



# CHAPTER 9 - COMMUNITY FACILITIES & SERVICES

## WHAT YOU WILL FIND IN THIS CHAPTER

- » Technology
- » Sanitary Sewer System
- » Water Supply System
- » Surface Water Management
- » Waste Management
- » Public Safety/Emergency Management

Community facilities and services include those services that the City provides or has an interest in providing or regulating. These facilities and services play an important role in the City's development and growth. In addition, they contribute to the quality of life in the City by ensuring public health and safety, protecting the environment and providing necessary services for residents and businesses.

## 9 - COMMUNITY FACILITIES AND SERVICES

Community facilities and services include those services that the City provides or has an interest in providing or regulating. These include technology, the sanitary sewer system, water supply system, surface water management, waste management, and public safety/emergency management. These facilities and services have played and will continue to play an important role in the City's development and growth. In addition, they contribute to the quality of life in the City by ensuring public health and safety, protecting the environment and providing necessary services for residents and businesses.

Parks and open spaces are addressed in Chapter 10 with a description of the existing and planned facilities and recreation services.

### 9A - TECHNOLOGY

Over the last several years, innovations in technology and communications have significantly changed the way we work, do business, govern, and communicate. The City of Shoreview has the opportunity to continue to use the innovations in technology and communications to improve the community for its citizens, businesses and overall economy.

Individuals increasingly rely on technology to connect them to their work place, schools, community, family and friends as well as products, services and information. These technologies include smart phones, computers, tablets, the internet, and cable television. Through improved technology and communications, the City has been able to increase and promote citizen involvement and social connectivity. Efforts have also taken place to promote equal access to technology for all citizens at schools, libraries and other community gathering places.

Telecommunications is becoming a critical infrastructure need for all businesses. More and more, businesses are relying on Internet access, online commerce and video conferencing. Consequently, demand for high bandwidth service is increasing at a tremendous rate. As the community demands more information and resource sharing and as the number of integrated voice and data services required continue to grow, businesses may be constrained by existing telecommunications service.

Individually, public and private institutions alone may not be able to afford the desired infrastructure. However, public/private partnerships could be developed to ensure that the technology needs of the community and businesses are being met.

### EXISTING SERVICES, PARTNERSHIPS AND ORDINANCES

The role of local government is to provide leadership at the community level and to implement technology enhancements where appropriate. To that end, the City has embarked on the following endeavors to use information and communication technologies to benefit the community.

#### City Websites

The City maintains two websites to provide access to information relating to Shoreview and the Community Center. The City plans to continually improve the websites to make more information and

# 9 - COMMUNITY FACILITIES AND SERVICES

resources available and to make these resources easier to find and use.

## Television

### Cable Television

In 2015, the City of Shoreview withdrew from the 10-city North Suburban Cable Commission and entered into its own 10-year franchise agreement with Comcast. Through the franchise agreement, the City is responsible for managing its PEG (public access, education, government) channel, equipment and facilities. Current regulations allow the City to grant a franchise to another cable television provider granted they are able to provide services throughout the entire community, to provide special services to public institutions, and to provide local public access channels.

### Broadcast Television and Radio

The three broadcast television and radio towers are a feature of the City's landscape that can be seen for miles. The Telefarm Towers are a transmission site for FM radio and television broadcasting and has two towers. The third tower, KMSP, also transmits FM radio and television broadcasting. The towers were constructed in the late 1960s, and occupy about 160 acres of land in the center of the City near Interstate 694. The towers are used for both analog and digital television broadcasts and were upgraded at the turn of the century to allow the addition of digital TV transmitters to meet Federal Communications Commission requirements.

### Wireless Telecommunications

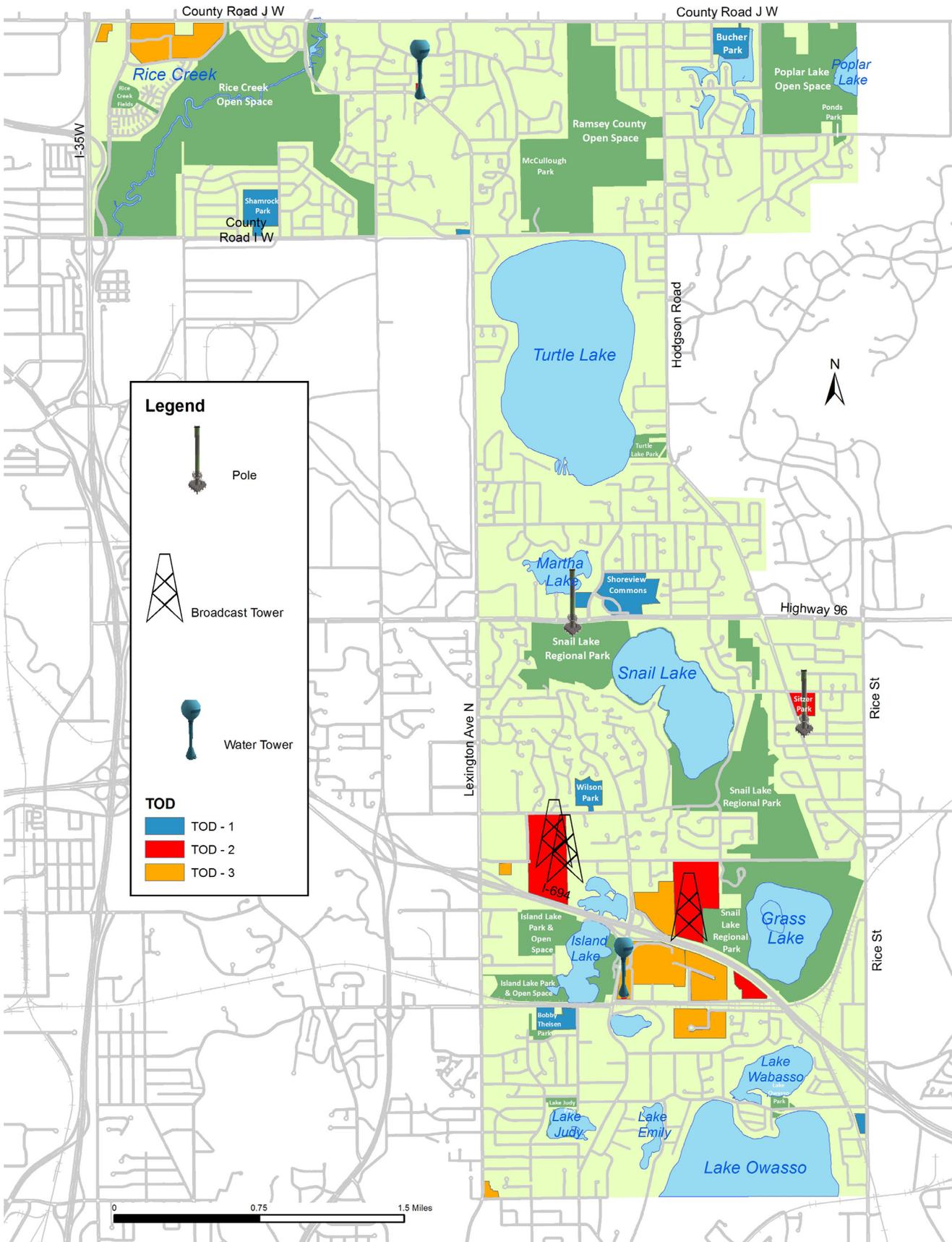
There is a growing trend towards relying on wireless communication. Cellular phones are commonly used for both mobile communications and internet service. Increased use of these types of communications may lead to greater need for expansion of wireless telecommunications towers.

The City adopted an ordinance establishing standards regulating the construction and location of wireless telecommunication towers/antennae in the community. The ordinance protects the City's local zoning authority concerning the placement, construction and modification of wireless telecommunications facilities while maintaining the rights of the providers. Appropriate locations were designated within three overlay zoning districts, two of which permit the construction of wireless telecommunication towers. The third district permits the installation of wireless telecommunication facilities on existing buildings. Additionally, in 2017, the City adopted an ordinance that allows the installation of small cell wireless equipment within the public right-of-way provided they meet certain standards.

**Map 9A.1** identifies the location of the broadcast radio and television towers and the wireless telecommunication facilities in the City.

Several municipalities in the greater metropolitan area have developed wireless networks to provide

# Map 9A.1 - Location of Towers and Telecommunication Facilities



## 9 - COMMUNITY FACILITIES AND SERVICES

internet service to their residents, including Minneapolis, Chaska and St. Louis Park. Chaska owns and operates the network for that City, while Minneapolis and St. Louis Park have partnered with private companies to install and operate the network. Currently, there are no plans for the City of Shoreview to develop a wireless network throughout the City.

### GOALS, POLICIES, AND RECOMMENDED ACTIONS

The following goals, policies and recommended actions provide a framework to reap the maximum benefits of information and communication technologies for the City of Shoreview and its citizens.

#### Goals

1. Improve the quality of life by providing individuals, organizations and businesses with access that includes data, information, services and commercial transactions.
2. Increase and improve community cohesion and citizen participation through the use of technology.
3. Promote efficient and effective government by using information and communication technologies.

#### Policies

- A. Promote and encourage the development of technology infrastructure..
- B. Promote municipal television, the City's websites, and social media pages as means to increase local programming, community cohesion and involvement.
- C. Seek to improve access to technology so that every citizen is afforded the ability to obtain the same information and services.
- D. Provide service delivery using technology and electronic means to deliver services, transact business and provide information to its citizens and businesses.
- E. Establish a strategic communications plan to help our organization communicate effectively to its residents and businesses.
- F. Develop partnerships with other local, State and Federal governmental units and agencies, including school districts, to support local infrastructure development which is safe from cyber security treats.

#### Recommended Actions

1. Support and expand the existing framework for electronic delivery of government information and services, such as the City's websites.
2. Establish goals for increasing local viewership and awareness of municipal television and use of the City's websites and social media pages.
3. Pursue appropriate governmental connections and partnerships to ensure that the City and its citizens are properly linked to gain access to information and services.

## 9 - COMMUNITY FACILITIES AND SERVICES

4. Encourage deployment of fiber optic technology throughout the City to maintain the competitiveness of City businesses.
5. Adhere to industry standards regarding standardized methods, best practices and tools for cyber security.
6. Utilize technology to enhance civic engagement and understanding of government roles and responsibilities.
7. Support the expansion of information technology and media providers to improve service delivery and increase options for residents.

# 9B - SANITARY SEWER PLAN

This section addresses the effect of the municipal system on the regional system, infiltration and inflow in the municipal system and the timing of the construction or expansion of the municipal system that might be required to meet the City's anticipated growth.

This section of the Comprehensive Plan:

- » Describes the existing municipal sewer system.
- » Provides an analysis of future needs and discusses the effect of growth and expansion on the regional system.
- » Establishes goals, policies and recommended actions for the sanitary sewer system.

## EXISTING SYSTEM

### History

In 1960, the City of Shoreview began construction of its sanitary sewer facilities. Major housing construction in the City of Shoreview began in the late 1960s. Municipal sanitary sewer facilities were extended as needed to serve proposed development.

The initial phases included connections to the City of Roseville's system at County Road D and Victoria Street and at the intersection of County Road D and Churchill Street. In subsequent years, trunk sewers were generally extended in a northerly direction from these connection points to serve new development. However, topography in the northern one-third of the city required that sanitary sewer services be provided from the northwest via the regional north suburban interceptor.

### Municipal Sewer System

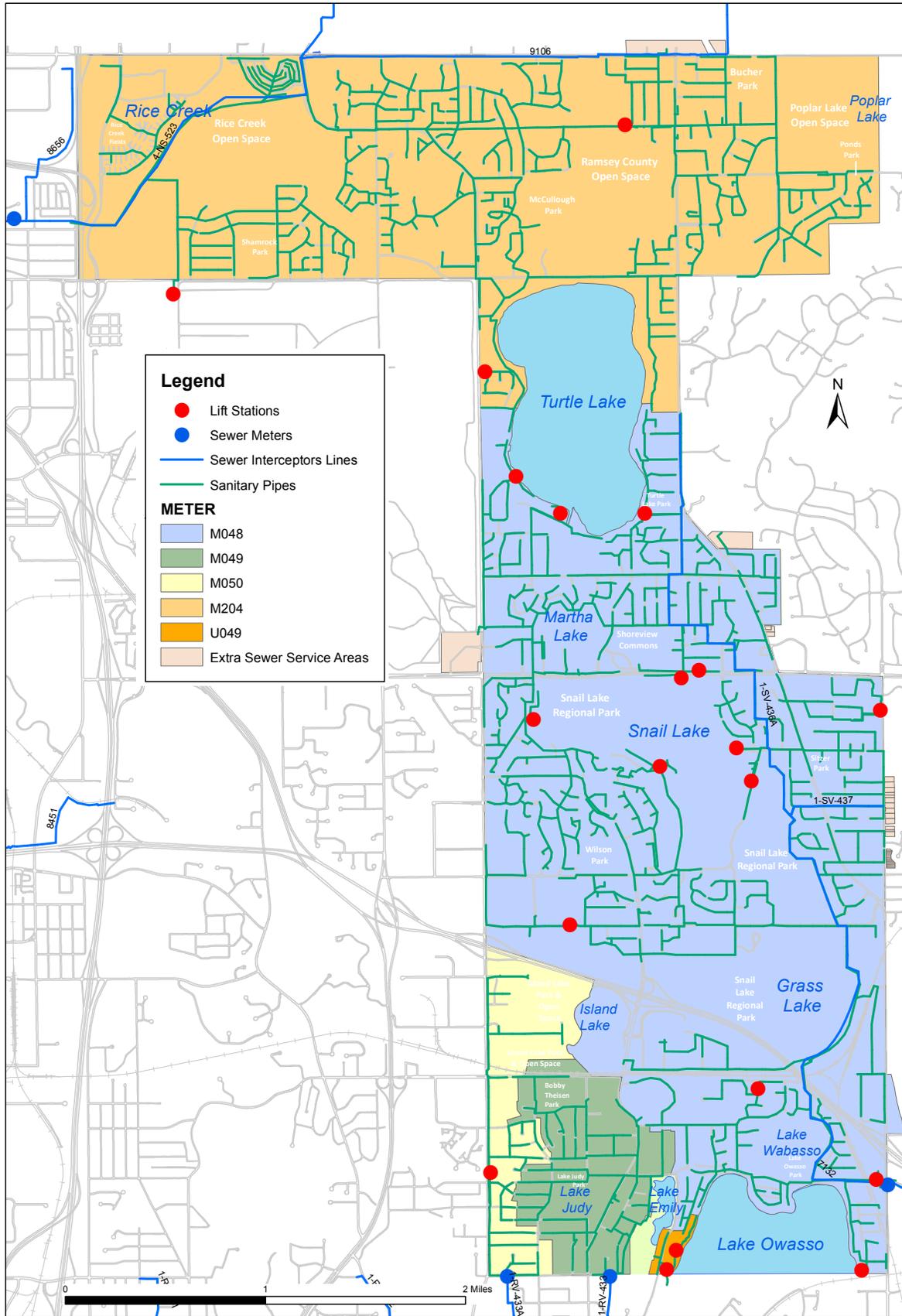
The City of Shoreview's municipal sanitary sewer is a conveyance system only; the City does not own or operate any sewage treatment facilities. The municipal system collects sewage from individual properties within the City limits and routes it to the regional sewage interceptor system. The regional interceptors deliver sewage to the Metropolitan Wastewater Treatment Plant in St. Paul.

The municipal sanitary sewer system is a gravity-based system consisting of pipes ranging in diameter from 8 inches to 36 inches. Pipes consist of clay, cast iron or concrete, with PVC used in more recent years. The manholes in the system are block/mortar or pre-cast concrete.

Sewer line depths in the City range from approximately 6 feet for the lateral sewers to over 65 feet for the interceptor sewers. Nineteen sewer lift stations with forcemains pump sewage in areas not serviceable by gravity (**Map 9B.1**).

In 2013 the City invested in asset management software, which included televising and condition assessments for the sanitary sewer infrastructure. The City also purchased an inspection camera to

# Map 9B.1 - Sanitary Sewer



## 9 - COMMUNITY FACILITIES AND SERVICES

update information in the management software and diagnose issues. Information from the asset management database is used to evaluate the infrastructure, determine where replacement or cured-in-place lining is required, and plan future capital improvement projects.

Over the last several years, the City has systematically upgraded lift stations to optimize operation and increase efficiency. Updates include connecting to the City's Supervisory Control and Data Acquisition System (SCADA), panel hardware upgrades, installation of variable frequency drives (VFDs), replacement of pumps, and back-up power supplies. Funding for continual upgrades to the lift station infrastructure is planned in the City's Comprehensive Infrastructure Replacement Plan.

There are approximately 9,063 sewer connections in the City of Shoreview. Of these connections, approximately 8,883 are residential and 180 are non-residential. Ninety-five percent of the residential connections are single-family connections (including single-family dwellings and townhomes) and five percent are multi-family connections (including duplexes, triplexes and apartments).

Shoreview currently has three properties categorized by Metropolitan Council Environmental Services (MCES) as Industrial Strength/Rate Customers. The City currently has no large (greater than 5 percent of total discharge) sewage dischargers using the municipal sanitary sewer system.

### Metropolitan Council Environmental Services Interceptor System

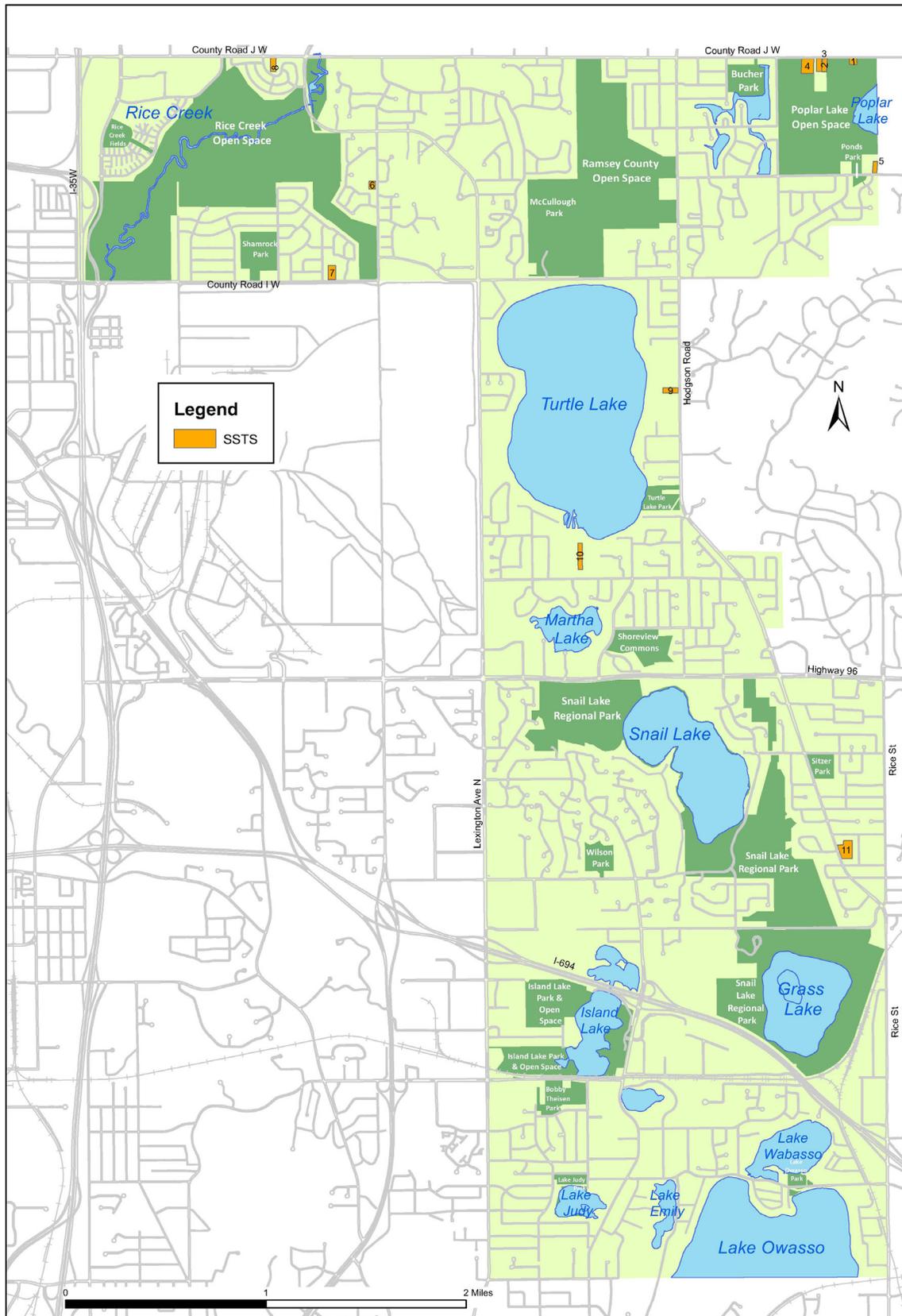
The Shoreview sanitary sewer system flows into the MCES interceptor system where the flow is monitored and metered. **Map 9B.1** depicts the MCES interceptor system, the four sewer interceptor service districts and the locations of meter stations in the city. The interceptor system routes sewage to the Metropolitan Wastewater Treatment Plant located in St. Paul.

