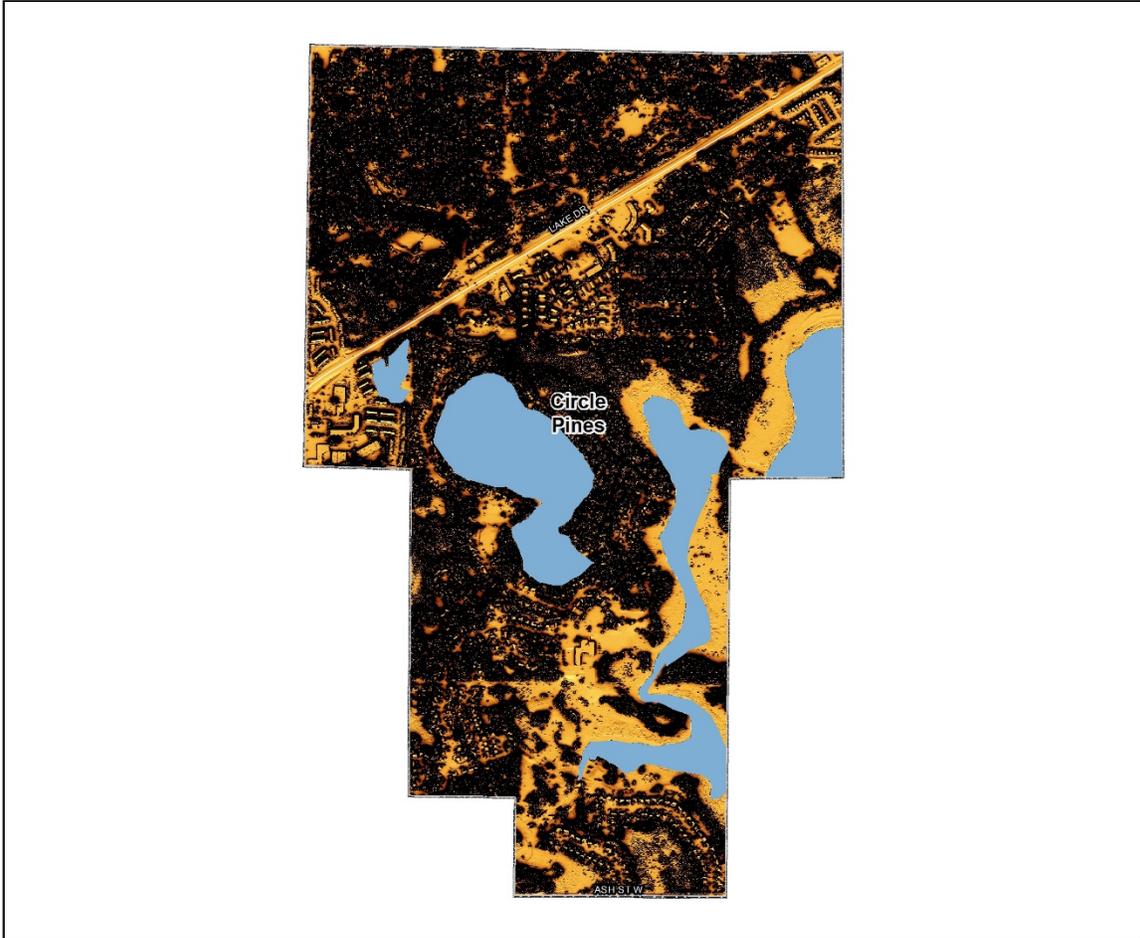
### Solar Access Protection

The goal of solar access protection is to guarantee access to direct sunlight for solar energy systems and to encourage the development and use of solar energy systems to help offset the projected scarcity and increasing costs of conventional fuels.

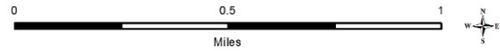
The table below shows the gross solar generation potential and the gross solar rooftop generation potential for Circle Pines. These values are expressed in megawatt hours per year (Mwh/yr), and these estimates are based on the solar map displayed on the following page. They estimate how much electricity could be generated using existing technology, assuming a conversion efficiency of approximately 10%. They are not intended to demonstrate the amount of solar likely to develop within the City; instead, the calculations estimate the total potential resource before removing areas unsuitable for solar development or factors related to solar energy efficiency.

Gross Potential (Mwh/yr)	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr)	Rooftop Generation Potential (Mwh/yr)
1,708,795	138,867	170,879	13,886

## Gross Solar Potential City of Circle Pines, Anoka County



12/5/2016



### Gross Solar Potential (Watt-hours per Year)

High : 1265724  
Low : 900002

-  Solar Potential under 900,000 watt-hours per year
-  County Boundaries
-  City and Township Boundaries
-  Wetlands and Open Water Features

Source: University of Minnesota U-Spatial Statewide Solar Raster.