### Individual Sewage Treatment Systems

Eleven properties in the City use private individual sewage treatment systems. Of those properties, 10 are residential and one is non-residential. The non-residential property is a non-conforming use and has been designated for either low-density residential or medium-density residential and office uses in the future. At the time of redevelopment, connections to sanitary sewer for these properties will be required. **Map 9B.2** shows the location of properties serviced by individual sewage treatment systems.

The City seeks to prevent contamination of groundwater and surface water from these systems through a combination of regulation and education. Shoreview's Development Ordinance regulates individual sewage treatment systems. The City's individual sewage treatment system ordinance is consistent with Minnesota Pollution Control Agency (MPCA) Rule 7080 requirements including inspection and service requirements. The City ordinance also generally requires existing structures with individual sewage treatment systems to connect to the municipal sanitary sewer system within one year once sewer service becomes available. New systems are only permitted where: (1) public sanitary sewer is not available and (2) the subject property exceeds one acre. Given the extent of the public sanitary sewer system and the minimal vacant land remaining in the City, few (if any) new individual sewage treatment systems should be constructed during the life of this Plan. Education efforts include informing individual

# Map 9B.2 - Septic Systems



## 9 - COMMUNITY FACILITIES AND SERVICES

sewage treatment system users of the proper maintenance and use of their systems.

The City monitors the condition of the existing ISTS. Maintenance pumping records are required to be submitted, and compliance inspections are performed every three years. The low number of private systems in the City is small enough that annual record review is sufficient to insure that system maintenance is being performed by the property owners.

### Inter-Community Services

The City of Shoreview has inter-community sewer service agreements with the cities of Arden Hills, Lino Lakes, and North Oaks. The City provides sewer extensions to a few individual properties within each of these cities. At this time, no neighboring communities have requested any additional sanitary sewer extensions, and the City is not aware of any potential requests from these communities. Any future requests for inter-community sewer service extensions will be evaluated based on the impact on the municipal sewer system infrastructure and flows.

Sanitary sewer for approximately 40 residential properties in City of Shoreview, north of County Road D on the west shore of Lake Owasso, flows into Roseville. In addition, there are a small number of properties in Vadnais Heights, along the east side of Rice Street, that discharge sewage into Shoreview's system. There is no inter-community sewer service agreement or special metering for these properties. MCES estimates the volume and adjusts the City's metered flow.

### Infiltration and Inflow

Water originating outside of the municipal sewer system can enter the system and add to the cost of sewage treatment. Water that originates outside of the municipal sewer system is typically referred to as infiltration and inflow (I&I). Infiltration is defined as the water entering a sewer system from the ground, whereas inflow is defined as the water discharged into a sewer system. Potential sources of infiltration and inflow include:

- » Defective pipes, pipe joints, connections or manhole walls.
- » Illegally connected sump pumps or foundation drains.
- » Roof leaders, cellars, yard and area drains or foundation drains.
- » Cooling water discharges or drains from springs and swampy areas.
- » Manhole covers, cross connections from storm sewers and combined sewers, catch basins, storm water, surface runoff and street wash waters or drainage.

In 1982, Shoreview, as well as many other first- and second-ring suburbs, studied the source and extent of infiltration and inflow into their sewer system. The City believes that the extent of the infiltration and inflow problem in Shoreview is related to the age of the homes built in the city, the age of the sewer system itself and localized areas of high ground water. For example, sewers built prior to 1975 are generally more susceptible to infiltration and inflow because of the pipe/gasket materials used.

To reduce the amount of infiltration and inflow into the sewer system, the City:

## 9 - COMMUNITY FACILITIES AND SERVICES

- » Prohibits the discharge of any roof drainage, storm water, surface water or groundwater into the municipal sewer system.
- » Evaluates and upgrades the municipal sewer infrastructure to reduce infiltration and inflow as part of road reconstruction projects.
- » Annually televises the sewer system to determine if and where repairs are needed.
- » Actively uses pipe relining and other trenchless technologies to rehabilitate segments of the sewer system in areas where I & I issues have been identified.
- » In 2009, as part of a City-wide water replacement program, I&I inspections were performed and connections to the City's sanitary sewer system not allowed by code were required to be removed. Follow-up inspections were completed to verify the connections were removed.

The City created Residential Sump Pump and Non-Residential Roof Drain Inspection Programs in response to the concern for infiltration and inflow. These programs are intended to result in a reduction in clear water entering the City's sanitary sewer system. The City has developed strategies for reducing I&I, and corresponding Metropolitan Council Environmental Service surcharges associated sewage treatment of I&I.

The City's Comprehensive Infrastructure Replacement Plan identifies future funding to replace piping or install cast-in-place liners to mitigate I & I issues. Capital improvement projects in the near future will concentrate on addressing I & I issues on the City's sanitary sewer infrastructure. The City is currently evaluating potential cost-share programs and funding sources to address I & I mitigation on private sewer services.

### EVALUATION OF FUTURE NEEDS

#### System Extension

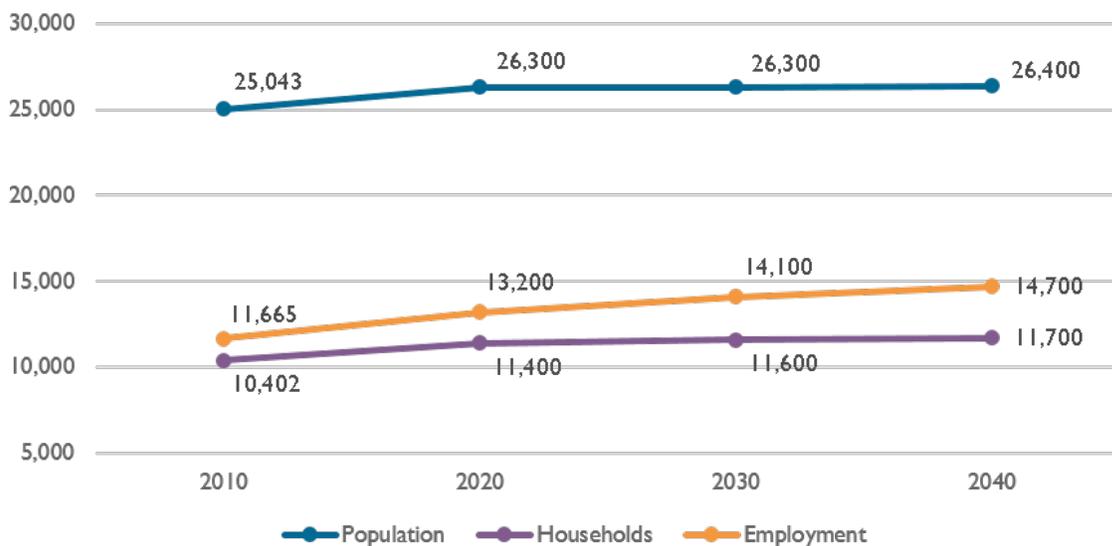
Sanitary sewer service is currently serving the vast majority of the City. The remaining unsewered properties capable of subdivision or development in the City will be served by lateral extensions of the existing municipal sanitary sewer system when development occurs.

#### Adopted Community Forecasts

**Figure 9B.1** summarizes the City of Shoreview's adopted community forecasts for population, total households and employment through the year 2040.

## 9 - COMMUNITY FACILITIES AND SERVICES

**Figure 9B.1 - Shoreview's Adopted Community Forecasts**



### Existing Sewer Mains and Lift Stations

The City's existing sewer mains and lift stations are operating within design capacity and the City is not experiencing capacity issues. Based on future land, the moderate increase in the projected number of households and population, and the trend of decreasing household size, future sewage flow is expected to increase minimally between 2020 and 2040. This modest increase in sewage flow over twenty years, together with improvements to reduce I&I in the system, is not expected to create any additional infrastructure needs in the municipal sewage system.

#### Industrial Strength/High-Volume Customers

Shoreview currently has three properties categorized by MCES as Industrial Strength/Rate Customers. These three users include 26 acres of Business Park and Light Industrial zoned properties. Potential or planned uses of remaining undeveloped properties or redeveloped properties make it unlikely that the number of MCES Industrial Strength/Rate Customers in the City will significantly increase prior to 2040.

Shoreview currently has no large (greater than 5 percent of total discharge) sewage dischargers using the municipal sanitary sewer system. Again, potential uses of remaining undeveloped properties or redeveloped properties make it unlikely that the number of large sewage generators in the City will significantly increase prior to 2040. In all cases, the City's development review process will continue to examine any impacts from potential industrial and/or high volume sewage generators.

### GOALS POLICIES AND RECOMMENDED ACTIONS

#### Goals

1. Protect the health of the City's citizens and environment by providing quality sanitary sewer service at a reasonable cost.
2. Operate the City's sanitary sewer service so that it is economically self-sufficient and so that rates and reserves allow for an appropriate infrastructure replacement schedule.

#### Policies

- A. Continue to plan for the short-term and long-term system needs to ensure rate stability and the economic self-sustainability of the City's sanitary sewer service.
- B. Where feasible, extend sanitary sewer service to properties that currently rely on private septic systems. Link sewer service extensions to road reconstruction or other municipal infrastructure projects where possible.
- C. Smaller properties least suited for individual sewage treatment systems and shoreland properties should be a priority for sewer service extension.
- D. Reduce municipal and regional costs and surcharges for sewage collection and treatment by instituting measures to reduce infiltration and inflow (I&I) into the system.

#### Recommended Actions

1. The City shall administer Residential Sump Pump and Non-residential Roof Drain Inspection Programs to detect and reduce sources of Infiltration and Inflow (I&I) into the municipal sanitary sewer system.
2. The City will continue to systematically televise the sewer system to determine where sewer improvements may be required.
3. In accordance with existing street renewal policies, the City will replace or line sewer pipes susceptible to infiltration and inflow (I&I) during any road reconstruction project.
4. The City will continue to evaluate the condition of the sewer system and identify capital improvement projects to mitigate I&I, optimize operation, and increase efficiency.
5. The City will continue to monitor individual sewage treatment systems in the community, and track the required maintenance of these systems. The City will also continue its efforts to educate individual sewage treatment system users on proper use and maintenance.

# 9C - WATER SUPPLY

It is the policy of the City to provide safe drinking water at a reasonable cost. The City strives to ensure that the supply is sufficient to meet water-related needs, while employing conservation measures to assure that use does not have a long-term negative impact on the aquifers that provide the City's water.

This section of the Comprehensive Plan describes the City's existing water supply system and analyzes future water supply needs. This section includes:

- » A brief overview of area geology.
- » A description of the existing water supply system.
- » An analysis of future water supply needs.
- » A discussion of the City's emergency management and conservation programs.
- » Water supply goals, policies and recommended actions.

The City prepared a water supply plan for the Minnesota Department of Natural Resources (DNR) and Metropolitan Council. The Plan was submitted through the MnDNR Permit and Reporting System in December 2017, and details of the plan are summarized here.

## GEOLOGY

The soils found within the City of Shoreview are primarily of two groups – the Twin Cities Formation and Anoka Sand Plain.

The portion of the City located southwest of a line roughly between the Highway 96-Lexington Avenue intersection and the City's southeast corner consists mainly of soils of the Twin Cities Formation. These soils consist of sandy loam to loam underlain at three to four feet by a clay loam and were formed at the southern limit of the Superior and Rainy glacial lobes. These soils are rolling to steeply hilly and are well- to moderately well-drained.

The remainder of the city is comprised of the soils of the southernmost projection of the Anoka Sand Plain, an outwash formed by the retreat of the Grantsburg glacial sublobe. The corresponding landscape is gently rolling fine sand with isolated depressions filled with peat, marsh or lakes. The sand plain soils are well- to excessively-drained, with loamy sand normally found to a depth of one to three feet and fine sand beneath, up to 20 feet or more in depth.

The average permeability rates of the Twin Cities Formation soils are one to three inches per hour, while those of the Anoka Sand Plain are typically 12 to 14 inches per hour. As a result, the moisture retention capacity of the soils in the City's southwestern one-third is many times greater than that of the soils in the remainder of the city.

The primary aquifers underlying the City of Shoreview, from the most shallow to the deepest, are: Prairie du Chien-Jordan and Franconia-Ironton-Galesville. The Mt. Simon aquifer is also believed to be

## 9 - COMMUNITY FACILITIES AND SERVICES

present below the Franconia-Ironton-Galesville formation in some portions of Shoreview.

The City lies atop a significant underground drift valley, some 150 feet deep and a mile wide, with extensively eroded bedrock formations. Because of this huge subterranean valley, the only portions of the city underlain by the Prairie du Chien-Jordan aquifer are along County Highway 96 from the eastern city limits to near Victoria Street, the area roughly south of I-694 and the northeast corner of the city.

### EXISTING WATER SUPPLY SYSTEM

#### Source and Supply

The City of Shoreview has no access to suitable surface water sources and relies solely on groundwater. The Prairie du Chien-Jordan aquifer, located approximately 400 feet below the ground surface, serves as the City's municipal water source. The City appropriates water from this aquifer under a permit from the Minnesota Department of Natural Resources (DNR). This permit allows the City of Shoreview to appropriate 1.4 billion gallons of water per year.

All of the City's water supply wells are within a half-mile radius of City Hall except well #6, which is located just under a mile NE of City Hall. In 2016 a raw water pipeline was constructed from well #6 to the existing raw water header pipe that collects water from all City wells and directs it to the City's water treatment plant. Prior to 2016, well #6 pumped directly into the City's distribution system. **Figure 9C.1** summarizes capacities, dates of implementation, pumping equipment and construction data. **Map 9C.1** shows the City's water supply and distribution system.

The City's estimated 2016 population is 26,366, and the number of residential municipal water connections is 8,487. The total number of service connections is 8,665. The City estimates that approximately 481 dwelling units (including the 214 units at the Brookside Mobile Home Park) and 8 commercial/institutional uses are served by private wells. Of these, approximately 56 do not have access to the municipal water system. This number will decrease as the City completes capital improvement projects over the life of this Plan.

#### Water Treatment and Storage

The City has a total storage capacity of 4.0 million gallons (MG) including two 1.5 MG elevated storage tanks and a 1 MG underground storage reservoir. In 2016 construction on an 8-million gallon per day iron and manganese treatment plant was completed and the plant was brought on line. The water treatment plant uses aeration and chlorine with filtration to oxidize and remove iron and manganese from the City's ground water supply wells. Treated water is directed into the underground storage reservoir where it is pumped out to the distribution system and the elevated storage tanks with chlorination and fluoridation (with Hydrofluosilicic acid). **Figure 9C.2** describes the chemicals used for treatment and related storage facilities.

**Figure 9C.1** includes information on the static and drawdown levels of each of the City's municipal supply wells. The static level refers to the level of water in the well under normal, undisturbed, no-

## 9 - COMMUNITY FACILITIES AND SERVICES

pumping conditions. The drawdown level refers to the level of water in the well when the well pump is running. Graphs showing the static and drawdown levels for each of the City's municipal wells from 2009 to 2016 are included in Appendix A.

**Figure 9C.1 - Water Source**

	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7
<b>Capacity (gpm)</b>	1749	1250	1250	1749	1600	1400
<b>Capacity (MGD)</b>	2.52	1.80	1.80	2.52	2.30	2.02
<b>Year Installed</b>	1969	1972	1974	1981	1985	1987
<b>Uniqueness Number</b>	206833	206751	206750	151557	151576	432019
<b>Casing Diameter (in)</b>	20-19-12	24-20-16	24-12-10	24-16-10	24-18-10	24-16-10
<b>Casing Depth (ft)</b>	465	297	417	336	325	325
<b>Well Depth (ft)</b>	536	413	437	408	414	442
<b>Formation</b>	One-J	J	One-J	J	J	J
<b>Static Level (ft)</b>	40	39	34	33	56	58
<b>Drawdown (ft)</b>	84	73	46	87	91	89
<b>Pump Type</b>	VT	VT	VT	VT	VT	VT
<b>Motor HP</b>	60	50	50	60	150	200

\*Well Number 1 is no longer in service; it is used by the United States Geologic Survey for monitoring purposes.

**Figure 9C.2 - Water Treatment**

	Water Treatment Plant	Booster Station
<b>Oxidation</b>	Forced Draft Aeration	N/A
<b>Oxidation/Disinfection</b>	Cl <sub>2</sub> (Chlorine Gas)	N/A
<b>Filtration</b>	Greensand/Anthracite Media	N/A
<b>Disinfection</b>	N/A	Cl <sub>2</sub> (Chlorine Gas)
<b>Fluoridation</b>	N/A	H <sub>2</sub> SiF <sub>6</sub> (Hydroflosilicic)

## 9 - COMMUNITY FACILITIES AND SERVICES

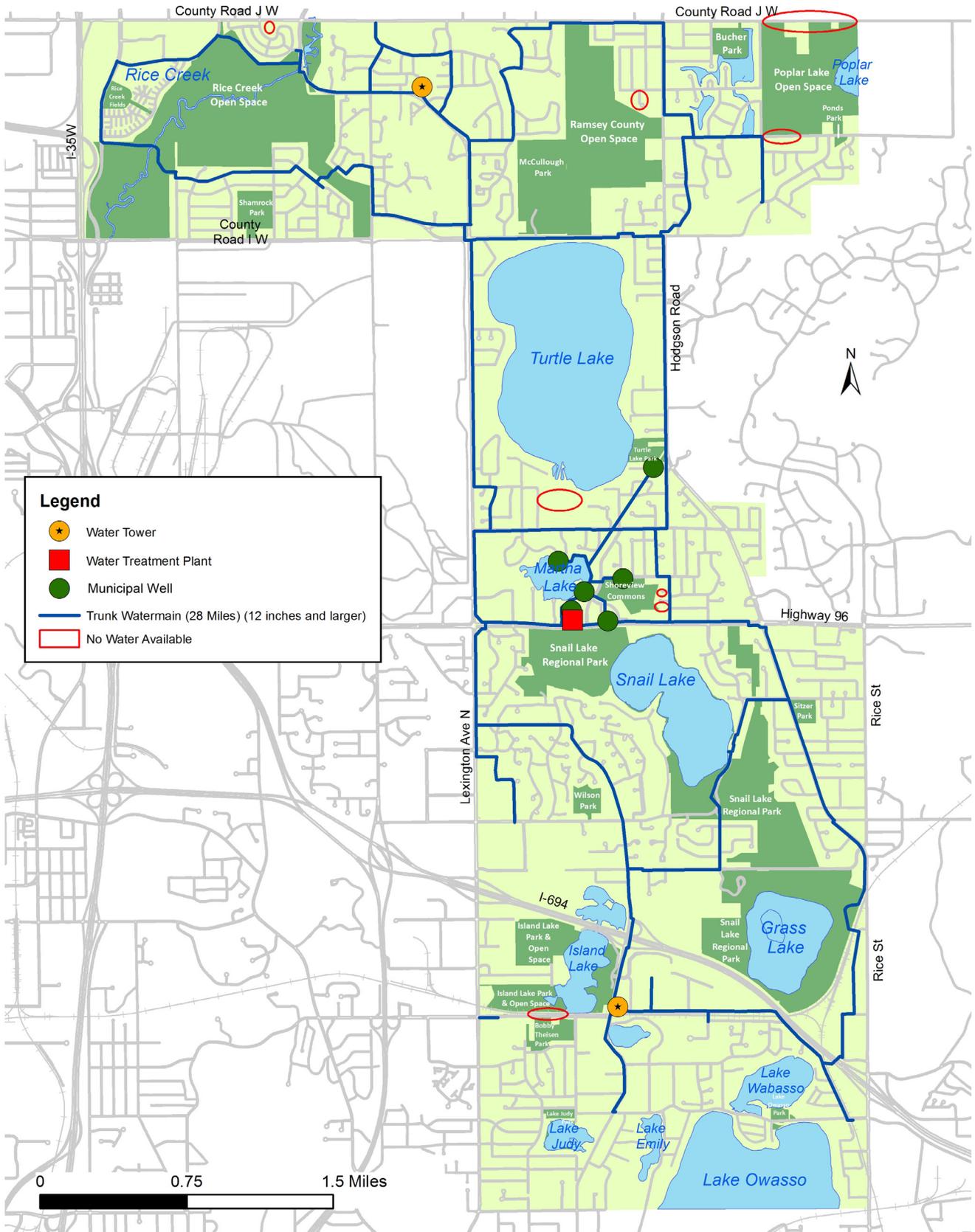
**Figure 9C.3- Underground Reservoir**

GS and PBs	Underground Reservoir
<b>Volume (gal)</b>	1.0 MG
<b>Pump Type</b>	VT/VT/VT/VT
<b>Capacity (gpm)</b>	3600/3600/3600/3600
<b>Motor HP</b>	250/250/250/250

**Figure 9C.4 - Water Storage**

	Tower 1/South	Tower 2/North
<b>Type</b>	Hydropillar	Hydropillar
<b>Volume (MG)</b>	1.5	1.5
<b>Overflow Elevation (ft)</b>	Grnd EL to bowl bottom=90 ft Bowl bottom to overflow=50 ft	Grnd EL to bowl bottom=136.5 ft Bowl bottom to overflow=50 ft
<b>Normal Operating Range</b>	36.5 ft to 41.5 ft above the bowl bottom for winter 44.5 ft to 47.5 ft above the bowl for summer	36.5 ft to 41.5 ft above the bowl bottom for winter 44.5 ft to 47.5 ft above the bowl for summer
<b>Year Constructed</b>	1973	1983
<b>Manufacturer</b>	Pittsburgh DesMoines	Pittsburgh DesMoines

# Map 9C.1 - Water Supply and Distribution System

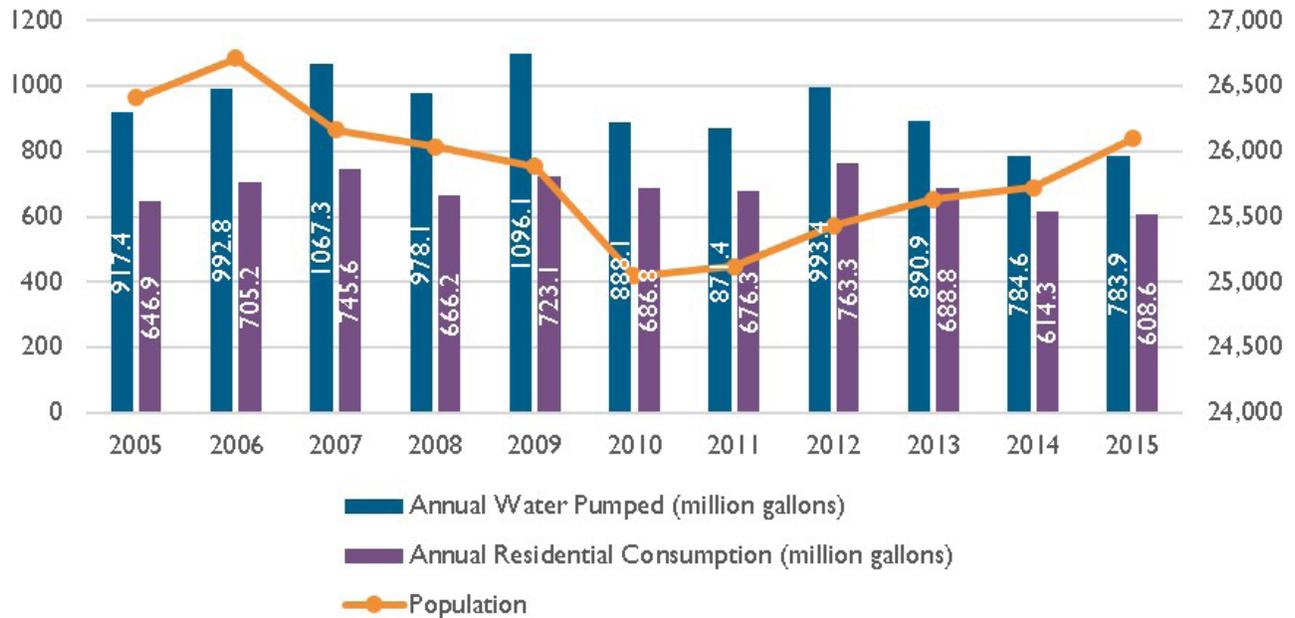


# 9 - COMMUNITY FACILITIES AND SERVICES

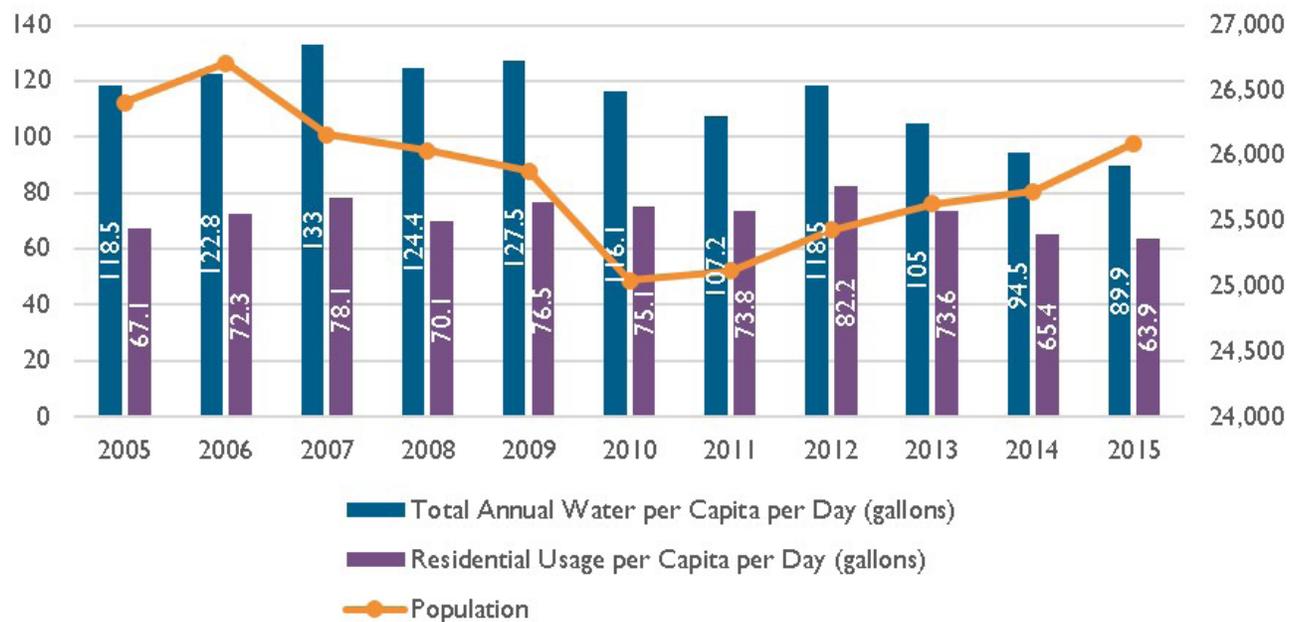
## Water Use

Figure 9C.5 and Figure 9C.6 summarize annual water use and annual residential consumption.

**Figure 9C.5 - Water Pumped vs. Residential Consumption**



**Figure 9C.6 - Annual Water per Capita vs. Residential Water per Capita**

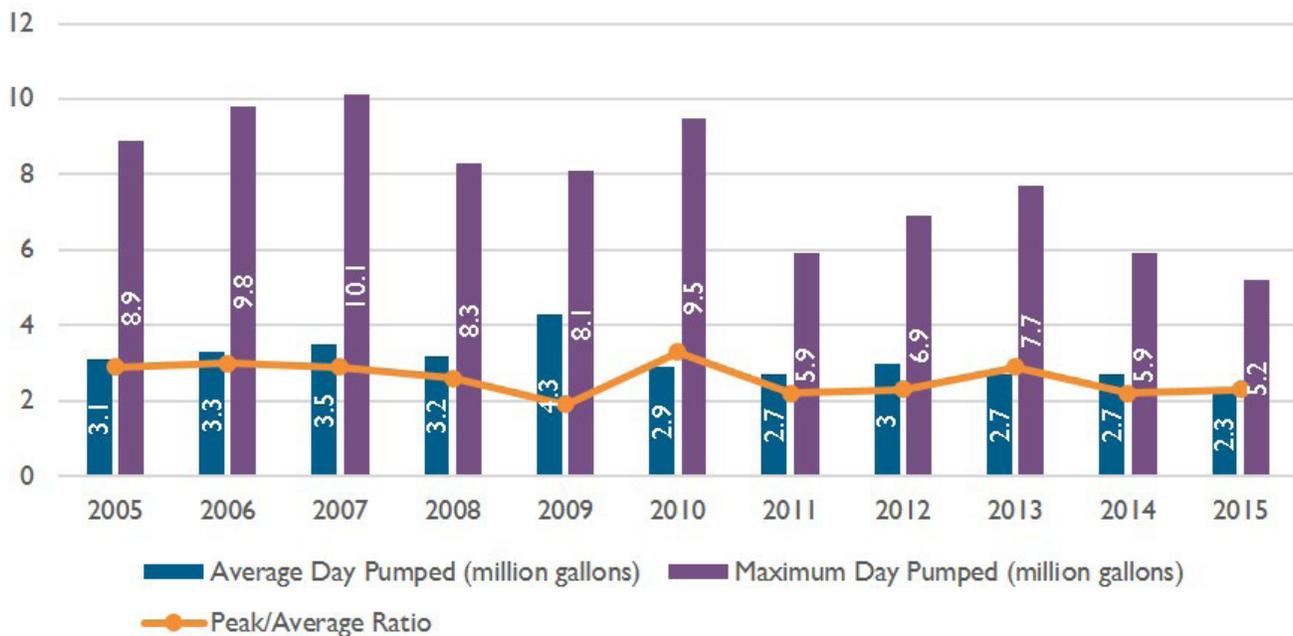


## 9 - COMMUNITY FACILITIES AND SERVICES

### Seasonal and Peak Water Demand

From 2010 to 2015 the average water demand is 2.7 million gallons per day (MGD), the average maximum daily demand is 6.8 MGD for an average maximum day ratio of 2.5. Annual and peak water demands are summarized in **Figure 9C.7**. In 2015 the average daily demand was 2.3 MGD, and the peak or maximum day demand was 5.2 MGD.

**Figure 9C.7 - Peak Water Demand**

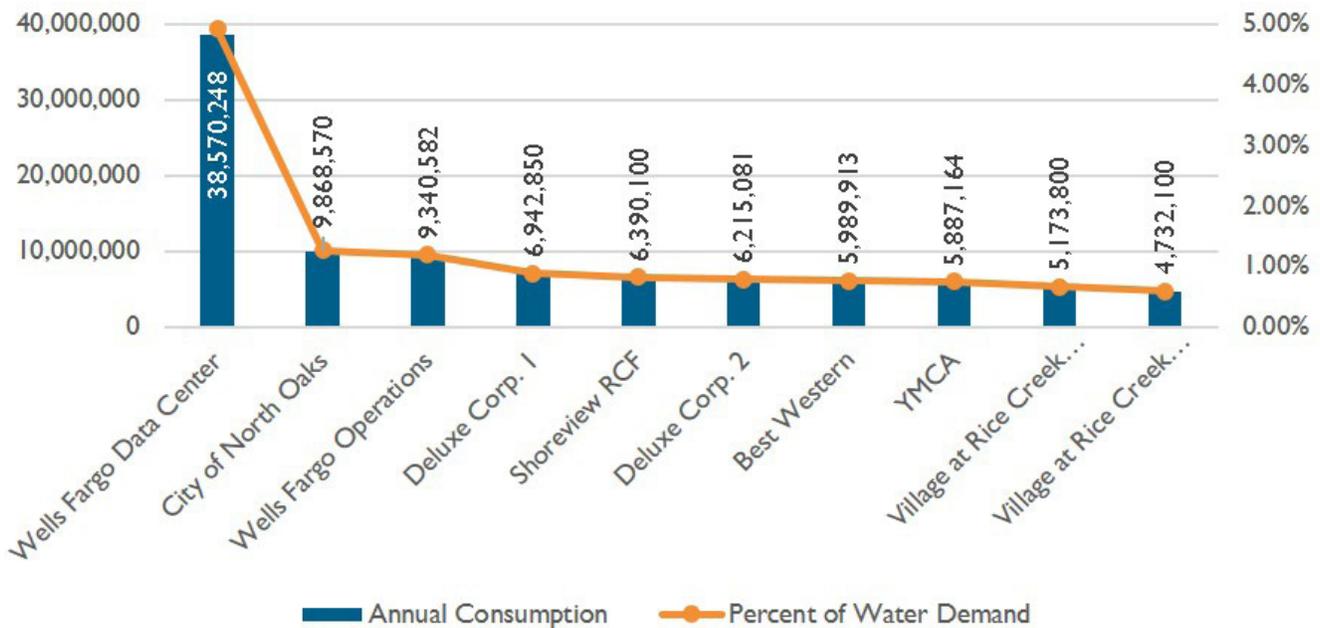


### Large Volume Customers

The City of Shoreview does not have any one customer or use that consumes more than five percent of total water production. **Figure 9C.8** summarizes the 2015 annual water usage for customers that consume the greatest share of total production.

## 9 - COMMUNITY FACILITIES AND SERVICES

Figure 9C.8 - Large Volume Customers: 2015



It is the City's understanding that the water consumption at the Wells Fargo Data Center is required for cooling equipment. The City does not have information on the type of cooling system that is used and if the cooling system water is recycled or reused.

The water use for the City of North Oaks is related to a combination of retail and residential, Wells Fargo Operations, Deluxe Corp 1 and 2, Best Western, and YMCA for business, Shoreview Rice Creek Fields for irrigation, and the Villages at Rice Creek for residential.

### Inter-Community Water Service

The City of Shoreview has inter-community water service agreements with the cities of Arden Hills, Lino Lakes, North Oaks, and Vadnais Heights. The City provides municipal water to a few individual properties within each of these cities.

## ANALYSIS OF FUTURE NEEDS

### Aquifer Water Level

For proper management of the Prairie du Chien-Jordan aquifer resource that serves as the ground-water supply for the City, the City should pump at rates that allow for long-term recharge of the aquifer.

The City of Shoreview collects water level data for all the City wells, which can be used to assess the long-term trends in static water level in the City wells. The collected data indicates the static water

## 9 - COMMUNITY FACILITIES AND SERVICES

levels are rising or remaining stable and that the City is not pumping from the aquifer at excessive rates. Please refer to **Figure 9C.1** for current drawdown data for the City's water supply wells.

### Projected Water Demand

Shoreview's population is expected to grow slightly over the next 20 years to 26,300 in the year 2020; 26,300 in the year 2030; and 26,400 in the year 2040. **Figure 9C.9** summarizes projected water demands through 2040.

**Figure 9C.9 - Projected Water Demand**

	Projected Total Population	Projected Population Served	Projected Total Per Capita Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)
<b>2020</b>	26,300	26,892	124.8	3.36	8.39
<b>2030</b>	26,300	26,892	124.8	3.36	8.39
<b>2040</b>	26,400	26,992	124.8	3.37	8.43

Source: 2017 Water Supply Plan. The projected total population and projected population served differ from the populations listed in the Water Supply Plan. The Met Council's Thrive MSP 2040 population forecast for Shoreview was adjusted after the completion on the Water Supply Plan and the revised forecasts are reflected in table above.

The projected population served that exceeds Shoreview's population reflects water service extensions to serve properties along Shoreview's borders with Arden Hills, North Oaks, and Vadnais Heights.

The water demand attributable to the very small projected growth in number of households and employment is expected to be largely offset by decreases in household size and continued water conservation efforts. Because there has been a significant change in the annual water use trend due to the addition of various water conservation initiatives, the resultant reduction in water demand is likely to be sustained as long as water conservation programs remain in effect.

The City of Shoreview has long promoted voluntary stewardship of water resources; the efforts became very active when Shoreview began a comprehensive water conservation program in 2008 to reduce peak water demands and promote sustainability of the City's water supply. Most recently, the city upgraded water use restrictions to include a time of day component as well as application of restrictions to existing private wells which had previously been exempt. In addition, the City by Ordinance now (April 2017) prohibits the installation of new private wells in areas already served by the public water supply. Aggressive leak detection, complete replacement of the City's water meters, policy of emergency-only authorized use of fire hydrants, a highly efficient water reclamation process at the City's water treatment plant, implementation of the WaterSmart conservation platform, and a conservation-based water rate structure are all aspects of the City's operations that are anticipated/programmed and budgeted-for so these efforts are more-or-less institutionalized. All of these efforts and initiatives have contributed to reducing both maximum day and average annual water use trends in

## 9 - COMMUNITY FACILITIES AND SERVICES

the past and these projections consider their impact.

### Adequacy of Resources to Meet Current and Projected Demands

The Prairie du Chien-Jordan aquifer is currently being used as the City's water supply source and appears to be adequate for Shoreview's foreseeable future water needs. Future forecasts of water demand, long-term trends indicating stable or rising static water levels in City wells, and storage requirements indicate that the City's emergency flow capacity should be adequate until the year 2040.

### Adequacy of Existing Water System to Meet Current and Projected Demands

Shoreview's municipal water distribution system has been periodically studied and improved since the 1970s, with the most recent major improvement occurring in 2015-2016. That improvement consisted of constructing a water treatment plant and connecting well #6 to the raw water header piping that directs raw water from all the City's wells to the water treatment plant.

The City completed a system-wide analysis and demand simulation (computer model) of the distribution/storage system in 2014. The results of that recent analysis indicate that the City has a maximum production capacity of 9,281 gallons per minute (gpm)/13.39 million gallons per day (mgd) an amount sufficient to adequately serve both the domestic and fire flow demand of the population and land uses projected to the year 2040. The City will continue to analyze its water production and distribution system on a regular basis and will program system upgrades or component replacements as well as routine maintenance projects as necessary.

The City of Shoreview has existing inter-community water service agreements with a number of adjoining cities. At this time, no neighboring communities have requested any additional water main extensions, and the City is not aware of any potential requests from these communities. Any future requests for additional inter-community water service will be evaluated based on the impact to the municipal water system infrastructure and water supply.

### Proposed Expansions

Shoreview currently has no major plans to expand its water production capabilities as the existing water treatment plant, wells, booster station, and storage facilities are determined to be adequate for the population and land uses projected to the year 2040. During the construction of the water treatment plant, infrastructure and electrical upgrades were completed on the booster station and some of the wells that included the installation of variable frequency drives (VFDs) and the replacement of meters to optimize performance and increase efficiency. A major upgrade to the City's Supervisory Control and Data Acquisition (SCADA) system was also completed. Minor expansions or extensions of the municipal water distribution system are included in the City's current Capital Improvement Plan to create loops in the system to improve the overall performance and also extend service to areas of the City that are not currently served by the City's water system.

## 9 - COMMUNITY FACILITIES AND SERVICES

The City is also planning maintenance or operational improvements to the municipal water distribution system. The City's current Capital Improvement Plan includes projects to complete electrical upgrades to the City's well infrastructure including the installation of VFDs to optimize performance and increase efficiency and continued rehabilitation of the elevated storage tanks.

### Impact on Other Comprehensive Plan Elements

Other elements of the Comprehensive Plan that may be affected by this water supply plan include Land Use, Housing, Economic Development and Natural Resources. The ability to provide a safe public water source influences how the land is used, maintains quality of life within the City's neighborhoods and supports economic development. In addition, the aquifer is better protected from contamination since private wells are not needed to serve residences and businesses.

The City's water production and distribution system have been designed to provide service to the projected land uses through the year 2040. Expansion of the system will occur to accommodate infill development, as necessary.

### Groundwater Protection and Management

Groundwater serves as the source of the municipal water supply and must be managed for the City's long-term needs and to protect the water source from contamination. Groundwater is recognized as a vital resource that is key to Shoreview's current well-being and future development.

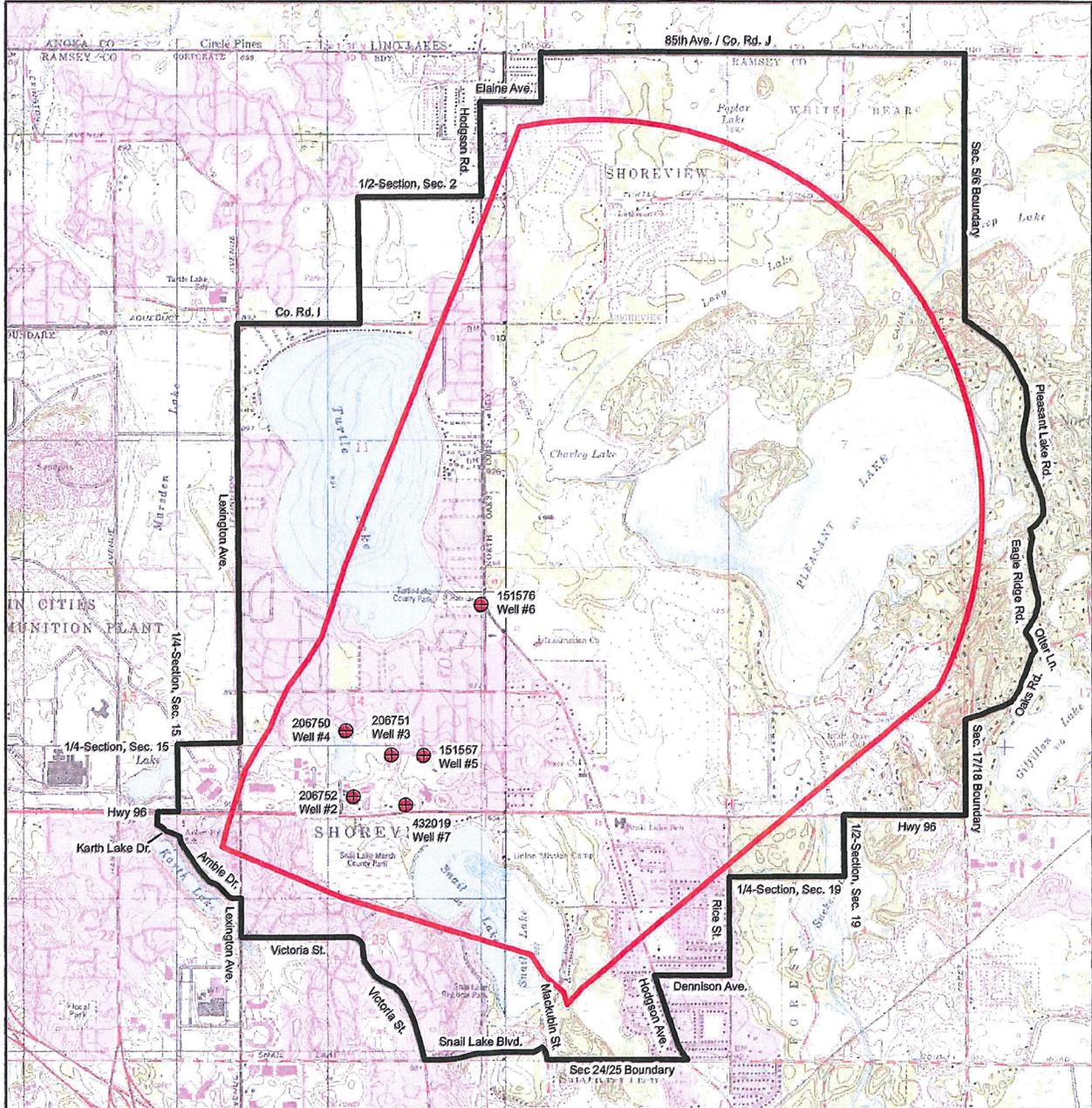
In 2010 the City of Shoreview completed Part 1 of their Wellhead Protection Plan, which included ground water modeling, delineation of the Wellhead Protection Areas (WHPA) and drinking water supply management area (DWSMA), and the vulnerability assessment for the City's wells and aquifers. **Map 9C.2** shows the City's DWSMA. Part 2 of the Wellhead Protection Plan was completed in 2012 and includes wellhead protection goals and objectives, and a plan of action related to the goals.