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## Chapter 9: Implementation

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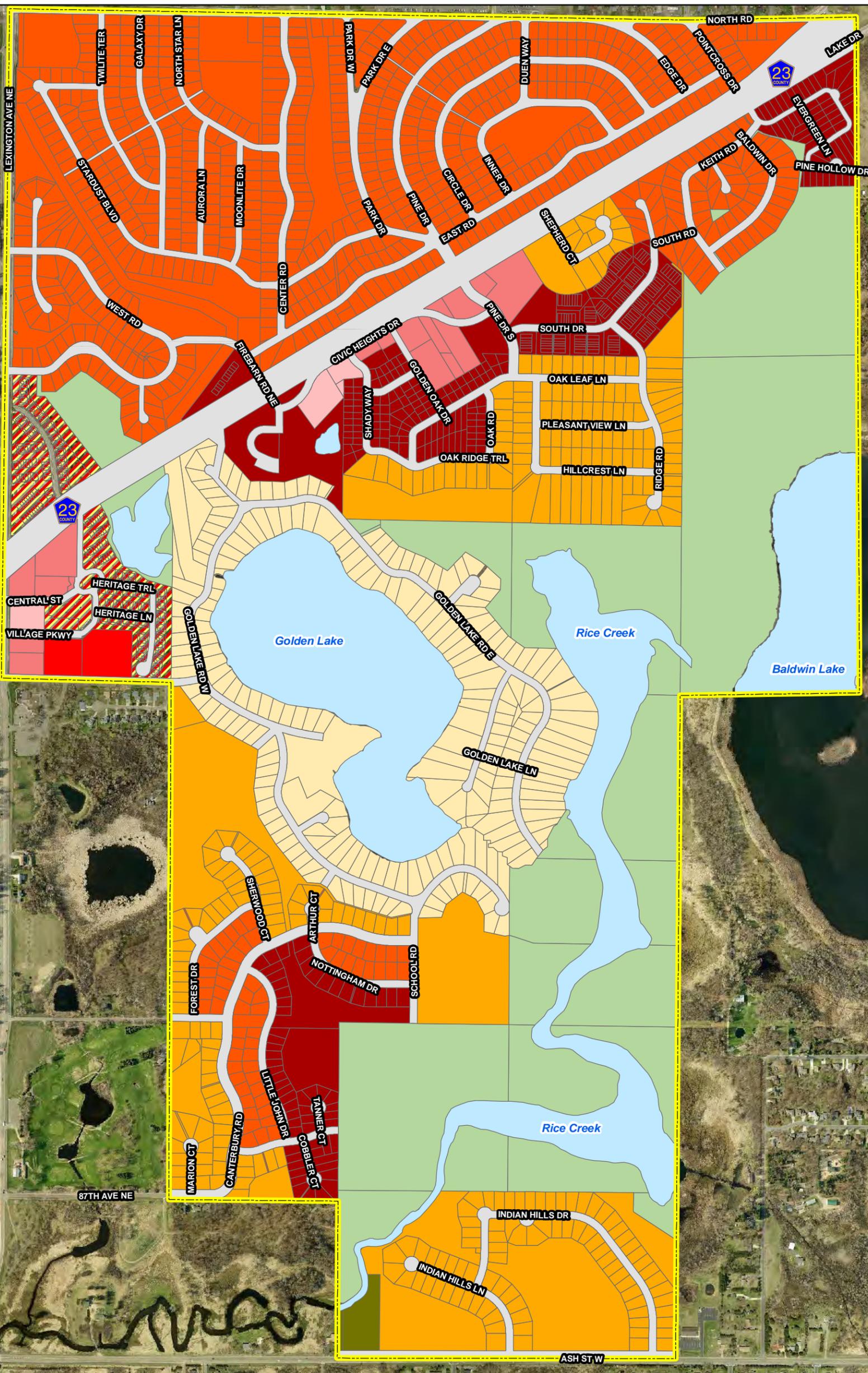
The implementation of the 2020-2040 Comprehensive Plan will utilize official controls such as the zoning code and subdivision regulations to assist in making decisions. The Capital Improvement Plan identifies projects to be implemented and the source of funding. Through these local controls the city will remain proactive in replacing public facilities through maintenance programs to avoid unforeseen costly repairs and projects.

### Official Controls

#### Zoning Code

The City of Circle Pines Zoning Ordinance, Chapter 13 in the City Code, contains the following district provisions. The location of these districts is indicated on the Zoning map. The zoning ordinance directly reflects the type, location and intensity of uses described in the land use plan. The City will also make changes to the code that would pertain specifically to the unique circumstances of Circle Pines. The City will review and make changes to the zoning code as needed.

<b>District</b>	<b>Principle Permitted Uses</b>
R1, R2, R3,	Single Family Dwellings
R4	Multi-family Dwellings
C1	Neighborhood Commercial
C2	Shopping Center Commercial
C3	Commercial Industrial
MU	Mixed Use

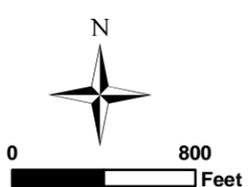


	Municipal Boundary		R-4 Single Family Residential (79 acres)		C-2 Shopping Center (18 acres)
	R-1 Single Family Residential (115 acres)		R-A Agriculture Residential (3 acres)		C-3 Commercial/Industrial (5 acres)
	R-2 Single Family Residential (181 acres)		MU Mixed Use (21 acres)		P/OS Public/Open Space (321 acres)
	R-3 Single Family Residential (266 acres)		C-1 Neighborhood Commercial (4 acres)		ROW (177 acres)
			Water (52 acres)		



# Zoning Map Circle Pines, MN

Revision Date: November 2015



## **Water Resource Management**

The City of Circle Pines recently adopted the Water Supply Plan which forecasts future use of water and outlines intent to reduce demand for water, improve the efficiency of use and reduce losses and waste of water. Since 2008, every other year, the city has taken on a full street reconstruction project which includes replacement of all city utilities including water and sewer mains.