### Shallow Groundwater

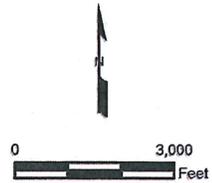
The City's municipal water is obtained from a deep aquifer over 400 feet below the ground surface. Subsurface geology isolates this deep aquifer from the shallow groundwater that supplies the large majority of private wells. About 481 residential dwelling units in the City are served by private wells. These private wells are more vulnerable to contamination from surface and shallow sources such as failing septic systems or polluted runoff. Land use (such as industrial uses) can also affect shallow groundwater quality. Shallow groundwater can carry nutrients and contaminants to nearby surface waters.

Oversight of private wells lies with the Minnesota Department of Health. The City can help prevent contamination of shallow groundwater through continued monitoring of individual sewage treatment systems. (See Section 9B, Sanitary Sewer System, for more information on the management of individual sewage treatment systems.)

# Map 9C.2 - Drinking Water Supply Management Area



- City Well
- Combined Wellhead Protection Area
- Drinking Water Supply Management Area



Source: USGS 7.5-Minute Quadrangles.  
 Note: DWSMA delineated using roads as observed from ESRI Online Imagery and LMIC WMS Server aerial photography, and using Ramsey County quarter section public land survey coverage from the MN DNR.



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**CITY OF SHOREVIEW**  
 SHOREVIEW, MINNESOTA

**DRINKING WATER SUPPLY MANAGEMENT AREA DELINEATION**

FILE: G3SHVWHP01S.MXD    DATE: 07/09/2010    FIGURE: 15

### Municipal Water Supply

Water supply protection is an essential part of managing the municipal water system. Part 2 of the City's Wellhead Protection Plan includes wellhead protection goals and objectives, and a plan of action related to the goals to protect the City's groundwater supply. The goals and objectives of the Plan focus on managing potential contamination sources within the DWSMA, reducing the potential contamination pathways to the source water aquifer that may be provided by private wells, educating property owners and water supply users, and working with Vadnais Heights, Arden Hills, North Oaks, and White Bear Township to ensure proper management of the portion of the DWSMA in their respective community.

## EMERGENCY MANAGEMENT

### Interconnections with Adjacent Suppliers and Sources

Six permanent connections with adjoining communities presently exist:

- » A six-inch connection with the community of Circle Pines at the intersection of County Road J and Fernwood Street.
- » Two eight-inch connections with the City of Arden Hills at the intersection of Lexington Avenue and Grey Fox Road and the intersection of Lexington Avenue and Victoria Street.
- » An eight-inch connection with the City of Roseville at the intersection of Lexington and County Road D.
- » An eight-inch connection with the City of Lino Lakes at the intersection of County Road J and Grotto St.
- » A six-inch connection with Vadnais Heights on Rice Street between Hawes and Demar Avenues.

These connections are normally closed but in emergency situations can be opened to help meet the adjacent communities and /or the City of Shoreview's emergency needs. There are no plans at this time to create additional interconnections.

### Alternative Water Sources

No viable/operable sources of surface water are currently available to the City of Shoreview. Also, there are currently no operative alternative sources of water for the City. In the event that a well became contaminated, the City could augment supply through interconnections and enforce water use restrictions until treatment modifications could be completed to the water treatment plant to treat the water to drinking water standards.

### Allocation Procedures

In the event of water shortage, the City would allocate water based on the following priorities. These priorities were established according to Minnesota Statute 103G.216 and modified to allow their

## 9 - COMMUNITY FACILITIES AND SERVICES

practical application to uses within the City of Shoreview.

- » **First Priority.** Domestic water supply (as defined in Minnesota Rules 6115) including use for general household purposes for human needs such as cooking, cleaning, drinking, washing and waste disposal.
- » **Second Priority.** Water uses involving consumption of less than 10,000 gallons per day.
- » **Third Priority.** Water uses exceeding 10,000 gallons per day.
- » **Fourth Priority.** Non-essential uses (as defined in Minnesota Statute 103G.216) including lawn sprinkling, vehicle washing, golf course and park irrigation, and others.

The City will allocate water equitably within each water use priority and customer category. The demands associated with high-priority water use, e.g., domestic water supply, must be met prior to the allocation of water to subsequent lower priority groups. Non-essential uses of water are the lowest priority and will be the first subject to restrictions. The City's quick response to restrict non-essential water uses during periods of limited supply will help protect domestic and economic uses of water. For additional information, refer to the 2017 Water Supply Plan.

### Demand Reduction

The City of Shoreview has adopted and enforces an odd/even and time of day lawn sprinkler use regulation during the summer months to reduce water demand. During water shortages, other demand reduction measures may be required, and the City employs several standard short-term demand reduction procedures based on associated trigger. These measures are progressively more stringent and are to be used as the length or severity of an emergency warrants. Standard reduction measures include:

- » **Voluntary Reduction Measures.** Encourage voluntary conservation via public service announcements, "bill stuffers" or articles in the City's newsletter.
- » **Sprinkling Bans.** Total ban in extreme emergency.
- » **Water Allocation Restrictions.** Based on the severity of the emergency and the water use priorities.

Demand reduction measures will be triggered based on the City's well firm capacity. Well firm capacity is defined as the water utility's production capacity with the highest producing well out of service. Well firm capacity is not a fixed number and may change based on the type of emergency if, for example, a well is rendered inoperable because of the emergency at hand.

**Figure 9C.10** lists short-term demand reduction measures and associated triggers. The triggers are provided as a guideline, and the listed demand reduction measures can be implemented prior to these triggers if deemed appropriate by experienced City water personnel.

# 9 - COMMUNITY FACILITIES AND SERVICES

**Figure 9C.10 - Demand Reduction Measures and Triggers**

Demand Reduction Measure	Trigger
Voluntary Reduction Measures	Always
Odd/Even Sprinkling Ban	May 15 <sup>th</sup> – September 15 <sup>th</sup> every year
Time of Day Sprinkling Ban	Not permitted between the hours of 11:00 a.m. and 5:00 p.m.
< 1-yr Demand Reductions Total Sprinkling Ban and Other Non-Essential Uses	Lake of water storage and well interference
> 1-yr Demand Reductions Develop Critical Water Deficiency Ordinance and Enhanced Monitoring & Reporting	Per Capita Demand Increase

Source: 2017 Water Supply Plan. For additional information, refer to the 2017 Water Supply Plan.

## Enforcement

Water use restriction enforcement procedures are specified in Exhibit B of the Shoreview Municipal Code. Water use restriction will become more stringent as an emergency progresses. Voluntary reduction measures are encouraged by the City. Water use restrictions (e.g., odd/even & time of day bans) are enforced by the City staff. Total sprinkling bans and other allocation reductions will be monitored by the water utility staff and enforced as needed. Enforcement includes fines, and other penalties. Customers are notified of water use restrictions through the City website, the newspaper, official City newsletters and/or public announcements as appropriate.

## Previous Supply Problems

The City has experienced no major failures in the history of the water system. However, failures within Shoreview's water supply and distribution system can occur. The water utility staff maintains an adequate supply of repair parts, equipment, personnel and other resources for both the distribution system and the well pumphouses. Older portions of the distribution system are monitored closely for leaks, breaks and other failures. The Shoreview municipal water supply system utilizes the same primary power source as the rest of the city. The City's water treatment plant and four of the six wells have back-up generators that automatically switch-on in the event of a power outage. The remaining two wells can be connected to a portable generator if needed. Future plans for water system upgrades include permanent auxiliary power sources for the two wells that currently do not have permanent back-up generators.

### WATER CONSERVATION

#### Conservation and Demand Management

Conservation can be used to reduce the demand for water, improve the efficiency of water use and reduce the loss and waste of water. In some cases, conservation can actually be an alternative to developing additional sources of water to meet peak demands for non-essential water use. Reducing the peak water use is the ultimate objective of conservation. Thus, conservation is a more general and long-term approach that works towards the same objective as short-term demand reduction measures. Reducing peak water use may delay or reduce additional source development and water storage requirements. Conservation is most easily measured by reductions in residential and overall per capita water use.

#### Metering

All Shoreview water system users are metered, and no users (permanent or temporary) will be added to the system without a meter. Meters are read monthly. Meters for the City's larger accounts are monitored regularly and recalibrated, repaired (or replaced) if needed. Other meters may be tested, recalibrated or replaced if billing data indicates a significant change in use.

#### Unaccounted-for Water

Over the last several years, the City has been very aggressive at reducing the amount of unaccounted-for water in the City's water system. The average water loss for the years 2010 to 2015 has averaged less than 5% of the total amount of water pumped. The use of annual water audits and leak detection surveys along with a City wide meter replacement project in 2008 have played an important part in reducing the unaccounted for water.

#### Water Conservation Plan

As part of the City's 2006 Water Supply Plan the City implemented a number of conservation practices that included changing the water rate structure, water system improvements, education efforts, water conservation ordinances, and implementation of the WaterSmart water conservation platform.

The City's 2017 Water Supply Plan includes eight conservation objectives and strategies, which are summarized below:

1. **Reduce unaccounted water loss to less than 10%** - For the years 2010-2015, the City's average water loss was 4.1%. City will continue annual water audits and leak detection surveys and monitor accuracy of meters.
2. **Achieve less than 75 residential gallons per capita demand (gpcd)** - For the years 2010-2015, the City's average was 71.8 gpcd and the decreasing trends in both the residential and total per capita demand have continued through 2016. The City will revise City Code to permit water reuse options, create a rebate or incentive program for installation of water efficiency

## 9 - COMMUNITY FACILITIES AND SERVICES

sprinkler control equipment, and continue water conservation education and outreach and WaterSmart program.

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 10 years** - The City will investigate the reuse of reclaimed water and reduction of outdoor water use.
4. **Achieve a decreasing trend in total per capita demand** - The trends for per capita demand currently show a decrease and it is expected the current and potential future water conservation practices by the City and residents will continue the downward trend.
5. **Reduce peak day demand so that the ratio of average maximum day to the average day is less than 2.6** - The ten year average from 2005 to 2014 of the ratio of maximum day demand to average day demand is 2.4. It is expected the current and potential future water conservation practices by the City and residents will continue to reduce or stabilize the maximum to average day ratio.
6. **Implement a conservation water rate structure and/or uniform rate structure with a water conservation program** - The City currently uses volume tiered rates for residential, commercial, industrial, and institutional accounts.
7. **Additional strategies to reduce water use and support wellhead protection planning** - The City plans to implement additional strategies in the next 10 years that include participating in the Green Steps Cities “Best Practices for Water” Program, prepare a comprehensive open space plan, implement a stormwater management program, and implement a rebate program for outdoor water management.
8. **Tracking success** - The City will continue to monitor/audit the water system annually. The measure of success will be based on review of the utility billing records through the next ten years.

For additional information concerning the conservation plan, refer to the City’s 2017 Water Supply Plan.

## GOALS POLICIES AND RECOMMENDED ACTIONS

### Goals

1. Promote sustainable use of the City’s municipal water supply source.
2. Protect the health and economic well-being of the City’s citizens by providing safe and dependable water service at a reasonable cost.
3. Operate the City’s water service so that it is economically self sufficient and so that rates and reserves allow for an appropriate infrastructure replacement schedule.

### Policies

- A. Coordinate with the appropriate state and regional agencies to assure the sustainable use of the

## 9 - COMMUNITY FACILITIES AND SERVICES

Prairie du Chien-Jordan aquifer.

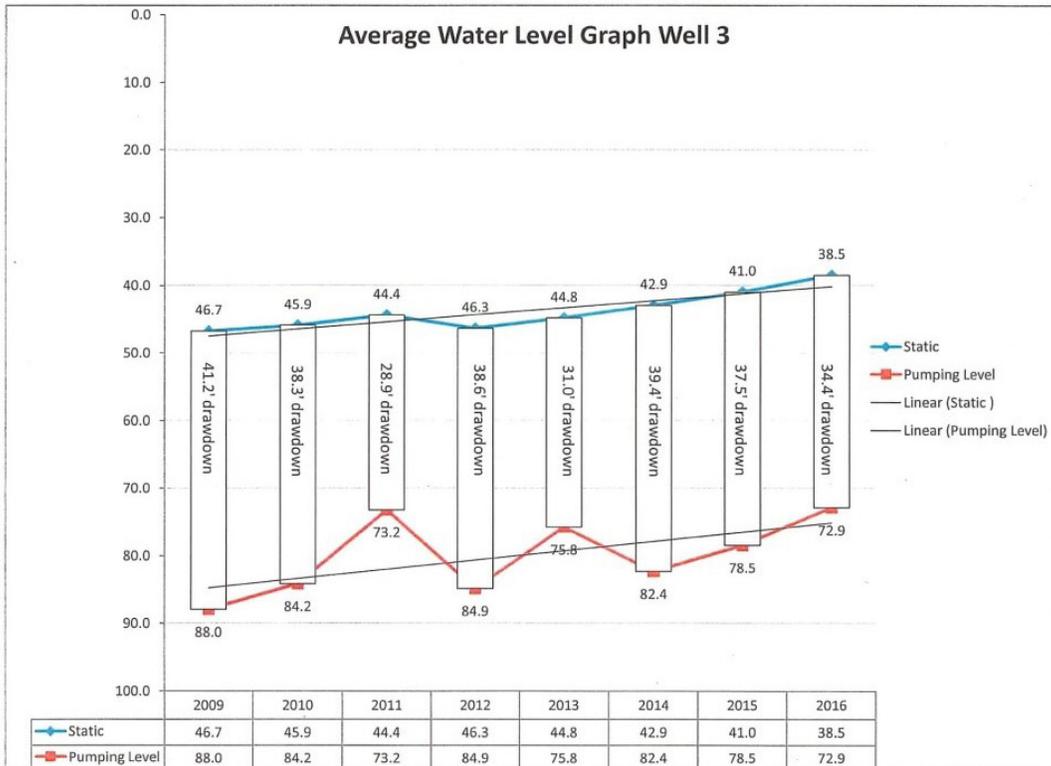
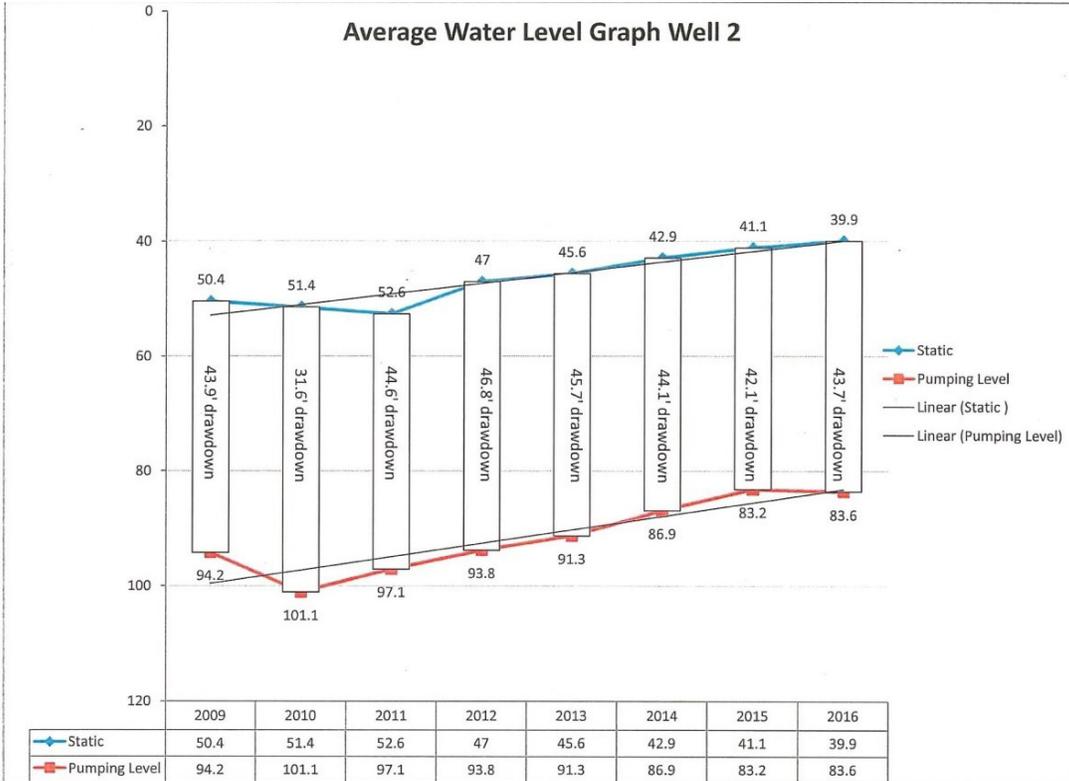
- B. Remain in compliance with state and federal drinking water standards.
- C. Monitor water use to ensure existing wells are adequate to meet demand.
- D. Encourage water conservation to reduce the need for additional water supply wells.
- E. Continue to plan for short-term and long-term system needs to insure rate stability and the economic self-sustainability of the City's water supply system.
- F. Encourage all property owners to connect to the City's municipal water system.
- G. Encourage proper capping and sealing of all unused wells to protect groundwater quality, particularly wells that tap into the Prairie du Chien-Jordan aquifer and/or are located within wellhead protection areas.
- H. Monitor and reinforce the security of the water source and its physical infrastructure.