## **Protect Natural Resources**

The City of Circle Pines will continue to work with Anoka County, Rice Creek Watershed and the DNR to protect the natural resources within the City of Circle Pines. The City Council has included this work within the city's vision statement as follows.

*Inviting outdoor places created as stewards of our natural resources*

Our parks, trails and outdoor spaces are highly valued assets of our community. We intend to leverage this strength by protecting our natural areas in ways that are both inviting and environmentally sound. We take our responsibility as stewards of these resources very seriously

## **Housing Implementation Program**

The City of Circle Pines goal will provide housing opportunities, which meets the needs of all generations and income levels, particularly varying type of independent and accessible senior housing.

The City supports the development of well-designed and appropriately located multi-family housing projects when these developments improve access to affordable housing and transit, creative positive community impacts, and preserve natural resources.

As housing preferences change, the city supports taking actions that improve the quality of the existing housing stock and supports the development of housing meets the needs of the population today.

Chapter 6, Housing, pages 12-13 outline the tools that will be used to achieve the housing goals.

The City of Circle Pines has also established a housing maintenance standard program (Chapter 16 in the City Code details the program). This program was designed to protect the public health, safety, and the general welfare of the citizens of Circle Pines. Further, the purposes of this ordinance is to protect the character and stability of residential areas within the City and to correct and prevent housing conditions that adversely affect the life, safety, general welfare, and health of citizens. The City will review and make changes to the Housing Maintenance Standards as needed.

## **Capital Improvements Program**

The Capital Improvements Program is a flexible plan based on long-range physical planning financial projections which schedules the major public improvements and equipment purchases that may occur within the City over the next five years. The Capital Improvement Program serves as a tool for implementing certain aspects of the City's comprehensive plan, therefore, the program describes the overall objectives of the City development and redevelopment, the

relationship between projects with the respect to timing and need, and the City’s fiscal capabilities.

**Parks & Trails**

Project	2020	2021	2022	2023	2024	Funding Source
Trail Improvements	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	General Fund

**Projects projected beyond 2024 can be found in Chapter 5 of this Plan.**

**Storm Water**

Project	2020	2021	2022	2023	2024	Funding Source
Excavate Ponds					\$120,000	Storm Water Utility
Center, Moonlite & Aurora Replacement	\$500,000					Storm Water Utility
Stardust, Twinkle & Twilite Replacement			\$500,000			Storm Water Utility

**Transportation/Streets**

Project	2020	2021	2022	2023	2024	Funding Source
Street Recon Center, Moonlite, Aurora	\$2,500,000					Street Improv/Assessments
Street Recon Stardust, Twinkle & Twilite			\$2,500,000			Street Improv/Assessments

**Sewer**

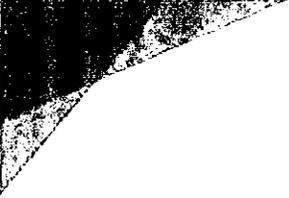
Project	2020	2021	2022	2023	2024	Funding Source
Correct I/I				\$10,000		Utility Revenue

Sewer Jetter	\$300,000					Utility Revenue
Center, Moonlite & Aurora Replacement	\$1,000,000					Sewer Fund
Stardust, Twinkle & Twilite Replacement			\$1,000,000			Sewer Fund

**Water**

Project	2020	2021	2022	2023	2024	Funding Source
Center, Moonlite & Aurora Replacement	\$1,000,000					Water Fund
Stardust, Twinkle & Twilite Replacement			\$1,000,000			Water Fund

## Comments from Adjacent Jurisdictions



# Community of Circle Pines

## 2040 Comprehensive Plan Update

### Adjacent and Affected Jurisdiction Review and Comment Form

Date: July 5, 2019

Adjacent or Affected Jurisdiction Name: MN DNR

Please check the appropriate box:

- We have reviewed the proposed Plan Update and offer the following comments:

The mission of the Minnesota Department of Natural Resources is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. With these things in mind, we appreciate the opportunity to provide comments on Circle Pines' draft 2040 comprehensive plan. We commend the city's vision to treasure its parks and open spaces. The following comments outline other ways to realize this vision:

**Development / Transportation Policies to protect wildlife:** Consider adding policies that will protect wildlife as transportation and redevelopment projects occur. To enhance the health and diversity of wildlife populations, encourage developers of private and public lands to retain natural areas or restore them with native species after construction. One larger area is better than several small "islands" or patches; and connectivity of habitat is important. Animals such as frogs and turtles need to travel between wetlands and uplands throughout their life cycle. Consult DNR's Best Practices for protection of species and Roadways and Turtles Flyer for self-mitigating measures to incorporate into design and construction plans. Wildlife consideration could be added to Goal 6 strategies to "Conserve and enhance environmental resources." Examples of more specific measures include:

- Preventing entrapment and death of small animals especially reptiles and amphibians, by specifying biodegradable erosion control netting ('bio-netting' or 'natural netting' types (category 3N or 4N)), and specifically not allow plastic mesh netting. (p. 25)
- Providing wider culverts or other passageways under paths, driveways and roads while still considering impacts to the floodplain.
- Including a passage bench under bridge water crossings. (p. 17) because typical bridge riprap can be a barrier to animal movement along streambanks.
- Curb and stormwater inlet designs that do not inadvertently direct small mammals and reptiles into the storm sewer. (p. 24). Installing "surmountable curbs" (Type D or S curbs) allows small animals such as turtles to climb over and exit roadways. Traditional curbs/gutters tend to trap animals on the roadway. Another option is to install/create curb breaks every, say, 100 feet (especially important near wetlands).
- Using smart salting practices to reduce impacts to downstream aquatic species.
- Fencing could be installed near wetlands to help keep turtles off the road (fences that

have a j-hook at each end are more effective than those that don't).

○  
**Groundwater Management.** Your community is within the North and East Metro Groundwater Management Area (GWMA). We suggest you include the following information in your plan:

- Circle Pines is within the North and East Metro Groundwater Management Area (GWMA), designated by the Minnesota DNR. The North and East Metro GWMA includes all of Washington County, all of Ramsey County, and a portion of Anoka and Hennepin Counties. The GWMA Plan will guide the DNR's efforts to manage groundwater appropriations sustainably in this area over the next five years. The Plan establishes sustainability goals to help appropriation permit holders plan for their future water use and ensure that groundwater supplies remain adequate to meet human needs while protecting lakes, streams and wetlands.

**Community Forestry.** The loss of tree canopy due to threats such as emerald ash borer and oak wilt has negative impacts on the health and environment of many Minnesota cities, and a planned community forest can provide numerous community benefits. The first step to achieving a resilient community forest is conducting a tree inventory. The second step is developing a community forestry management plan that includes strategies for managing trees, especially ash, and encouraging a diverse tree canopy on private and public lands. It would be worth mentioning in the narrative of the comprehensive plan if Circle Pines has developed a plan for the city's forestry needs as part of an overall strategy to meet its environmental goals and policies. One strategy could be to add a tree inventory to the Parks and Trails Capital Improvement Plan. A tree project, particularly around a public facility, such as the City Hall Park, could be a good demonstration of planting trees to shade parking lots and buildings for energy conservation, as well as providing food for pollinators and aesthetic beauty.

**Native Species.** We suggest adding policies that encourage managers or developers of private and public lands to use native flowers, grasses, shrubs and tree species. Species such as monarchs rely on these plants, and it does not take many plants to attract butterflies and other beneficial pollinators, as well as migrating and resident birds. Adding more native plants into landscaping enhances the health and diversity of pollinators and wildlife populations, and these plants can also help filter and store storm water, a positive effect that also furthers other goals in your city's plan. For more information consult National Wildlife Federation's *Monarch Conservation in America's Cities* and DNR's [pollinator page](#). Your city may also wish to consider adopting [pollinator friendly resolutions](#) to encourage support and raise the profile of pollinator-friendly practices in your community.

A native plant policy could be added to the Parks and Trails Policy, giving more specificity to the landscape enhancements called for in various city parks and natural areas. Plant lists and suggestions for native plants can be incorporated into:

- Land use goals, strategies and methodologies
- Trail planning guidelines

- As part of the public education component, more strongly worded guidelines in the surface water chapter would be helpful to encourage best practices for all landowners, and particularly for lakeshore owners.
- Some explanatory narrative would also be appropriate in the resilience chapter.

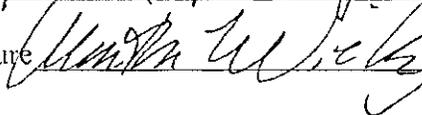
**Natural Resources Planning.** The rare features description in the Surface Water Plan seems to be out of date or incomplete. The DNR supports including data from the Natural Heritage Information System (NHIS) in the Comprehensive Plan. We recommend that the plan include goals and strategies to address how rare species and plant communities will be protected. The NHIS Rare Features Data contains nonpublic data and can only be accessed by submitting a License Agreement Application Form for a GIS shapefile or by submitting a NHIS Data Request Form for a database printout. Both of these forms are available at [the NHIS webpage](#).

Consider adding a discussion of what the city can do to preserve the species and preserve needed habitat into the future (see wildlife section above on policies and practices to protect wildlife). For more information on the biology, habitat use, and conservation measures of these rare species, please visit [the DNR Rare Species Guide](#). NHIS training includes rules for using/displaying nonpublic data in public documents.

It would also be worth noting in the plan that DNR has identified Baldwin Lake as a lake of biological significance: The goal of the assessment is to identify lakes that exhibit the highest quality features within any of the four criteria assessed, which include aquatic plants, fish, amphibians, and birds.

**Parks and Trails.** We appreciate your city's attention to vegetation management, particularly with the need to manage natural areas that have invasive species. We recommend you consider adding these types of projects to the Parks Capital Improvement projects so there is money available to hire contractors or a coordinator to train and manage volunteer stewards.

Reviewer name: Martha Vickery Date: 7/5/19

Reviewer signature: 

## Chandra Peterson

---

**From:** Kathleen Castle <kcastle@shoreviewmn.gov>  
**Sent:** Thursday, June 20, 2019 9:06 PM  
**To:** Chandra Peterson  
**Subject:** Re: City of Circle Pines 2040 Comprehensive Plan

**Caution:** This email originated outside our organization; please use caution.

Hi Chandra -

The City of Shoreview does not have any comments regarding the plan. Of course, we will want to be included in any discussions related to County Road J improvements and other items that may arise along our common border.

Take care.

Kathleen Castle  
City Planner  
City of Shoreview  
651-490-4682  
[kcastle@shoreviewmn.gov](mailto:kcastle@shoreviewmn.gov)

On Thu, May 16, 2019 at 11:00 AM Chandra Peterson <[CPeterson@ci.circle-pines.mn.us](mailto:CPeterson@ci.circle-pines.mn.us)> wrote:

The City of Circle Pines has completed our draft 2040 Comprehensive Plan. Your organization is on the “List of Affected Jurisdictions” provided by the Metropolitan Council for the review process. The City is distributing its draft 2040 Comprehensive Plan for your review and comment.

[https://www.ci.circle-pines.mn.us/index.asp?SEC=CC4C01A4-532C-4528-A2A2-A55554EA508C&Type=B\\_BASIC](https://www.ci.circle-pines.mn.us/index.asp?SEC=CC4C01A4-532C-4528-A2A2-A55554EA508C&Type=B_BASIC)

Comments and questions can be directed to Chandra Peterson at [cpeterson@ci.circle-pines.mn.us](mailto:cpeterson@ci.circle-pines.mn.us).

Comments will be reviewed and forward them on to our Planning Commission and City Council as part of the process. **If your jurisdiction does not have any comments, please still send an email**, so we know that you have taken this opportunity to review the draft plan. While there is a 6-month comment period, the City would



# Anoka County

## MINNESOTA

Respectful, Innovative, Fiscally Responsible

June 4, 2019

Chandra Peterson  
City of Circle Pines  
200 Civic Heights Circle  
Circle Pines, MN 55014

RE: Anoka County comments on the City of Circle Pines 2040 Comprehensive Plan Update

Dear Chandra:

Thank you for providing the County of Anoka an opportunity to comment on the City of Circle Pine's 2040 Comprehensive Plan Update. The following includes comments from a variety of departments within the County.

### **Community Development:**

The Anoka County Community Development Department has reviewed your comprehensive plan and supports your housing and economic development plans. The Department has no additional comments to provide related to your Comprehensive Plan.

### **Regional Parks and Trails:**

The Anoka County Parks Department has reviewed your comprehensive plan and offers the following comments:

The southernmost boundary for the park reserve follows Hodgson Road and Birch Street. The portion south of Hodgson Road is technically part of the Rice Creek North Regional Trail corridor.

The City will want to acknowledge the existing East Anoka County Regional Trail along Lexington Avenue and the existing and proposed Rice Creek North Regional Trail within the identified corridor as that provides connections to some of the local parks within the City.

### **Public Health and Environmental Services**

The Anoka County Public Health and Environmental Services Department offers the following comments regarding the Circle Pines 2040 Comprehensive Plan (no date), hereinafter referred to as Plan. Our review is offered to provide the City of Circle Pines with additional (possibly alternative) planning views that may enhance their plan.

#### GENERAL COMMENTS

The City of Circle Pines has maintained a relationship with neighboring communities in the protection of the source of the City's drinking water by the establishment of the Anoka County Municipal Wellhead Protection Group in 1997. The Wellhead Group has developed the "Know The Flow" education and outreach website ([www.knowtheflow.us](http://www.knowtheflow.us)) that provide water education and information to residents, businesses and property owners about relevant water pollution prevention and conservation. Additional accomplishments include the City participation in developing (with the Minnesota Department of Health) the "Sealing Your Unused Well" video that is the feature video on the KTF website and is aired in City cable access channels. In our experience, often comprehensive plans are prepared by the City planner or a consultant that is not knowledgeable about past or on-going programs and projects of the public works department.

Anoka County is a cooperator with Circle Pines and is knowledgeable of the progress that the City has achieved in water management and drinking water protection (wellhead protection).

**We Recommend (#1):** that the Plan include the City's participation in the establishment of the Municipal Wellhead Protection Group and the achievements the Group has made since its inception. The Group prepares an annual ongoing list of accomplishments.

#### SPECIFIC COMMENTS

The narrative addressing the Existing Sanitary Sewer System (Section 2) of the Water Resources Plan (Chapter 4) references one individual sewage treatment system within the city (page 5). Water Quality Goals and Policies (section 5.3.2 item 6 page 24) states that there are 2 individual sewage treatment systems needing compliance verifications. This appears to be a contradiction that should be corrected.