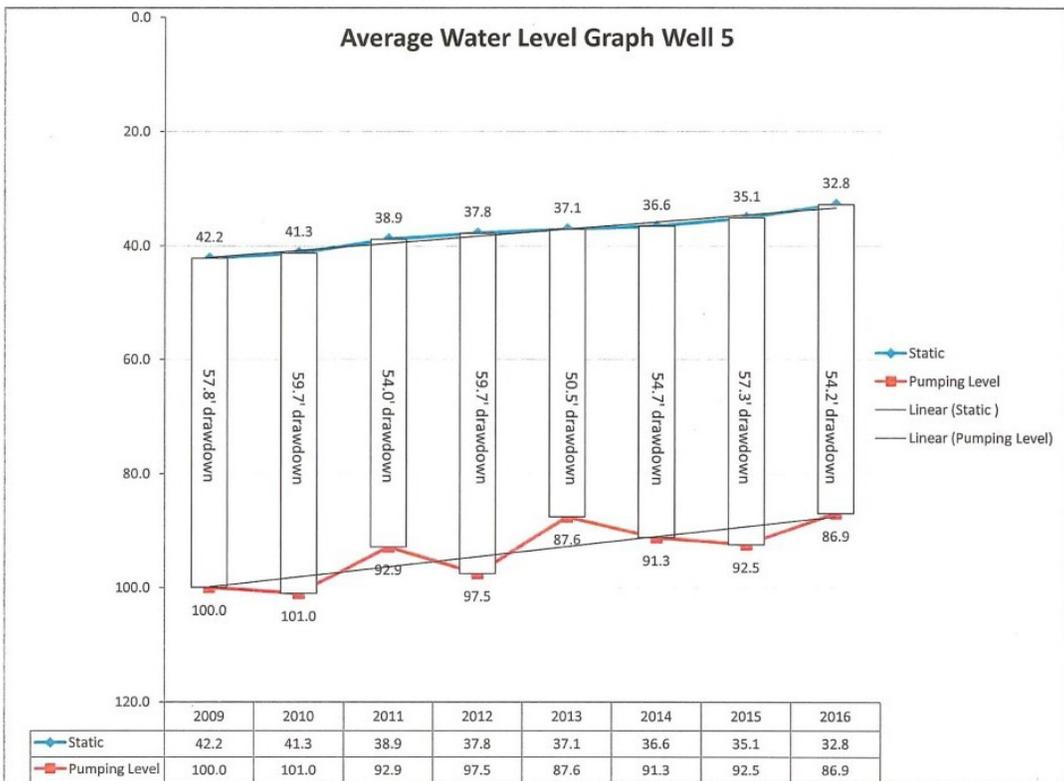
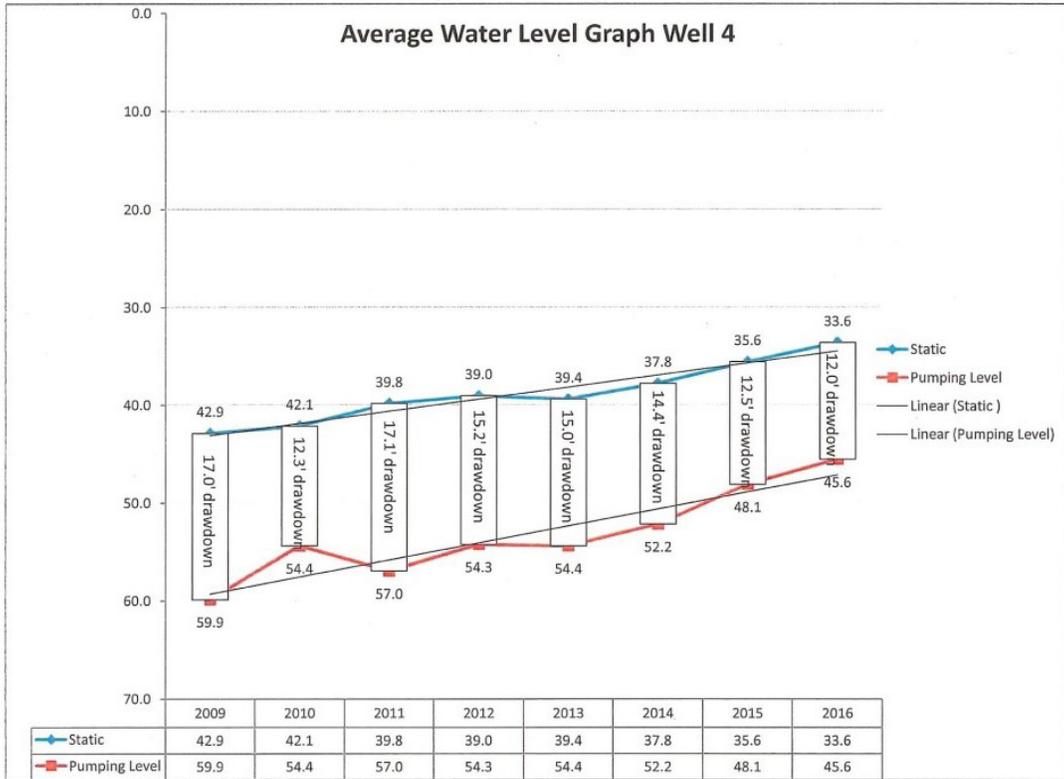
### Recommended Actions

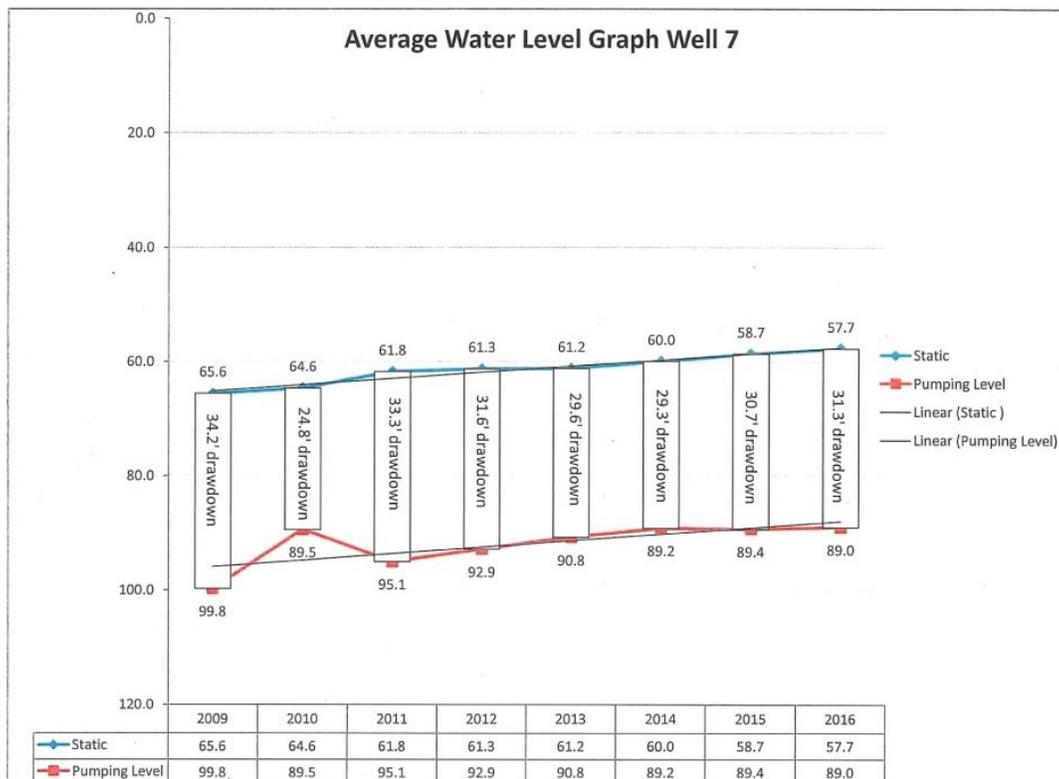
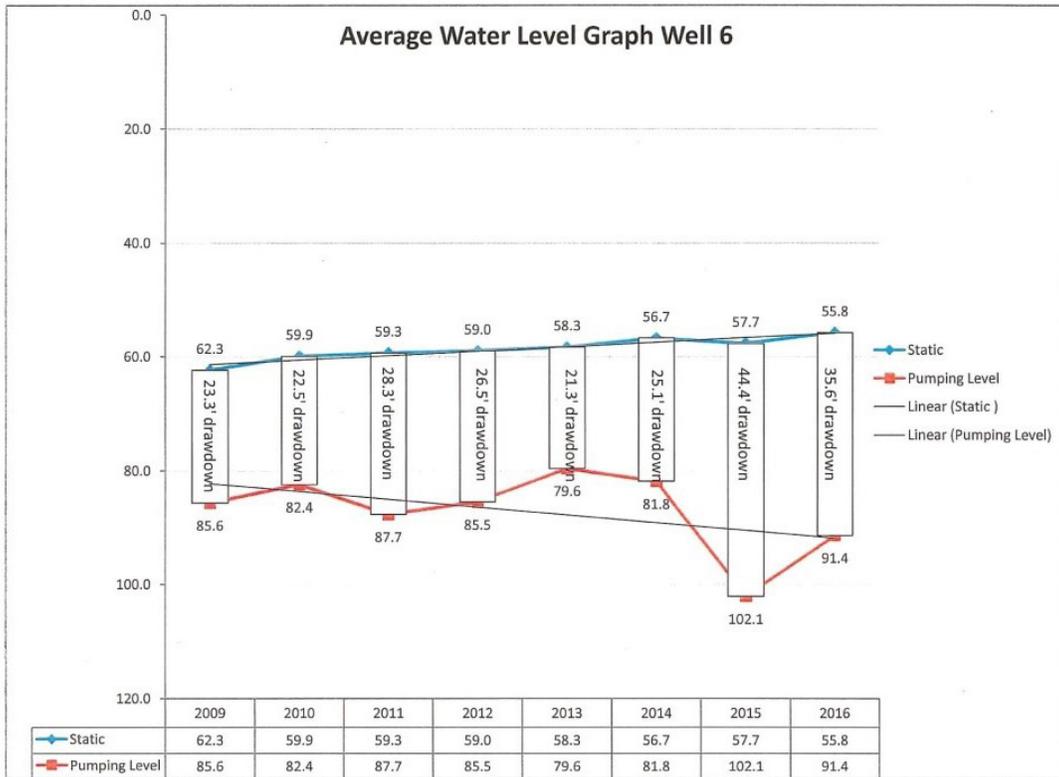
- 1. The City will continue to analyze its water production and distribution system on a regular basis and will program system upgrades or component replacements as well as routine maintenance projects as necessary.
- 2. The City will continue to employ the following water conservation measures:
  - » **Annual.** Odd / even sprinkling restrictions May 15 - Sept 15 and time of day ban from 10:00 a.m. to 5:00 p.m.
  - » **Voluntary Reduction Measures.** Public service announcements, "bill stuffers", notices in local paper, post information on the City's website and newsletter.
  - » **Sprinkling Bans.** Odd/even ban or a total ban in extreme emergency.
  - » **Water Allocation Restrictions.** Based on the severity of the emergency and the water use priorities.
- 3. The City will continue to follow the enforcement procedures for water conservation measures that are specified in City ordinances.
- 4. The City will continue to maintain drawdown records as part of the long-range maintenance of well water levels to insure sustainable aquifer use.
- 5. The City may consider monitoring the larger residential accounts (townhouse complexes) more frequently to better assess and address higher than average uses of water.
- 6. To ensure the integrity of the public water supply, the City should continue the systematic replacement of cast-iron and other outdated construction materials used for water main construction as opportunities arise through street reconstruction and other infrastructure improvement projects.
- 7. The City should continue its operation and maintenance activities which include: seasonal water main flushing, hydrant and valve inspection and exercising, annual well column, pump, line shaft and motor inspection and repair when appropriate.

# Chapter 9C - Appendix A

## City Municipal Wells - Static and Drawdown Levels







# 9D - SURFACE WATER MANAGEMENT

Shoreview has completed the 2018-2028 Surface Water Management Plan (SWMP or Plan) to establish an up-to-date guide for future surface water management activities throughout the City. This Plan builds on the City's previous plans from 1990 and 2005, its National Pollutant Discharge Elimination System Permit (NPDES) permit program and input from the Metropolitan Council, Ramsey County, and the local watershed organizations. Areas of focus for this Plan update include engineering standards for projects that fall below the watershed and state permit program thresholds, compiling a summary of the modeled high water levels throughout the City and placing a greater emphasis on maintenance of the system.

## PLAN PURPOSE

The purpose of this Plan is to establish the framework of a comprehensive program that does more than protect and improve the quality of existing water resources within the City. This updated Plan will continue to serve as a reference and a toolbox with information on the regulatory requirements relating to surface management, information on the physical environment and specific water resources within the City, recognition of some of the activities and accomplishments from past work and up-to-date design standards. This 2018-2028 SWMP will serve to:

- » Provide the framework for management, improvement, and protection of surface water resources
- » Contribute to the quality of life by preserving and enhancing the high environmental quality of the community.
- » Protect public investments and private property related to or affected by surface water.
- » Help to understand the larger context of surface water management issues in relation to land use and land use policy.
- » Balance environmental protection and enhancement needs with economic needs and capabilities.
- » Meet regulatory requirements.

## Regulatory Basis for the Plan

The Minnesota Board of Soil and Water Resources (BWSR) provides guidance resources for Metro Area Surface Water Management Plans. These Statutes and Rules require the preparation of watershed plans by watershed management organizations (WMOs) and watershed districts (WDs) and the preparation of local water management plans that are consistent with the respective WMO/WD plans. The most current SWMP for Ramsey-Washington Metro Watershed District (RWMWD), 2017-2026 Watershed Management Plan, was adopted in April 2017 and for the Rice Creek Watershed District (RCWD), 2010 RCWD Management Plan, was adopted in January 2010 and amended in November 2016. The purpose of the Surface Water Management Plan (SWMP) is that through policies and thoughtful program implementation, goals for proper water and wetland resource management can be realized and

## 9 - COMMUNITY FACILITIES AND SERVICES

water quality can be protected. Through proper planning and implementation, informed decisions can be made which allow for the protection and/or enhancement of water quality, prevention of ground water degradation, and reduction of local flooding.

### Plan Overview

The two previous versions of the Plan included a set of goals and corresponding policies intended to guide surface water and water resource management activities over the roughly ten-year term of each Plan. This 2018-2028 Plan has retained the nine goal categories listed in **Figure 9D.1** along with the corresponding goal statements (provided in the Goals and Accomplishments Section of the Plan). However, the policies under each goal section have not been carried forward, as most had been incorporated in some manner into design standards, ordinances, and overall program activities over the course of the past two decades.

**Figure 9D.1 - Storm Water Management Plan Goal Categories**

Goal Number	Goal
1	Water Quality
2	Water Quantity and Flooding
3	Wetlands
4	Erosion Control
5	Groundwater
6	Recreation, Habitat, and Shoreline Management
7	Public Participation, Information, and Education
8	Maintenance and Inspection
9	Regulatory Responsibility

### Key Water Resource Issues

This plan identifies several key issues related to storm water management that the City is likely to encounter in the coming year. These issues include: meeting the requirements of the impaired waters program; addressing known and potential future localized flooding problems; meeting the challenges of an increased need for maintenance of the public and private stormwater system; and coordinating efforts with natural resource improvement areas to find more cost-effective approaches. These issues equate to a need for continued long-term financial commitments and likely increased funding for the surface water management program into the future.

- » Water Quality Improvements: Continued efforts towards improved water quality through coordination with local watersheds and implementing the City's updated design standards that fall

## 9 - COMMUNITY FACILITIES AND SERVICES

under the thresholds established by the watersheds.

- » **Water Quantity and Flooding:** Continue to address localized flooding areas to protect life and property and reduce the burden of reactive maintenance efforts. As weather trends are indicating, and as observed through the greater frequency of larger storm events that cause flooding, the potential for localized issues will continue. This realization places a higher level of urgency on the need to maintain Shoreview's storm water conveyance system so that it functions well during the design events as well as during extreme events. While some debris blockages of pipes and structures will almost certainly continue to occur, the efforts placed on identifying problem areas and conducting maintenance and/or installing physical improvements, will reduce the potential for problems or reduce the extent of damages.
- » **Maintenance of the System:** In addition to maintaining the system for flood protection, the need for maintenance of the water quality treatment system will also be a critical issue in the years ahead. Current costs for disposing of sediment collected in stormwater practices could potentially place a great financial burden on municipalities that own these systems. Continuing to approach pond cleanout and maintenance needs on a prioritized basis will be essential to delivering the program in a cost-effective manner.
- » **Partnerships are Funding:** The final critical area of focus will be the continued close coordination with the local watershed organizations, Ramsey County, and other project-specific partners to take full advantage of opportunities to gain water quality improvements and enhance other natural resources. These efforts are a priority for the City, especially on public capital improvement projects, storm water system and utility maintenance activities, public outreach and education activities, and on private development projects. This cooperative approach will allow the City to leverage the limited funding that is currently available by being in a better position to access available grant funds from the watersheds and state programs.

### Implementation Plan

The City's overall surface water management program involves a wide range of implementation projects and activities including capital improvement projects, studies, ongoing maintenance and inspection activities, monitoring and other management activities. The program is shifting towards more collaboration and partnership with the local watershed districts to implement water quality improvements and towards a more focused effort on maintaining the system. The Implementation Plan section of this updated 2018-2028 SWMP includes a summary of those activities and highlights for the next ten years. Estimated costs of recommended actions are not provided recognizing that planning level cost estimates often set unrealistic expectations of the actual costs of projects and/or activities. The City's water bodies and wetlands are truly exceptional resources for City residents. They offer a range of recreational opportunities and are generally in very good shape from a water quality perspective. The City's challenge in the years ahead will be to successfully implement this SWMP and the requirements of the NPDES MS4 program to maintain, and where feasible, improve these existing resources. The financial goal for this Plan is to fit within the existing funding sources to pay for water resources management activities. For the activities called out in this Plan, planning-level estimates of capital expenditures have not been made. The primary funding source for Plan activities is the City's Surface Water Management Fund. In addition, a focus will be placed on securing grants, enlisting regional watershed funding, seeking

## 9 - COMMUNITY FACILITIES AND SERVICES

local partnerships with adjacent communities and investigating other innovative financing mechanisms. Except for the activities that are taken from the City NPDES SWPPP, the Implementation Plan is not a hard and fast commitment to complete each-and-every activity in the time frame suggested. Rather, it is a suggested course of action that will accomplish the major goal of this plan; to accommodate in-fill development and redevelopment in the community while protecting and improving Shoreview's water resources. Infrastructure replacements and/or additions will be reviewed, approved, and administered in accordance with Shoreview's Capital Improvement Program. The following list summarizes some of the key efforts and activities the City will implement in the years ahead to help address the identified issues.

- » Water Quality
  - » Continue efforts to reduce chloride use by implementing the City's Snow and Ice Management Policy that was adopted in 2017, continue smart salting certification through the MnPA for City personnel involved in winter operations, and evaluate new technologies for City salt applying equipment. Where opportunities exist, partner with watershed(s) to educate/train private businesses on smart salting techniques.
  - » Review CIP projects, new and redevelopment areas in advance of construction to evaluate needs and opportunities for water quality improvements. Where improvement opportunities exist, work with watershed(s) to identify state and/or local grants. Apply for grants if eligible.
  - » Review City facilities, including buildings and parks for water quality BMP opportunities.
  - » Partner with RWMWD and RCWD on water quality improvement studies and implementation projects.
- » Water Quantity
  - » Work with RCWD to complete a trunk storm sewer drainage study for the Marsden Lake drainage areas north of County Road I. RCWD will lead the effort.
  - » Continue to work with RWMWD to better assess the interaction between Grass and Vadnais Lakes. Work with RWMWD (as lead) to develop an operations plan for managing water levels on the Grass Lake system.
  - » Complete a stormwater vulnerability assessment on City infrastructure to assess the risk and possible risk reduction options.
- » Erosion Control; Public Participation, Information and Education; Regulatory Responsibility
  - » Continue programs established in NPDES MS4 Program.
- » Groundwater
  - » Create an infiltration vulnerability map based on DWSMAs located within the City boundary. Identify prohibited and restricted infiltration areas.
  - » Shoreview is one of four Minnesota cities participating in the MN DNR Water Conservation Reporting System pilot program to gather ground water use data for municipalities in Minnesota on an annual basis with an overall goal of reducing water use.
  - » Shoreview implemented the WaterSmart program for its residents in 2016. WaterSmart

## 9 - COMMUNITY FACILITIES AND SERVICES

is an online portal that allows participating residents to view and monitor their at-home water usage on a more frequent basis than quarterly billing allows. This program also retains usage data, so residents can compare current and past usage patterns; monitors for leaks through unusual usage readings; and contains a variety of information on water conservation strategies that residents are free to implement.

- » Maintenance and Inspection
  - » Develop BMP Maintenance Agreement Program through standards and/or City Code.
  - » Implement prioritized pond cleanout program based on results of study completed in 2017.

### Amendment Process

The Plan is intended to extend through the year 2028 corresponding to the ten-year update cycle established for the City's Comprehensive Plan. For the plan to remain dynamic, a process to amend the Plan to implement new information, ideas, methods, standards, management practices, and any other changes which may affect the intent and/or results of this Plan must be established. Amendment proposals can be requested any time by any person or persons either residing or having business within the City. Amendments to the Plan automatically become part of the City's Comprehensive Plan. Following adoption of a major amendment by Council, the Plan will be recognized as an amendment to the City's Comprehensive Plan. Minor amendments, which do not require Council adoptions, include the following changes:

- » Formatting or reorganization of the plan;
- » Clarification of existing plan goals and standards;
- » Inclusion of new or additional data that does not change the intent of the Plan;
- » Adjustments to related program activities referenced in the Plan (e.g., NPDES MS4 Permit Program)

Conversely, major amendments include such things that change the essence of goals, standards, and other significant procedural components of the plan.

Written requests for plan amendment is submitted to the City staff. The request shall outline the need for the amendment as well as additional materials that the City will need to consider before making its decision. Following a request for Plan amendments, staff will make a decision as to the validity of the request. Three options exist:

- » Reject the amendment;
- » Accept the amendment as minor, with minor amendments collectively added to the Plan at a later date; and
- » Accept the amendment as major, with major amendments requiring immediate action. In acting on a major amendment request, staff shall recommend to the City Council whether or not a public hearing is warranted.

Major amendments and the need for a public hearing shall be considered at a regular or special Council

## 9 - COMMUNITY FACILITIES AND SERVICES

meeting. Staff recommendations should also be considered before decisions on appropriate actions(s) are made. Council shall determine when the public hearing should occur in the process. Based on the public hearing, Council could approve the major amendments.

All proposed amendments must be reviewed and approved by the appropriate Watershed District prior to final adoption of the amendment(s).