#### **Chapter 4: Water Resources; 2.7. Groundwater**

Page 10 (88 on PDF): *"The Minnesota Department of Health (MOH) is the official state agency responsible for addressing all environmental health matters, including groundwater protection... Anoka County has statutory responsibilities for groundwater management."*

The Minnesota Department of Health (MDH) is responsible to address environmental health matters the safety of public water supplies. The MOH is not responsible for groundwater protection.

Metropolitan Counties have permissive authority to prepare a Groundwater Protection Plan (according to Mn Statute 103B.255). After preparing a groundwater needs assessment in 1995, Anoka County established a Water Task Force of city, watershed and county representatives to monitor water management and protection issues. If local representatives determine that an Anoka County Groundwater Protection Plan is necessary to address emerging issues or gaps, a plan may be initiated by the Board of Commissioners.

**We Recommend (#2):** that the Plan be modified to indicate that the MDH is responsible for the protection of the public from environmental health hazards without introducing a broader mission to protect groundwater in general.

**We Recommend (#3):** that the Plan be modified to indicate that Anoka County has assessed the protection of groundwater with the City of Circle Pines which has established the Anoka County Municipal Wellhead Protection Group that continues to perform drinking water source protection activities.

**Chapter 4: Water Resources; 2.7. Groundwater**

Page 10 (88 on PDF): "For areas of vulnerability, the City will incorporate the guidance developed by the MDH on evaluating proposed stormwater infiltration projects in vulnerable source water protection areas and also the guidance located within the Minnesota Stormwater Manual on designing infiltration BMPs while protecting groundwater."

The City of Circle Pines Wellhead Protection Plan has established the incorporation of the referenced MDH guidance.

**We Recommend (#4):** that the Plan be modified to indicate that Circle Pines applies the MDH Evaluating Proposed Stormwater Infiltration Projects in Drinking Water Supply Management Areas (January 26, 2016).

**Chapter 5: Groundwater Policies** (5.7.2 item 4 page 28) reference is made to the Anoka County Environmental Health Department. This should be changed to Anoka County Public Health and Environmental Services Department.

**Transportation:**

Thank you for providing us the opportunity to comment on the draft 2040 Comprehensive Plan for the City of Circle Pines. The following contains the Anoka County Highway Department review of the Transportation Section of your Plan. To provide better clarity, comments on the transportation section were made on the pdf of the document and are posted below.

This is an outdated table for showing MnDOT's Access Management Guidelines. The most current one is provided in the 2040 Met Council TPP. Pasted below this comment is the correct table to use.

Circle Pines 2040 Comprehensive Plan 

*MnDOT Access Management Manual*

**Table 3.1 – Summary of Recommended Street Spacing for IRCs**

Category	Area or Facility Type	Typical Functional Class	Public Street Spacing		Signal Spacing
			Primary Full-Movement Intersection	Secondary Intersection	
<b>1 High Priority Interregional Corridors &amp; Interstate System (IRCs)</b>					
1F	Interstate Freeway	Principal Arterials	Interchange Access Only		Ø
1AF	Non-Interstate Freeway		Interchange Access Only (see Section 3.2.7 for interim spacing)		See Section 3.2.5 for

Table D-8 below is from the Met Council 2040 TPP 000 Appendix D, page D-14)

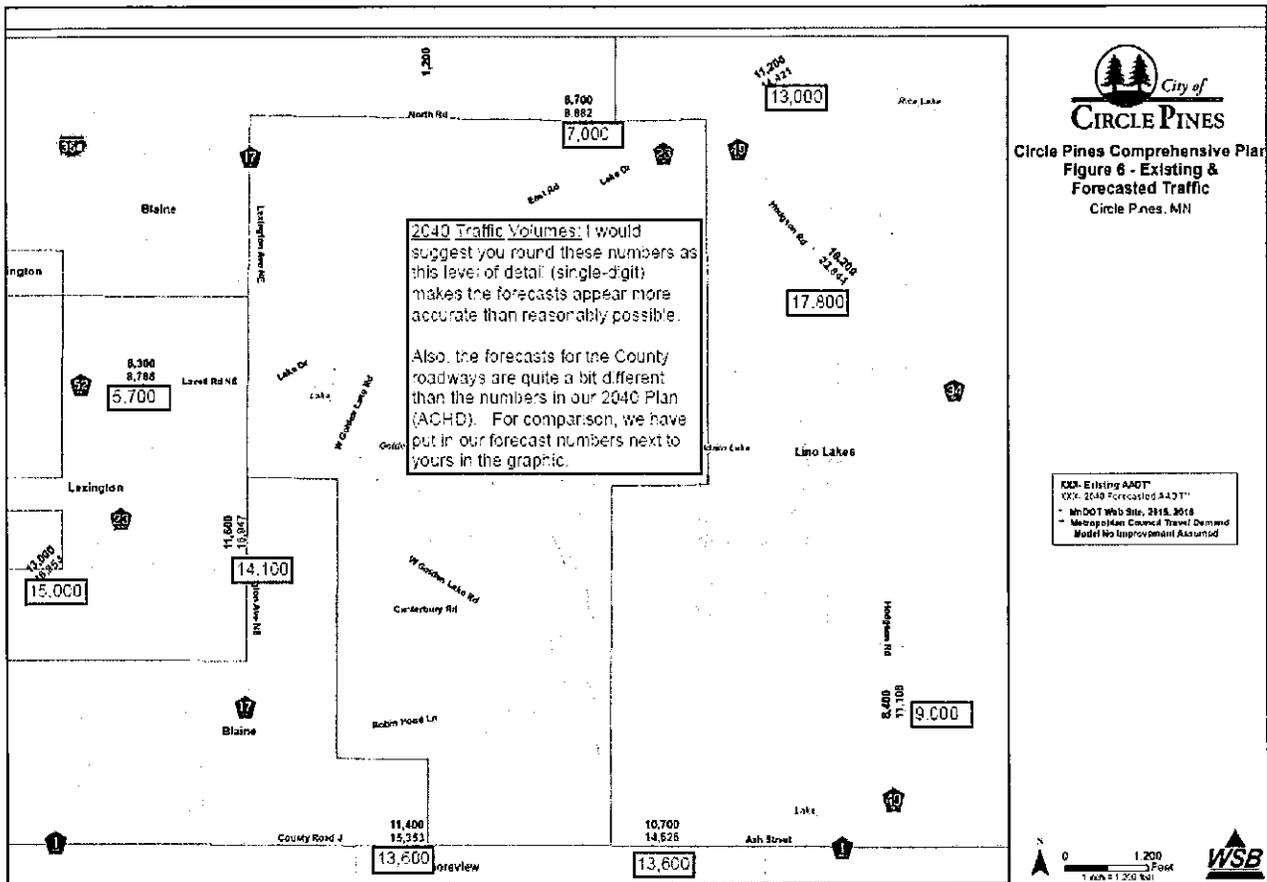
This table summarizes characteristics for existing roadways to be used in evaluating functional classification and should not be used as design guidelines.