### BACKGROUND, HISTORY, AND PHYSICAL ENVIRONMENT

As the name implies, Shoreview has a variety of lakes, wetlands and waterways that provide aesthetic, environmental and recreational value to the community. The City's total surface area is approximately 8,100 acres (12.7 square miles), of which, approximately 2,200 acres are a combination of surface water and wetland features. From an administrative perspective, there are two Watershed Management Organizations that have jurisdiction within the City (**Map 9D-1**), including the Ramsey-Washington Metro Watershed District (RWMWD) and the Rice Creek Watershed District (RCWD). The RWMWD encompasses approximately 3,300 acres, and the RCWD encompasses approximately 4,800 acres. Most of the seven major lakes in the City have public boat access facilities and water quality that support aquatic recreational uses. The City has a long history of preserving the natural environment through proactive planning, long-range fiscal planning for infrastructure, and the first-class parks and trails.

Residential development throughout the City occurred primarily between the 1960s and 1990s. Edgetown Acres, north of County Road I and adjacent to the old Twin Cities Army Ammunition Plant (TCAAP), was the first development in the City, largely due to expectations that the Korean War would generate jobs on the TCAAP property. Since, development generally resulted in transitioning agricultural land to residential. Due to this pattern of development, the age of housing in the City ranges from the original farmsteads dating back to the 1850's to the early 2000s. The peak in housing development occurred in the 1970s and 1980s; the City was one of the state's ten fastest growing suburbs in the mid-1980s.

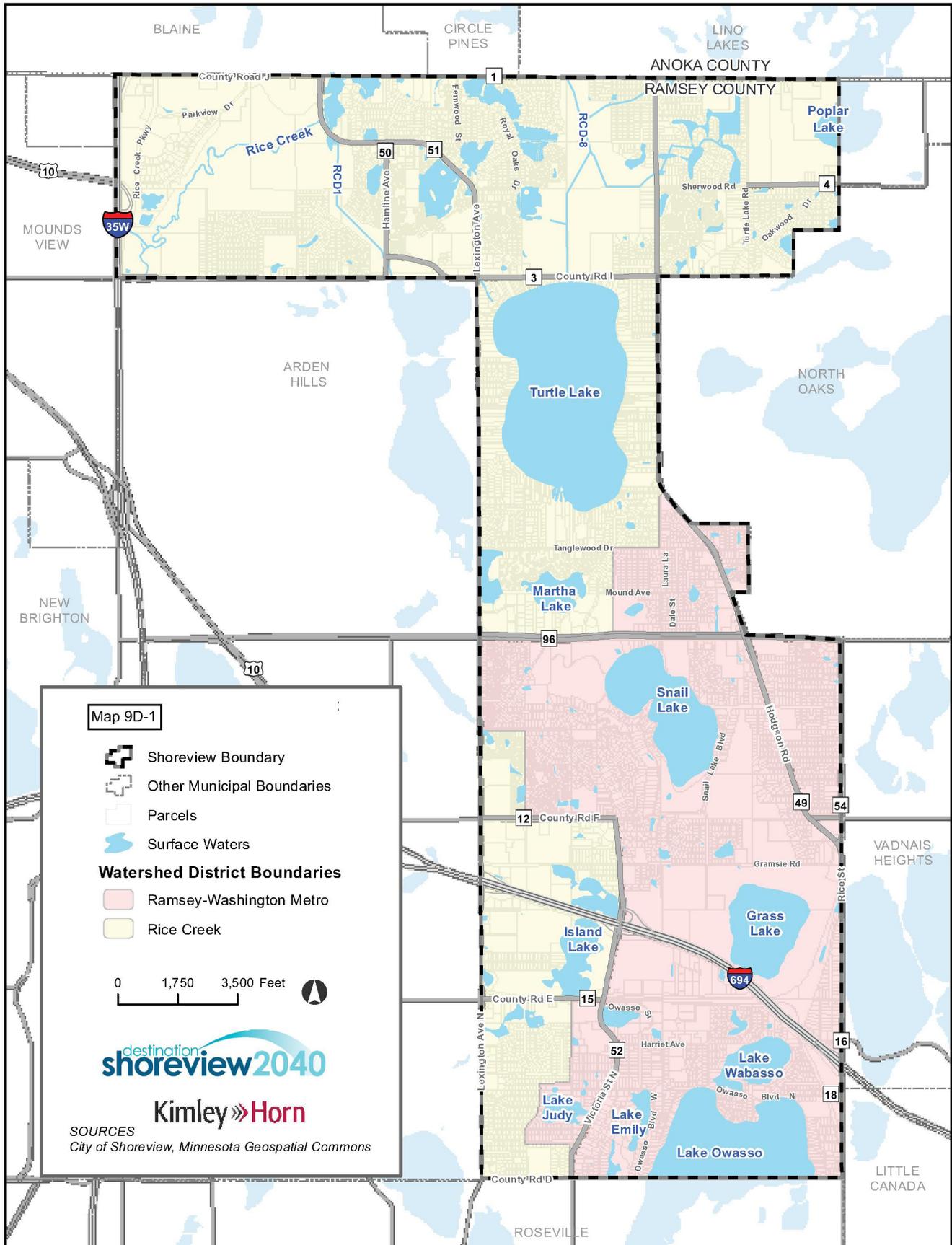
The City is now nearly fully developed and will rely on infill and redevelopment to meet the changing needs of residents. Overall, the low-density residential development pattern will remain with some areas transitioning to higher density residential uses, employment centers, and shopping areas. Population is expected to remain relatively flat for the next ten to twenty years.

### Soils, Geology and Topography

Shoreview's underlain geology coupled with the actions of erosive glacial activity have shaped the city's landscape, formed the city's soils, and influenced all natural resources from waters to woodlands. The Anoka sand plain, a broad expanse of sands deposited by glacial melt waters, covers a large portion of the land area in Shoreview; specifically, all area north of Highway 96 and the southeast portion of the city, east of Snail Lake and Grass Lake. The topography of this area is generally flat although steep slopes may occur adjacent to drainages and depressions.

Soils generally consist of deep sandy soils and the infiltration rate and permeability of these soils is rapid (soils classified in Hydrologic Group A and B, shown in **Figure 9D.3**), resulting in relatively low runoff

# Map 9D.1 - Watershed District Boundaries



## 9 - COMMUNITY FACILITIES AND SERVICES

volumes. The water table in these soils is generally below 6 feet; however, this region includes areas of organic or poorly drained sandy soils where a shallow water table may occur at 0 to 2 feet below ground surface.

Hilly deposits of glacial till dominate the southern part of Shoreview west of Snail and Grass Lakes. The tills are a mixture of two separate glacial advances into the area. The reddish till material was carried from the northeast by the Superior lobe, a glacier that scoured the Lake Superior basin and brought iron-rich reddish soil into the area. A second glacial advance, known as the Grantsburg sub lobe, brought gray calcareous soils from the Canadian prairie and North Dakota plains. This second glacier overrode and intermixed with the earlier deposits from the Superior lobe.

Topography in this area is moderately rolling with occasional steep slopes and depressions. Soils generally consist of brownish or grayish loamy till, reddish sandy or silty loam, or a mixture of both. These soils are typically moderately to well-drained with a water table below 6 feet in depth. Small lakes, depressions, and drainage ways are scattered throughout the area. Wetlands in this portion of the City are generally the result of a perched water table.

Infiltration capacities of soils can affect the amount of direct runoff resulting from a rainfall event. Generally, the higher the infiltration rate is for a given soil, the lower the runoff potential. Conversely, soils with low infiltration rates produce relatively high runoff volumes and high peak discharge rates. The Natural Resource Conservation Service (NRCS) have classified soils into four general hydrologic groups based on texture and slope:

- » **Group A – Low runoff potential, high infiltration rate**
- » **Group B – Moderate infiltration rate**
- » **Group C – Slow infiltration rate**
- » **Group D – High runoff potential, very slow infiltration rate**

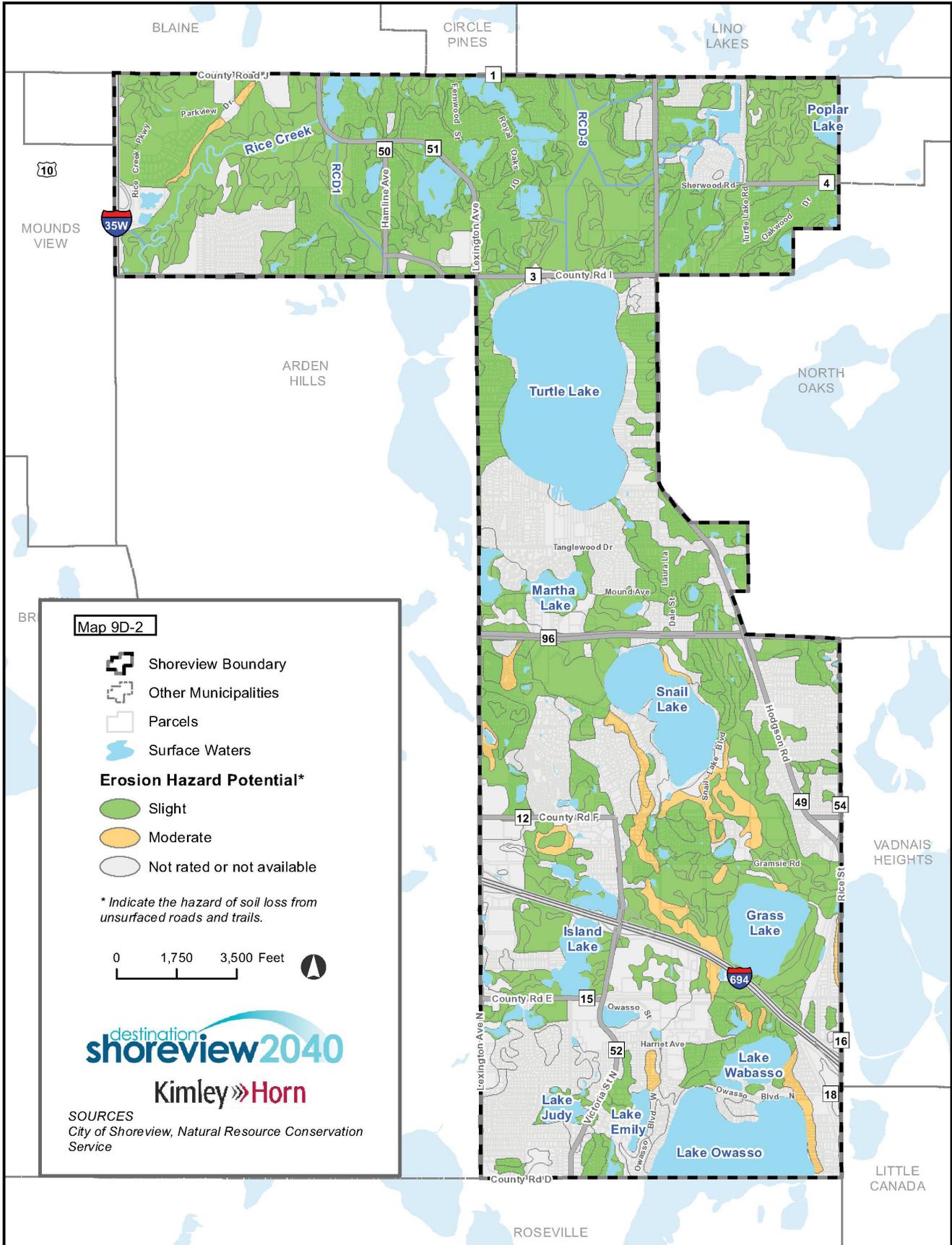
The Minnesota Stormwater Manual contains a more detailed breakdown of soils types and corresponding recommendations for infiltration rates to be used during the design stages of a project.

Soil characteristics are essential for completing hydrologic analyses and are also important when developing erosion control plans. Special attention to erosion control measures and establishment of interim cover during construction must be considered in areas of steep slopes, in areas with highly erodible soils and in areas with prolonged land disturbance. The Minnesota Stormwater Manual and Construction Stormwater Manual, I published by the Minnesota Pollution Control Agency (MPCA) and the Construction SWPPP includes guidelines for erosion prevention and sediment control practices. **Map 9D.2** illustrates the general erosion potential throughout the City based on the predominate slope of the land.

### Climate and Precipitation

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 is about 32 inches. The average annual snowfall is approximately

# Map 9D.2 - Erosion Hazard Potential



## 9 - COMMUNITY FACILITIES AND SERVICES

57 inches, equivalent to roughly 5.7 inches of water.

While average weather imposes little strain on the typical stormwater system, longer term trends and short term extremes of precipitation and snowmelt are very important for designing stormwater conveyance and detention systems. Evaluating trends can help to explain and understand at least a portion of what we observe in the landscape. For additional information concerning precipitation data and trends for the city, refer to the 2018-2028 SWMP.

Extremes of snowmelt most often affect major rivers, the design of stormwater storage/detention areas, and landlocked basins. Extremes of precipitation most often affect the design of conveyance facilities. discharge rates for surface water features throughout the City.

In 2013, the National Weather Service (NWS) released NOAA Atlas 14, Volume 8 which updates the 1961TP-40 precipitation frequency estimates for the Midwestern states. The new estimates are based on improvements with denser datasets, longer term datasets to include more recent precipitation trends, and advanced statistical methodologies. As a result of the updated rainfall frequency estimates, the City of Shoreview has updated its current design standards and ordinances to be consistent with this new information. An example of the significance of the new data relates to the total rainfall depth for a 100-year 24-hour storm event changing from 6.0 inches to a depth of 7.29 inches. For additional information concerning precipitation frequency estimates, refer to the 2018-2028 SWMP.

### Land Use

The City of Shoreview is considered a fully-developed community with approximately 96 percent of its land area developed as of 2017. The predominant land uses include single-family residential, parks, open space, and natural areas. With only four percent of the land area remaining vacant, the City's challenge is to provide areas for commercial and industrial redevelopment and other residential opportunities while preserving natural areas. For more information on existing and future land use within the City, refer to Chapter 4 of this Comprehensive Plan.

Considering land use in the context of surface water management is important as significant changes in land use can increase runoff rates and volumes due to the additional impervious surface and as a result, can increase pollutant load and runoff volume. On a smaller project-specific scale, establishing reasonable and effective standards for development or redevelopment activities that fall under the regulatory jurisdiction of the MPCA and local watersheds is a focus of this 2018 Plan update. With projects impacting an acre or more being held to MPCA and watershed standards, the City has updated its standards for addressing projects impacting less than an acre.

The City of Shoreview has numerous park areas and outlots, or natural areas, are incorporated into developments. While many of these outlots are marginal lands for development, most contain wetlands or are used for storm water detention. These areas also provide important wildlife habitat and aesthetic benefits for the City.

### Subwatersheds and Flow Rates

According to hydrologic/hydraulic modeling completed by the RCWD and RWMWD, there are 16 major subwatersheds in the City of Shoreview (**Map 9D.3**). Seven of these subwatersheds are in the RCWD and nine are in the RWMWD. The Major Subwatershed section of this Plan provides detail regarding each subwatershed including a summary of the hydrologic/hydraulic modeling completed for each area. For hydrologic/hydraulic summary data including high water level and flow rate estimates, refer to the 2008-2018 SWMP.

Both local watershed districts require an assessment of discharge rates (i.e., flow rates) from the City into adjacent communities. For Rice Creek Watershed District, district wide modeling identified two intercommunity flow points where water is leaving Shoreview including Rice Creek flowing south into Arden Hills at County Road I and Ramsey County Ditch 8 flowing north into Lino Lakes. The District has provided these flow rates and the City has established standards that address discharge rates for new and redevelopment projects. A combination of City and District standards will ensure that these rates will not increase.

For Ramsey-Washington Metro Watershed District, recent model updates by the District are used as the basis to determine regulatory flow rates on a regional/intercommunity basis. Again, a combination of City and District standards will ensure that these rates will not increase.

### Surface Waters and Water-Based Reception Areas

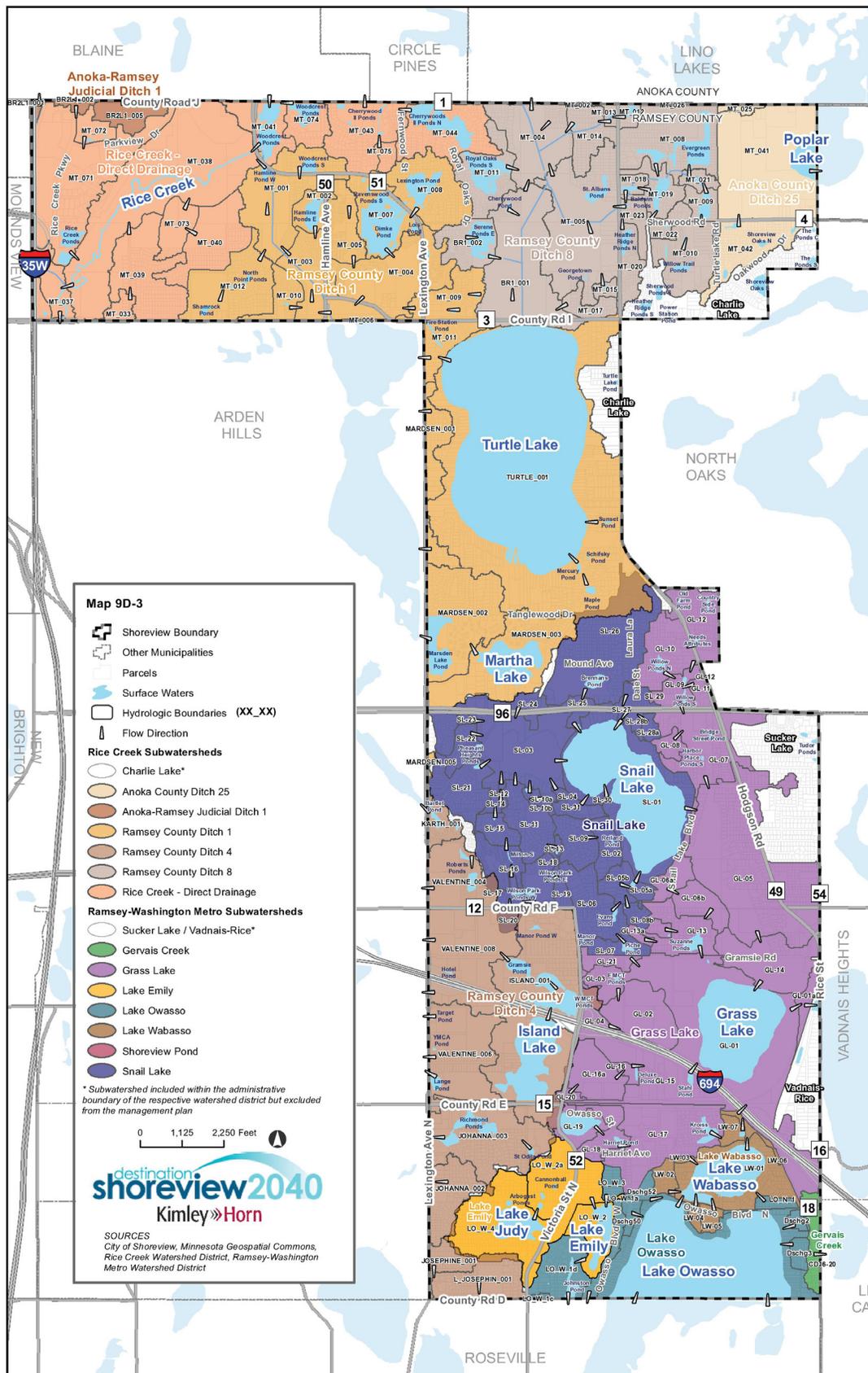
The City has a variety of lakes, wetlands and waterways that provide aesthetic, environmental, and recreational value to the community. According to the Minnesota Department of Natural Resources (MnDNR) National Wetland Inventory (NWI) East-Central update (2017), Shoreview contains approximately 2200 acres of wetlands in the city, almost 30% of the city's area. The wetlands range greatly in size and type and serve an important role in surface water management in addition to harboring aquatic ecosystems and wildlife. Wetlands boundaries are shown in **Map 9D.4**. Of those wetlands, 29 are considered MnDNR protected waterbodies as identified on the Public Waters Inventory (PWI).<sup>15</sup> In addition, five MnDNR protected watercourses are located fully or partially with the City of Shoreview. These water bodies and watercourses, as shown in **Map 9D.5**, are under the jurisdiction of the MnDNR. Several parks located on or near these protected waters provide boat ramps, fishing access and/or swimming beaches, along with trails and picnic areas.

Due to the abundance and diversity of surface waters within City limits and the role they play in serving the community, the City will continue to prioritize their protection through policies and adherence to local regulation and enhance their accessibility through preservation of parkland and open spaces.