**Table D-8: Summary of MnDOT Public Street Spacing Access Guidelines for Interstate, U.S., and State Highways in the Twin Cities Metropolitan Area \***

Functional Classification	Facility Type or Community Designation**	Public Street Spacing		Signal Spacing
		Primary Full-Movement Intersection	Secondary Intersection	
<b>Principal Arterial</b>	Interstate Freeway	Interchange Access Only		None
	Non-Interstate Freeway	Interchange Access Only		None
	Rural	1 mile	1/2 mile	Only at Primary Intersections
	Suburban	1/2 mile	1/4 mile	Only at Primary Intersections
	Urban	300-600 feet, dependent on block length		1/4 mile
<b>Minor Arterial</b>	Rural	1/2 mile	1/4 mile	Only at Primary Intersections
	Suburban	1/4 mile	1/8 mile	Only at Primary Intersections
	Urban	300-600 feet, dependent on block length		
<b>Collector</b>	Rural	1/2 mile	1/4 mile	Only at Primary Intersections
	Suburban	1/8 mile	Not Applicable	1/4 mile
	Urban	300-600 feet, dependent on block length		1/8 mile

\* This table is a summary of MnDOT Access Guidance for the Metropolitan Area. This chart does not reflect all the MnDOT guidance. Agencies should work with MnDOT, the appropriate county highway authority, and the local land use authority when planning new or modified access.

\*\*Community Designations are from *Thrive MSP 2040*, they are not MnDOT designations.



**Transit:**

The Anoka County Transit Department has reviewed your comprehensive plan and offers the following comments:

Anoka County Transit also coordinates these services in Circle Pines:

- Anoka County Medlink- a volunteer driver program taking seniors, veteran's or clients to medical and social service appointments.
- Commute Solutions- coordinates options other than a single occupied vehicle- walking, biking, carpooling, vanpooling or taking transit to work.
- In addition to the fixed-route transit options, the city is also served by Anoka County **Traveler** Transit Link, a dial-a-ride service for the general public. Transit Link provides connections to destinations within Anoka County and NW Ramsey County.

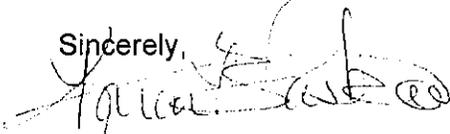
Metro Mobility is also available through another provider in Circle Pines.

**Commute Solutions:**

Anoka County Commute Solutions has reviewed your comprehensive plan and does not have any comments.

Thank you again for providing the County an opportunity to comment on your City's Comprehensive Plan. Please review the County's comments and feel free to contact me with any questions you may have. I can be reached at 763-324-3412 or [karen.blaska@co.anoka.mn.us](mailto:karen.blaska@co.anoka.mn.us).

Sincerely,



Karen Blaska  
Park Planner

cc (by email): Rhonda Sivarajah, County Administrator  
Jeff Perry, Parks Director  
Doug Fischer, Transportation Division Manager  
Karen Skepper, Director of Community and Government Relations  
Dan Disrud, Manager of Environmental Services  
Jack Forslund, Transportation Planner  
Renee Sande, Community Development Manager  
Mark Schermerhorn, Transit Program Coordinator  
Meghan Mathson, TMO Coordinator

May 29<sup>th</sup>, 2019

Chandra Peterson  
City of Circle Pines/Centennial Utilities  
Assistant City Administrator for Public Services  
200 Civic Heights Circle  
Circle Pines, MN 55014

SUBJECT: CPA19-018  
Circle Pines 2040 Comp Plan  
Circle Pines, Anoka County

Dear Chandra Peterson:

Thank you for the opportunity to review the Circle Pines 2040 Comprehensive plan. MnDOT's staff has reviewed the document and has the following comments:

***Bike-Ped:***

The Bicycle and Pedestrian information is well covered in the chapter on Transportation. MnDOT commends the city on a comprehensive, well thought out plan for linking various areas of the city for pedestrians and bicyclists.

Also, a minor comment for your consideration. The footers for Chapter 5 are labeled "Chapte 5".

Please contact Cameron Muhic at 651-234-7797 or [cameron.muhic@state.mn.us](mailto:cameron.muhic@state.mn.us) if you have any questions about these comments.

***Review Submittal Options:***

MnDOT's goal is to complete the review of plans within 30 days. Submittals sent in electronically can usually be turned around faster. There are four submittal options. Please submit either:

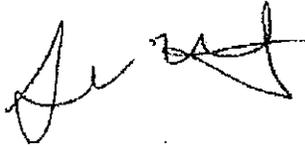
1. An electronic .pdf version of the plans. MnDOT can accept the plans via e-mail at [metrodevreviews.dot@state.mn.us](mailto:metrodevreviews.dot@state.mn.us) provided that each separate e-mail is less than 20 megabytes.
2. A compact disc with the plans in .pdf format. The disc can be sent to:

MnDOT – Metro District Planning Section  
Development Reviews Coordinator  
1500 West County Road B-2  
Roseville, MN 55113

3. A .pdf version of the plans sent to MnDOT's external shared workspace site located at: <https://inft.dot.state.mn.us>. Please contact MnDOT development review staff to gain access to the shared workspace site. Also, please send a note to [metrodevreviews.dot@state.mn.us](mailto:metrodevreviews.dot@state.mn.us) indicating the file name and stating that the plans have been submitted on the shared workspace site.
4. If you are unable to send the plans electronically, please submit a set of full size plans to the above address.

If you have any questions concerning this review, please contact me at 651-234-7788.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jennifer Wiltgen', with a stylized flourish at the end.

Jennifer Wiltgen  
Principal Planner

**Copy sent via E-Mail:**

Buck Craig, Permits

Jeff Rones, Design

Nick Olson, Water Resources

Mike Lynch, Right-of-Way

Cameron Muhic, Bike-Ped

Carl Jensen, Transit

Brad Larsen, MnPASS

John Tompkins, Freight

Russ Owen, Metropolitan Council

Ashley Roup, Traffic

Mark Lindeberg, Area Engineer

## Chandra Peterson

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**From:** Katie Larsen  
**Sent:** Friday, June 7, 2019 9:34 AM  
**To:** Chandra Peterson  
**Subject:** RE: City of Circle Pines 2040 Comprehensive Plan

Morning Chandra,

Thank you for the opportunity to review and comment on your draft 2040 Comprehensive Plan. The only comment we have is the suggestion of a possible bike trail along CSAH 23 (Lake Drive) that could connect into future trail corridors.

Good luck on the adoption of your plan. Thank you,

*Katie A. Larsen, AICP*  
City Planner  
City of Lino Lakes  
600 Town Center Pkwy  
Lino Lakes, MN 55014-1182  
651-982-2426 direct  
651-982-2400 main  
651-982-2499 fax  
[katie.larsen@ci.lino-lakes.mn.us](mailto:katie.larsen@ci.lino-lakes.mn.us)

**From:** Chandra Peterson  
**Sent:** Thursday, May 16, 2019 11:00 AM  
**Subject:** City of Circle Pines 2040 Comprehensive Plan

The City of Circle Pines has completed our draft 2040 Comprehensive Plan. Your organization is on the "List of Affected Jurisdictions" provided by the Metropolitan Council for the review process. The City is distributing its draft 2040 Comprehensive Plan for your review and comment.

[https://www.ci.circle-pines.mn.us/index.asp?SEC=CC4C01A4-532C-4528-A2A2-A5554EA508C&Type=B\\_BASIC](https://www.ci.circle-pines.mn.us/index.asp?SEC=CC4C01A4-532C-4528-A2A2-A5554EA508C&Type=B_BASIC)

Comments and questions can be directed to Chandra Peterson at [cpeterson@ci.circle-pines.mn.us](mailto:cpeterson@ci.circle-pines.mn.us).

Comments will be reviewed and forward them on to our Planning Commission and City Council as part of the process. **If your jurisdiction does not have any comments, please still send an email**, so we know that you have taken this opportunity to review the draft plan. While there is a 6-month comment period, the City would appreciate it if you could expedite the review so we can respond to comments and make any needed revisions prior to the Council's adoption of the Plan.

Chandra Peterson  
City of Circle Pines/Centennial Utilities  
Assistant City Administrator for Public Services  
200 Civic Heights Circle  
Circle Pines, MN 55014  
763-231-2611

[www.ci.circle-pines.mn.us](http://www.ci.circle-pines.mn.us)  
[www.centennialutilities.com](http://www.centennialutilities.com)