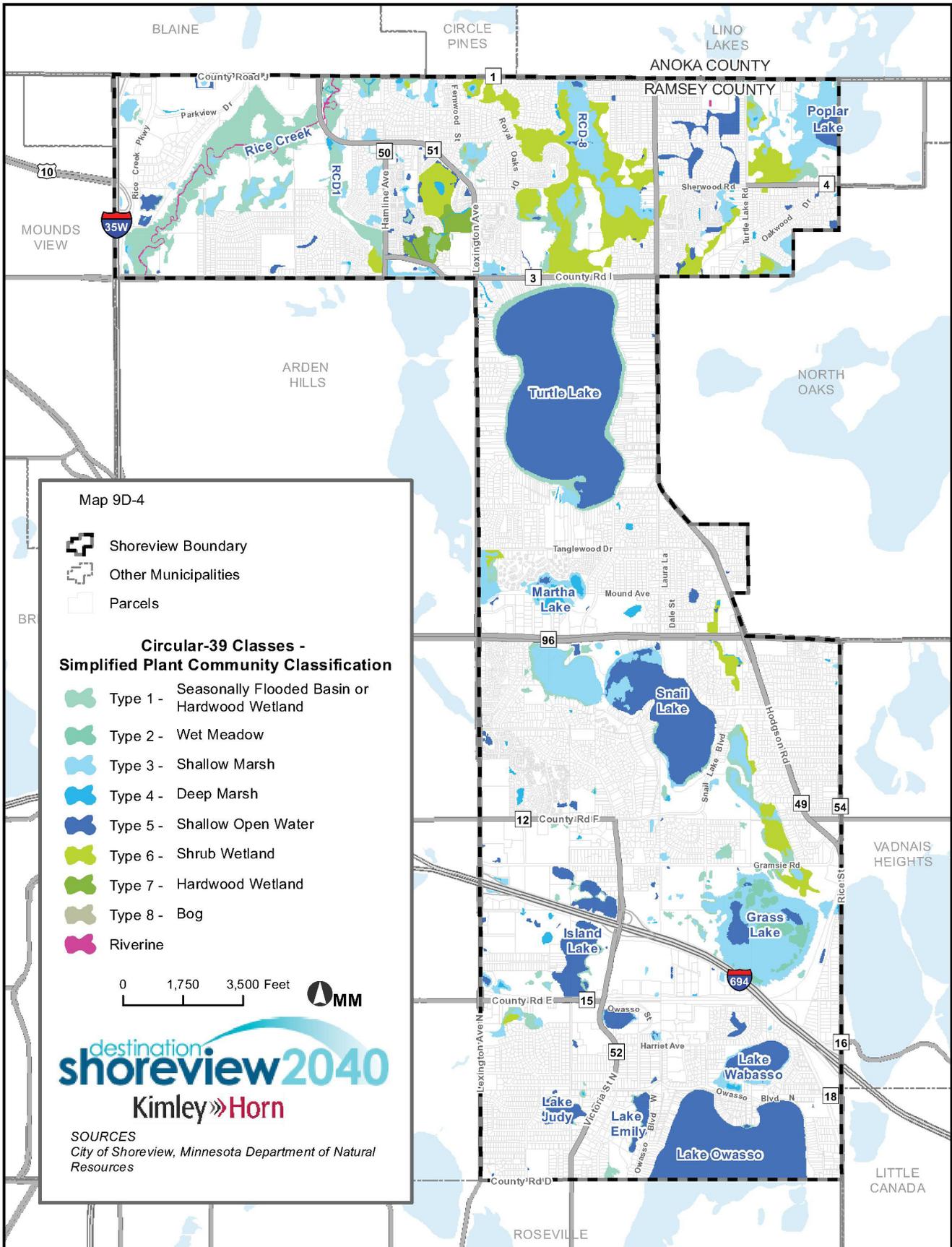
### Fish and Wildlife Habitat

Due to Shoreview's unique combination of open water, wetlands, and associated upland areas, the City is home to a variety of rare plants and animals. According to the MnDNR Natural Heritage Information System (NHIS), within the city limits are seven listings of rare plant species and four listings of rare animal species. In addition, the US Fish and Wildlife Service (USFWS) lists two animal species that

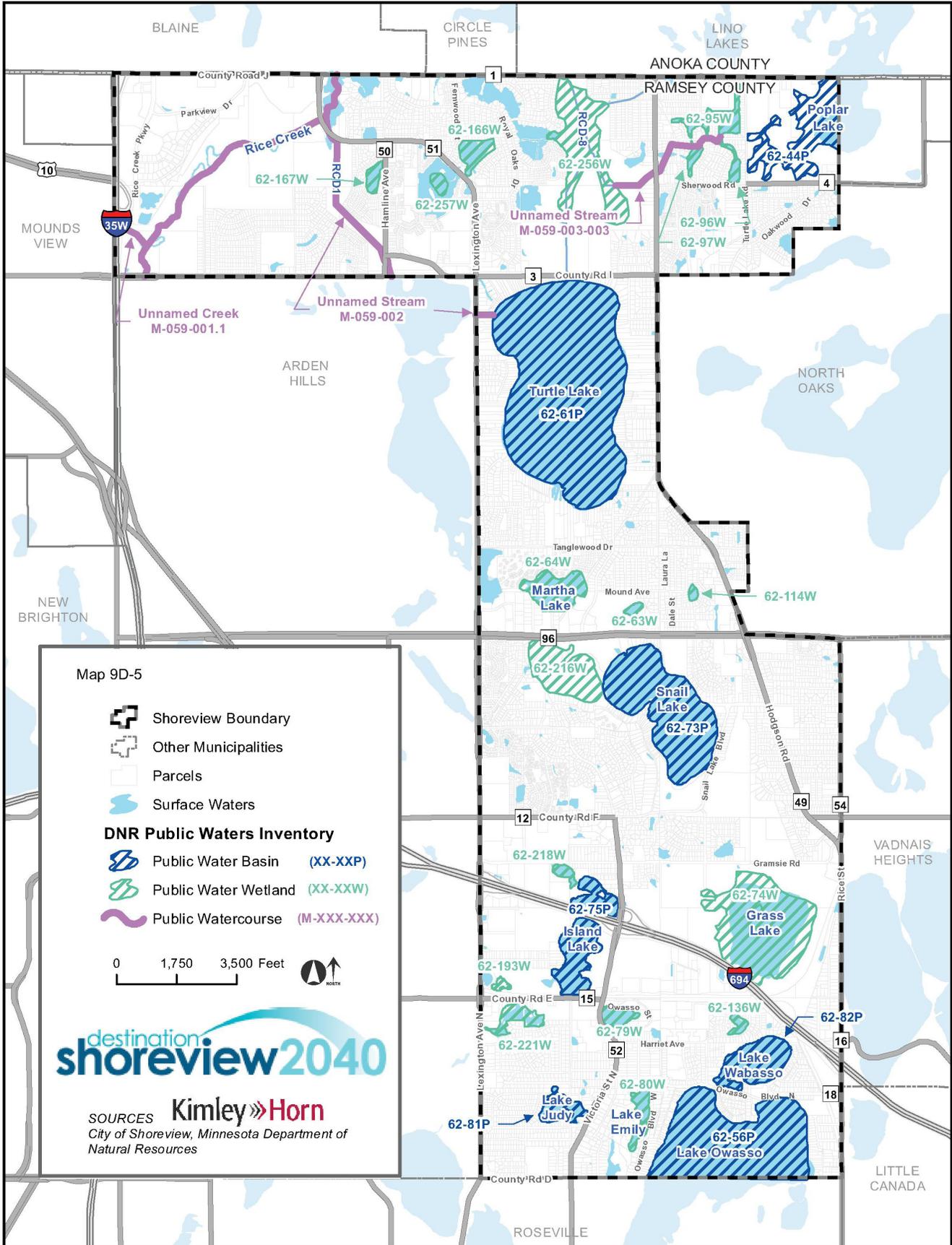
# Map 9D.3 - Subwatersheds



# Map 9D.4 - Wetland Classification



# Map 9D.5 - DNR Public Waters Inventory



## 9 - COMMUNITY FACILITIES AND SERVICES

may habituate the City. These species add to the City's biological wealth and diversity. A summary of the rare species found within the City is provided in the 2008-2018 SWMP.

### MAJOR SUBWATERSHEDS

According to hydrologic/hydraulic modeling completed by the RCWD and RWMWD, there are 16 major subwatersheds in the City of Shoreview. Seven of these subwatersheds are in the RCWD and nine are in the RWMWD. The following section includes a general description of the subwatershed (as it relates to Shoreview and as Shoreview relates to the larger subwatershed and regional drainage system), and a discussion of existing and potential issues.

The two major drainage systems in Shoreview include the Grass Lake Area and the Rice Creek Area. The Grass Lake Area (located within RWMWD) discharges to Vadnais Lake and the Rice Creek Area (located within RCWD) discharges to Rice Creek. The following subwatersheds are located within the city of Shoreview and are named for the major waterbody or tributary within the drainage area (note that some tributaries are not located within City limits):

- » RWMWD
  - » Grass Lake
  - » Snail Lake
  - » Lake Emily
  - » Lake Wabasso
  - » Shoreview Pond
  - » Lake Owasso
  - » Gervais Creek
  - » Sucker Lake/Vadnais Rice
- » RCWD
  - » Lower Rice Creek
  - » Ramsey County Ditch 1 (Turtle Lake & Martha Lake)
  - » Ramsey County Ditch 4 (Island Lake)
  - » Ramsey County Ditch 8 (Kerry Ponds)
  - » Anoka County Ditch 25 (Poplar Lake)
  - » Anoka-Ramsey Judicial Ditch 1

**Map 9D.3** shows the subwatersheds broken into hydrologic boundaries and flow directions.

### Impaired Waters

The MPCA maintains a list of impaired waters, some of which are located in Shoreview. According to MPCA, the number of waters in Minnesota on the draft 2018 impaired waters list totals 5,101

## 9 - COMMUNITY FACILITIES AND SERVICES

impairments on a total of 2,669 water bodies (with many water bodies being impaired by several pollutants). While monitoring continues to identify more impairments, the overall percentage of impaired waters in Minnesota remains at 40%. The other 60% are in good condition and need protective strategies to stay healthy. **Figure 9D.2** lists impaired waters located at least partially in Shoreview, it's associated watershed, the impairment, and any approved or active Total Maximum Daily Load (TMDL) associated with the water.

**Figure 9D.2 - Impaired Waters in Shoreview**

Receiving Water	Associated Subwatershed	Assessment ID or DNR Lake #	Affected Use	Pollutant or Stressor	Target Start / Completion Date
Island Lake –South	Ramsey County Ditch 4	62-0075-01	Aquatic Consumption	Mercury in fish tissue	2012/2025
			Aquatic Recreation	Nutrient / eutrophication indicators	Plan approved 2015
Island Lake –North	Ramsey County Ditch 4	62-0075-02	Aquatic Consumption	Mercury in fish tissue	2012/2025
			Aquatic Recreation	Nutrient / eutrophication indicators	Plan approved 2015
Lake Owasso	Lake Owasso	62-0056-00	Aquatic Consumption	Mercury in fish tissue	Plan approved 2007
Snail Lake	Snail Lake	62-0073-00	Aquatic Consumption	Mercury in fish tissue	Plan approved 2007
Turtle Lake	Ramsey County Ditch I	62-0061-00	Aquatic Consumption	Mercury in fish tissue	
Rice Creek	Lower Rice Creek	07010206-583	Aquatic Life	Aquatic macroinvertebrate bioassessments	2020/2024

The City understands that, when complete,, the TMDLs will be used by the MPCA and local entities to further prioritize management actions on impaired waters. The City will consider the listing of the lakes in future management decisions but recognizes that waters listed with mercury as the pollutant must be managed more regionally. More detail on the progress of the statewide mercury TMDL process can be found on the MPCA's website.

### Grass Lake

The Grass Lake subwatershed is located in the center of the city and is approximately 1400 acres in size. The subwatershed receives inflow from the Snail Lake (during extreme precipitation events), Shoreview Pond, and Lake Wabasso subwatersheds. The total area draining to the subwatershed is approximately 5,700 acres (almost nine square miles). The subwatershed was formerly part of the Grass Lake Watershed Management Organization (GLWMO) but is now within the RWMWD.

## 9 - COMMUNITY FACILITIES AND SERVICES

The watershed drains to West Vadnais Lake, under the jurisdiction of the Vadnais Lake Watershed Management Organization (VLWMO).

Grass Lake has more wetland than lake characteristics. At approximately 140 acres in size, the large wetland complex consists of a relatively shallow basin with extensive areas of emergent vegetation and is a MnDNR public water wetland (PWI # 62-0074W). Grass Lake is entirely surrounded by Vadnais-Snail Lakes Regional Park operated by Ramsey County Parks and Recreation; however, because there is not a public access the lake is not frequently used for water-based recreational activities. See the RWMWD plan, Section 2.19 for more information regarding the Grass Lake Subwatershed.

The biggest challenge facing the Grass Lake subwatershed is managing water levels. Water level data has been collected on Grass Lake since 1965 by the Minnesota DNR and the past 20 years of data collection has experienced the lake's lowest recorded water level (873.6 feet in October 1996) and highest recorded water level (884.18 feet in May 2016). As stated above, the unique drainage conditions of the subwatershed can lead to high water levels in Grass Lake and associated wetlands north of Gramsie Road. Extreme precipitation events between 2012 and 2017 have led to times where high water has remained for extended periods, leading to flooding of a section of Gramsie Road and trails in Vadnais-Snail Lakes Regional Parks and in yards of homes in the vicinity.

The City of Shoreview has partnered closely with the RWMWD, Ramsey County Parks and Recreation, and other local, regional, and federal agencies to determine the best possible solutions to the problem. As of late 2017, the City and RWMWD have been updating models in the drainage area and are continuing monitoring efforts. The study aims to evaluate options for establishing outlet and overflow elevations for wetlands in the vicinity of Gramsie Road through updated modeling, establishing a permanent overflow elevation for Grass Lake, evaluating regional storage options for high water, and considering the effectiveness of a force main for controlled pumping.

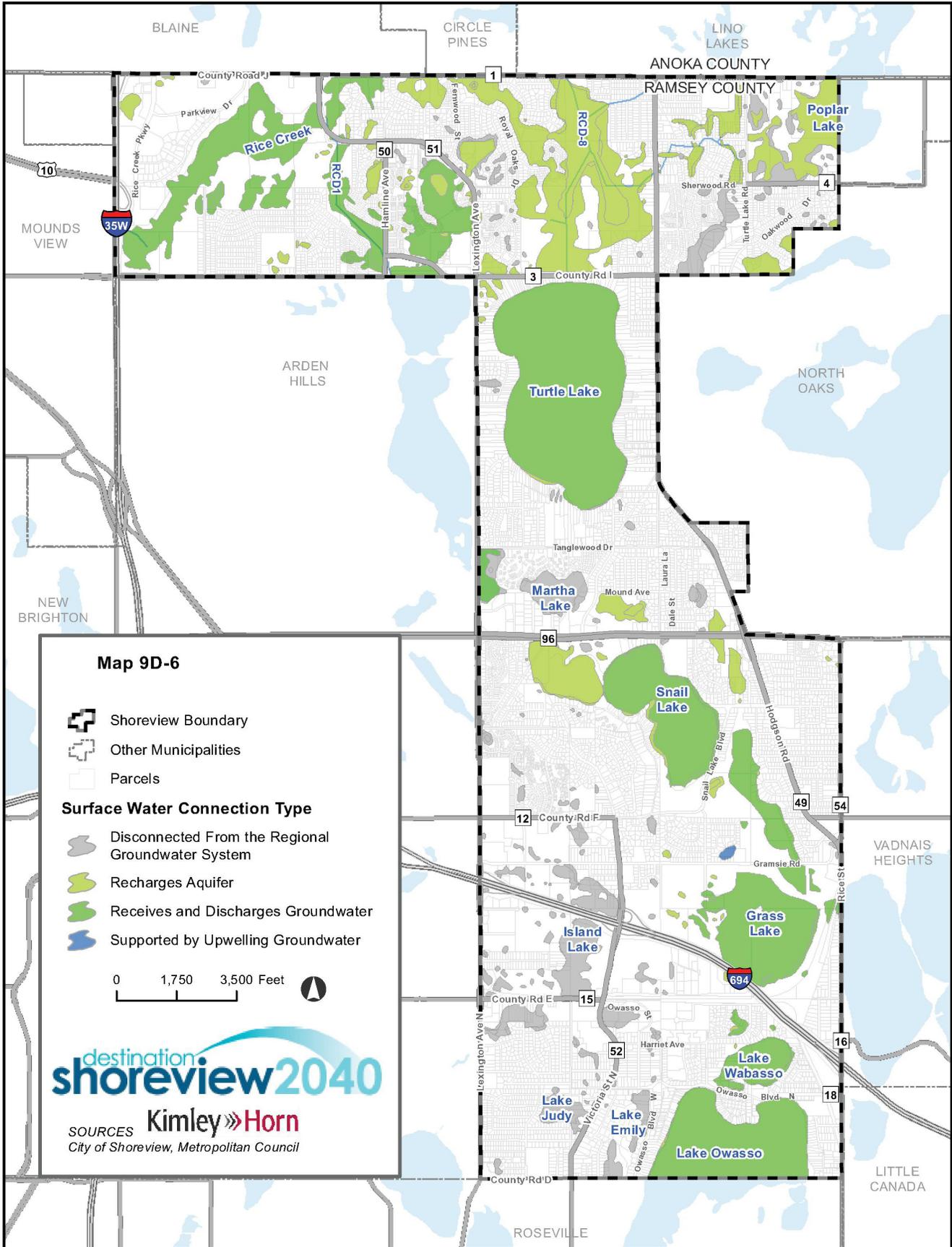
See **Map 9D.6** and RWMWD Plan, Figure 2.19-5, for maps indicating areas where the water levels of waterbodies in the watershed may be vulnerable to changes in groundwater level and particularly well suited for recharging aquifers through targeted infiltration. Generally, areas in the north portion of the subwatershed have higher composite infiltration rate scores than those in the south. This data will be used to evaluate areas the City might prioritize for water reuse or target for infiltration.

### Snail Lake

The Snail Lake subwatershed is located in the center of the city and is approximately 960 acres in size. The subwatershed is landlocked under normal hydrologic circumstances but a high-water overflow was constructed to prevent flooding of homes adjacent to Snail Lake during high water conditions. The overflow drains to a wetland complex south of Snail Lake Road in the Grass Lake subwatershed only during extreme precipitation events. The City and RWMWD may investigate altering the overflow routing to alleviate flooding in the wetland complex south of Snail Lake Road. Snail Lake does not receive drainage from adjacent subwatersheds.

Snail Lake is the only waterbody in the subwatershed and is a DNR Public Waterbody (PWI #62-0073P). The surface area of the lake covers 190 acres, of which 35 acres is wetland on the northwest side of the basin. The maximum depth of Snail Lake is 28 feet in the southern bay, with an average depth

# Map 9D.6 - Surface Water Connections



## 9 - COMMUNITY FACILITIES AND SERVICES

of about 6 feet. Snail Lake is an important recreational lake in Shoreview, providing boating access, along with fishing and swimming. Snail Lake Regional Park which is located on the southern shore also provides public access and pedestrian trails. See the RWMWD plan, Section 2.22 for more information regarding the Snail Lake Subwatershed.

Snail Lake has seen considerable fluctuations of high water levels in recent years. According to the MnDNR, the lake had the highest ever recorded water level in 2017 (885.76 feet). Snail Lake is only connected to downstream watersheds when water levels exceed the lake outlet (887.9 feet) and is otherwise landlocked. The existing overflow path is being evaluated to determine options to alleviate flooding risk to homes near downstream wetlands including in the vicinity of the Crestview neighborhood, Gramsie Road, and Grass Lake. The evaluation will involve coordination with the RWMWD, MnDNR, and Ramsey County to explore permitting options for changing the outlet and overflow elevations of Snail Lake without putting any additional homes at risk of flooding. A statewide TMDL plan for Mercury reduction is underway that covers Snail Lake. The plan was approved in 2007 with goals of major reduction to occur in 2018 and 2025. A target date for acceptable Mercury Levels has not yet been identified for Snail Lake.

**See Map 9D.6** and RWMWD plan, Figure 2.22-9, for maps indicating areas where the water levels of waterbodies in the watershed may be vulnerable to changes in groundwater level and particularly well suited for recharging aquifers through targeted infiltration. As stated above, groundwater has a large effect over the water levels in Snail Lake so close attention should be given to maintaining groundwater levels in the region to sustain water levels in the lake. In general, areas in the vicinity of Snail Lake have high composite infiltration rate scores. This data will be used to evaluate areas the City might prioritize for water reuse or target for infiltration.

### Lake Emily

The Emily Lake subwatershed is located in the southwest part of the city and is approximately 244 acres in size. The small subwatershed is part of the larger Lake Owasso watershed.

Lake Emily and Lake Judy, also known as Mud Lake, are the two main waterbodies in the subwatershed. Lake Emily is the only waterbody considered a DNR Public Waterbody (PWI #62-0080P). The surface area of the lake covers 13 acres; the maximum depth is about 15 feet and average depth is about 7 feet. All land around the lake is privately owned. Residents use the lake for fishing and boating. See the RWMWD plan, Section 2.24 for more information regarding the Lake Emily Subwatershed.

For a list of studies related to Lake Emily and the Lake Emily subwatershed see the RWMWD plan. According to **Map 9D.6** and the RWMWD plan, Figure 2.24-9 there are no areas identified where the water levels of waterbodies in the watershed may be vulnerable to changes in groundwater level and particularly well suited for recharging aquifers through targeted infiltration. According to the RWMWD WRAPS study, the highest priorities of the subwatershed are achieving water quality standards and healthy ecosystems through shoreline management.

## 9 - COMMUNITY FACILITIES AND SERVICES

### Lake Wabasso

The Lake Wabasso subwatershed is located in the southeast part of the city and is approximately 147 acres in size. The subwatershed receives inflow from the much larger Lake Owasso subwatershed via a culvert underneath Owasso Boulevard North, and has a total tributary area of approximately 3,300 acres. Lake Wabasso drains north and outlets to the Grass Lake subwatershed.

Lake Wabasso is the only waterbody in the subwatershed and is a DNR Public Waterbody (PWI #62-0082P). The surface area of the lake covers 52 acres, of which 46 acres is wetland. Despite the small size, Lake Wabasso has a maximum depth of 66 feet, with an average depth of about 16 feet. Lake Wabasso is an important recreational lake in Shoreview, providing boating access via Lake Owasso County Park, along with fishing and swimming. See the RWMWD plan, Section 2.25 for more information regarding the Lake Wabasso Subwatershed.

See **Map 9D.6** and RWMWD plan, Figure 2.25-9, for maps indicating areas where the water levels of waterbodies in the watershed may be vulnerable to changes in groundwater level and particularly well suited for recharging aquifers through targeted infiltration. Groundwater has a large effect over the water levels in Lake Wabasso so close attention should be given to maintaining groundwater levels in the region to sustain water levels in the lake. In general, areas in the vicinity of the lake have high composite infiltration rate scores. This data will be used to evaluate areas the City might prioritize for water reuse or target for infiltration.

### Shoreview Lake

The Shoreview Lake subwatershed is located in the south-central part of the city and is approximately 28 acres in size. The subwatershed has a relatively small, self-contained drainage area that only receives drainage from the immediate vicinity.

Shoreview Lake is the only waterbody in the subwatershed and is a DNR Public Waterbody (PWI #62-0079P). The surface area of the lake covers 11 acres. Shoreview Lake is generally not used for recreational activities and there is no surrounding public access or land. The MnDNR does not manage fish populations in the lake nor has an OHWL for the waterbody. See the RWMWD plan, Section 2.21 for more information regarding the Shoreview Lake Subwatershed.

According to the RWMWD plan (**Map 9D.6** and Figure 2.21-6 from plan), there are no areas identified where the water levels of waterbodies in the watershed may be vulnerable to changes in groundwater level and particularly well suited for recharging aquifers through targeted infiltration. According to the RWMWD WRAPS study, the highest priorities of the subwatershed are achieving water quality standards and healthy ecosystems through shoreline management.

### Lake Owasso

The Lake Owasso subwatershed is located in the south-central part of the city and is approximately 2,175 acres in size with approximately 370 acres located in the City of Shoreview. The subwatershed receives inflow from the Bennett Lake and Lake Emily subwatersheds increasing the total drainage area to approximately 3,140 acres. The subwatershed discharges to Lake Wabasso via a culvert underneath

## 9 - COMMUNITY FACILITIES AND SERVICES

Owasso Boulevard North and eventually drains to the Grass Lake subwatershed.

The northern portion of Lake Owasso is located in Shoreview and the rest of the lake is located in Roseville. The lake's total surface area is 410 acres and is a DNR Public Waterbody (PWI #62-0056P). Lake Wabasso is an important recreational lake for Shoreview, providing boating access via Lake Owasso County Park, along with fishing and swimming. The MnDNR manages the fishery of Lake Owasso, additional information available on their website. See the RWMWD plan, Section 2.23 for more information regarding the Lake Owasso Subwatershed.

For a list of studies related to Lake Owasso and the Lake Owasso subwatershed see the RWMWD plan, Section 2.23.1.1.

Due to the importance of Lake Owasso as a recreational resource, there continues to be an emphasis in the City and RWMWD to closely manage improve water quality and prevent further degradation. Shoreview and RWMWD will continue to look for ways to implement BMPs in the subwatershed to further reduce the risk of nutrient loading.

A statewide TMDL plan for Mercury reduction is underway that covers Lake Owasso. The plan was approved in 2007 with goals of major reduction to occur in 2018 and 2025. A target date for acceptable Mercury Levels has not yet been identified for the lake.

See **Map 9D.6** and the RWMWD plan, Figure 2.23-9, for maps indicating areas where the water levels of waterbodies in the watershed may be vulnerable to changes in groundwater level and particularly well suited for recharging aquifers through targeted infiltration. As stated above, groundwater has a large effect over the water levels in Lake Owasso so close attention should be given to maintaining groundwater levels in the region to sustain water levels in the lake. In general, areas in the vicinity of the Shoreview portion of Lake Owasso have high composite infiltration rate scores. This data will be used to evaluate areas the City might prioritize for water reuse or target for infiltration.

### Gervais Creek

A small portion, approximately 25 acres of the Gervais Creek subwatershed is located within the southeast border of Shoreview. The Shoreview portion of the watershed drains directly towards Black Tern Pond. The Black Tern Pond was formerly a landlocked basin until occasionally flooding led the RWMWD to construct an outlet to downstream drainage areas.

There are no wetlands or areas suitable for infiltration identified in the Shoreview portion of the subwatershed.

The RWMWD has conducted extensive water quality monitoring and completed several projects, none of which has occurred in the Shoreview portion of the Gervais Creek subwatershed; more information is available in the RWMWD plan, Section 2.5.

### Lower Rice Creek

The Shoreview portion of the Lower Rice Creek subwatershed is located in the northwest and north central part of the city and is approximately 920 acres. The subwatershed receives inflow from the

## 9 - COMMUNITY FACILITIES AND SERVICES

Middle Rice Creek subwatersheds and discharges, ultimately, to the Mississippi River about five miles west of Shoreview.

Rice Creek is a DNR Public Watercourse that runs through portions of Washington County, Ramsey County (including Shoreview), and Anoka County. Approximately 1.8 miles of Rice Creek flows through the City, entering just east of Lexington Avenue and County Road J and exiting just west of I-35W and County Road I. Rice Creek is an important regional tributary for wildlife and fauna as well as a significant recreational resource for the City and surrounding area. Ramsey County operates the Rice Creek North Regional Trail Corridor, a park with scenic trails and water access. This portion of Rice Creek is also home to Rice Creek Water Trail, a canoe trail that is operated by RCWD.

RCWD is aggressively addressing water quality within this reach of Rice Creek as part of the Long Lake Targeted Watershed Demonstration Project. The project incorporated grant funding from the Clean Water, Land, and Legacy Amendment to improve water quality in Long Lake by implementing a series of project throughout the 100,000 acre watershed. RCWD has identified projects that provide water quality and flood control benefits to areas downstream of Shoreview. No initiatives were identified within the city of Shoreview as Rice Creek mostly meanders on undeveloped park land through this reach; however, the City acknowledges the regional approach to watershed management and will work with RCWD to meet water quality goals.

The larger Rice Creek watershed is included in the Upper Mississippi Bacteria TMDL. In developing the TMDL plan, potential sources of E. Coli were identified within each subwatershed. In the Rice Creek Watershed, the vast majority of E. Coli is likely produced from pets and wildlife with a moderate amount attributed to humans. This TMDL applies to all subwatersheds within the RCWD watershed district.

### Ramsey County Ditch 1, Turtle Lake and Martha Lake

The Ramsey County Ditch 1 (RCD 1) subwatershed is located in the northwest and central part of the city and covers approximately 1750 acres in Shoreview. The total tributary area is approximately 3000 acres and includes Turtle Lake, a DNR Public Waterbody (PWI # 62-0061P). The subwatershed discharges to Marsden Lake in Arden Hills, then to Rice Creek via RCD 1 south of Lexington Avenue and County Road J.

Turtle Lake is located in the north-central part of Shoreview just south of County Road I. It is the City's largest recreational lake with a surface area of 452 acres and has a maximum depth of about 35 feet. Turtle lake is used for boating, fishing, and swimming with public access provided by Turtle Lake County Park in the southeastern corner of the lake.

Martha Lake is located in the central portion of Shoreview north of Highway 96 and just west of the City's maintenance facility on Victoria Avenue.

The biggest perceived challenge facing Turtle Lake is fluctuating water levels. As stated above, the lake's relatively small watershed causes about 2.5 feet in water fluctuations. It was previously thought that fluctuations may be due to groundwater pumping at nearby facilities; however, a study by RCWD45 determined that recent water level fluctuations are within the historic norm for the lake.

## 9 - COMMUNITY FACILITIES AND SERVICES

RCWD is aggressively addressing water quality within this reach of Rice Creek as part of the Long Lake Targeted Watershed Demonstration Project. The project incorporated grant funding from the Clean Water, Land, and Legacy Amendment to improve water quality in Long Lake by implementing a series of project throughout the 100,000 acre watershed. RCWD has identified projects that provide water quality and flood control benefits to areas downstream of Shoreview. No initiatives were identified within the city of Shoreview as the RCDI subwatershed and Turtle Lake have high relative water quality for the region; however, the City acknowledges the regional approach to watershed management and will work with RCWD to meet water quality goals.

A statewide TMDL plan for Mercury reduction is underway that covers Turtle Lake. The plan was approved in 2007 with goals of major reduction to occur in 2018 and 2025. The target date for acceptable Mercury Levels for the lake is 2020.

### Ramsey County Ditch 4 and Island Lake

The Ramsey County Ditch 4 (RCD 4) subwatershed is located in the southwest and central part of the city and covers approximately 820 acres in Shoreview. The total tributary area is approximately 3000 acres and includes Island Lake, a DNR Public Waterbody (PWI # 62-0075P). The subwatershed discharges to Rice Creek via RCD4 outside of city limits.

Island Lake is located in the south-central part of Shoreview and is divided into north and south basins by I-694. The combined basins have a surface area of approximately 56 acres. Both basins have a maximum depth of about nine feet. Island Lake is used for boating, fishing, and swimming with public access provided by Island Lake County Park in the western shore of the south basin.

The biggest challenge facing Island Lake is nutrient loading. According to the Southwest Urban Lakes TMDL, the RCWD has a list of management techniques that will address nutrient loading. These are addressed in the implementation plan below.

A statewide TMDL plan for Mercury reduction is underway that covers Island Lake. The plan was approved in 2007 with goals of major reduction to occur in 2018 and 2025. The target date for acceptable Mercury Levels for the lake is 2025. The City will continue to partner with the RCWD, MPCA, Ramsey County, and local residents to monitor water quality conditions, identify potential BMP locations, and ensure existing conditions are at least maintained or improved. The protection of the lake through applicable adjustment of management activities.

### Ramsey County Ditch 8 and Kerry Ponds

The Ramsey County Ditch 8 (RCD 8) subwatershed is located in the northeast and central part of the city and covers approximately 842 acres in Shoreview. The total tributary area is approximately 976 acres and includes RCD8, a DNR Public Watercourse (#M-059-003). The subwatershed discharges to the Lower Rice Creek subwatershed north of the city. The subwatershed contains a high proportion of wetlands within the city of Shoreview connected by the RCD 8 drainage system.

Historically, there have been various flooding issues along the drainage system but those have since been fixed and the drainage system and associated stormwater is functioning well.

## 9 - COMMUNITY FACILITIES AND SERVICES

### Anoka County Ditch 25 and Poplar Lake

The Anoka County Ditch 25 (ACD 25) subwatershed is located in the northeast corner of the city and covers approximately 250 acres in Shoreview. The total tributary area is approximately 2860 acres and includes ACD 25; however, the ditch system does not begin until north of the city. The Shoreview portion of the subwatershed contains Poplar Lake, a DNR Public Water (PWI #62-44W). The lake is a large wetland complex that drains north towards ACD 25, then to Reshanau Lake, then to Rice Creek. The subwatershed contains the Poplar Lake Open Space area, open area maintained by Ramsey County Parks. The park contains no developed infrastructure and has a number of footpaths.

A 2007 study of the drainage system determined that the ditch and some drainage structures are in a state of disrepair with no feasible repair being recommended at that time. Issues include erosion and flooding overtopping roadways as the ditch system moves toward Reshanau Lake. As stated above, the drainage system does not reach the limits of Shoreview, so the issues are downstream of city boundaries; however, the ACD 25 subwatershed is included in the Lino Lake Chain of Lakes TMDL.51 The TMDL aims to reduce TP loading to Reshanau Lake by reducing loading to small lakes, managing to urban ditch system, and restoring partially drained wetlands. An implementation plan has yet to be approved for this TMDL.

### Anoka-Ramsey Judicial Ditch 1

The Anoka-Ramsey Judicial Ditch 1 (ARJD 1) subwatershed is located in the northwest corner of the city and covers approximately 38 acres in Shoreview. The total tributary area is approximately 2800 acres and includes the ARJDI system of ditches; however, the ditch system does not begin until north of the city. The Shoreview portion of the subwatershed contains mostly developed land that drains to stormwater system. The ultimate outfall of ARJD 1 is Rice Creek.

RCWD contains a historical document summary of work along the ARJDI drainage system. There are currently no drainage issues associated with the Shoreview portion of the subwatershed.

## IMPLEMENTATION PROGRAM

The Implementation Program is intended to provide guidance in carrying out the overall objectives of the Plan. This section begins by presenting the major goals that have been the basis for the first two versions of the plan dating back to 1990. A description of the regulatory roles and responsibilities governing surface water management in Shoreview follows, including an outline of existing and proposed official controls (i.e., ordinances and standards), planned capital improvements (i.e., physical improvements, studies, ongoing maintenance, inspection and monitoring, and other management activities directly related to the City's NPDES MS4 SWPPP).

### Overview and Goals

Prior to the changes made in 2015, Minnesota Rules Chapter 8410 required local governments to establish goals and policies for the effective management of water resources within their local Surface Water Management Plan. While not specifically required for this 2018-2028 Plan Update, the goals and

## 9 - COMMUNITY FACILITIES AND SERVICES

goal statements established in the City's 2005 Plan have been carried forward here to help convey the range of activities the City has and will continue to engage in. **Figure 9D.3** summarizes the City's nine goals and corresponding goal statements. Many of the action-implementation activities correspond directly to actions committed to in the City's NPDES Permit submittal known as the Storm Water Pollution Prevention Program (SWPPP).

**Figure 9D.3 - Plan Goals and Goal Statements**

Goal Number	Goal	Goal Statement
1	Water Quality	Maintain or improve water quality to meet established standards consistent with the intended use and classification.
2	Water Quantity and Flooding	Control flooding and protect property while minimizing public expenditures necessary to control volume and rates of runoff.
3	Wetlands	Preserve and improve wetlands acreage, functions and values and achieve no net loss of wetlands in conformance with the Wetland Conservation Act.
4	Erosion Control	Minimize soil erosion and sedimentation.
5	Groundwater	Protect the quality and quantity of groundwater resources and promote groundwater recharge.
6	Recreation, Habitat, and Shoreline Management	Protect and enhance fisheries and wildlife habitat, surface water recreation, and shoreland areas.
7	Public Participation, Information, and Education	Public participation information and education. Provide information and educational resources to improve knowledge and promote an active public role in management of water resources.
8	Maintenance and Inspection	Preserve function and performance of public infrastructure through continued implementation of a maintenance and inspection program.
9	Regulatory Responsibility	Maintain primary responsibility for managing water resources at the local level in coordination and cooperation with other agencies and organizations.

## ROLES AND RESPONSIBILITIES

### City of Shoreview

The City's role in surface water management is summarized below:

- » **Local Surface Water Management Plan:** Shoreview must prepare a local plan that conforms to the requirements of Minnesota Rules 8410 and the Watershed Plans. This SWMP will be completed and adopted in 2018 and will be updated again in 2028.
- » **Project Review & Permitting:** The City of Shoreview is a Level I City and has deferred permitting of most projects to the watershed organizations. The City is responsible for informing developers and other project applicants regarding RWMWD and RCWD rules and permits. The City is also responsible for informing permit applicants that they must obtain a NPDES Construction Site Stormwater Permit from the MPCA for projects disturbing 1 acre or

## 9 - COMMUNITY FACILITIES AND SERVICES

more. The City has developed standards and a permit programs for projects that fall below the thresholds of the RCWD and RWMWD.

- » **City Official Controls:** The City must maintain official control for the management of surface water systems and resources. Updates to city ordinances and official controls must be consistent with, the RWMWD and RCWD Rules and updates to the NPDES MS4 Permit Program. **Figure 9D.4** shows Shoreview's surface water related official controls.

**Figure 9D.4 - Surface Water Related Official Controls**

General Category	City Code Section	Title
Illicit Discharge Protection	209.060	Stormwater Management Illicit Discharge Detection and Elimination
Construction Site Erosion and Sediment Control	209.040	Soils, Slopes, Grading and Erosion Control
Post-construction Stormwater Management	209.065	Surface Water Management
Wetland (Buffers)	209.065	Surface Water Management
Wetlands (Protected Areas)	209.070	Wetlands
Shoreland Standards	209.080	Shoreland Management
Individual Sewage Treatment Systems	209.090	Subsurface Sewage Treatment Systems
Floodplains	205.091	Floodplain Management Ordinance

- » **Public Work Group: City Official Controls:** Participate in opportunities for staff training and advance public works issues and NPDES MS4 implementation.
- » **Maintenance of City Stormwater Management Systems:** Shoreview is responsible for the inspection, maintenance, cleaning, repair, and reconstruction of the City's stormwater system (storm sewers, ponding areas, ditches, water level control structures, etc.) to keep it in good working order to prevent flooding and address water quality. Maintenance requirements under the NPDES MS4 stormwater permit include responsibilities for pond assessment and maintenance. The City should coordinate with the District on prioritization of ponds that are the most needed for water quality of District resources.
- » **Wetlands Management:** The RWMWD and the RCWD are the LGUs responsible for administering the WCA. The City is responsible for referring permit applicants whose projects contain possible wetlands to the RWMWD and RCWD.
- » **Groundwater:** Shoreview is responsible for developing, adopting, and implementing a wellhead protection program for drinking water supplies.

### Watershed Districts

The Watershed Districts are responsible for fulfilling the duties of Minnesota Statute 103D. Both the RWMWD and RCWD seek to collaborate with cities, businesses and individuals to achieve their goals.

## 9 - COMMUNITY FACILITIES AND SERVICES

Major responsibilities of the Watershed Districts generally include:

- » Implementation of the District's Rules, Regulations, and Permitting Program
- » Wetland and Natural Resource Management
- » Maintenance of District Facilities and MS4 Permit Responsibilities
- » Monitoring, Reporting and Evaluation
- » Assistance to Local Governmental Units
- » WRAPS and TMDL Implementation

Specific to the City of Shoreview, Both RWMWD and RCWD have permit programs that owners of projects meeting their criteria must follow and obtain permits for prior to initiating construction.

In the Ramsey-Washington Metro Watershed District, private developers and government agencies are required to apply for a grading permit for any grading or filling activity involving more than one acre of land disturbance, land adjacent to a water body, or any alteration to a wetland or floodplain. Similar requirements apply in Rice Creek Watershed District, in addition to covering projects that create or reconstruct 10,000 square feet or more of cumulative impervious surface. Both watersheds have a comprehensive set of rules covering areas including, but not limited to, stormwater management, erosion and sediment control, floodplains, wetlands, and illicit discharges.

### Ramsey County

Counties have a wide variety of duties, including road maintenance (street sweeping, and snow/ice control), planning and zoning, parks and recreation, water quality, and solid waste management that relate to management of surface waters within the City. Specific to this Plan, Ramsey County is responsible for:

- » Groundwater management, including preparing and adopting groundwater plans. The Ramsey Conservation District prepared the county's groundwater plan, which remains in draft form, in 2010.
- » Adopting and implementing the county's MS4 SWPPP. Like the City's SWPPP, the County SWPPP include provisions for water quality and stormwater best management practices, including maintenance of County-owned stormwater infrastructure.
- » Review and comment of the City's Draft SWMP. The County has 45 days to review and provide comment on the City's SWMP.

### Metropolitan Council

The Metropolitan Council's Environmental Services (MCES) group provides review and comment on watershed management plans, local water management plans, and local comprehensive (land use) plans. MCES also conducts lake monitoring (including the Citizen Assisted Monitoring Program) and conducts river and stream monitoring. MCES has 45 days to review and provide comment on the City's SWMP. MCES comments are also provided to the watershed organizations to consider as they prepare their comments.

## 9 - COMMUNITY FACILITIES AND SERVICES

### CAPITAL IMPROVEMENTS

The implementation program as described in the implementation Table for each Plan goal includes identification and preliminary target dates for capital improvements, maintenance and inspections, permitting, plan amendments, public involvement, and monitoring programs.

The Implementation Program is not a direct commitment to complete each and every activity in the time frame suggested. Instead, the Implementation Program will be reviewed on an annual basis and each improvement will be reconsidered and advanced or adjusted based on City budgets, related activities, and other relevant factors at that time. Estimated costs of recommended actions are not provided recognizing that planning level estimates often set unrealistic expectations of the actual costs of projects and/or activities. In many cases, the City Council is required to specifically approve a project or budget prior to making the funds available.

The financial goal for this Plan is to fit within the existing funding sources to pay for water resources management activities. Except for the selected items listed below, planning-level estimates of capital expenditures and ongoing program activities have not been made. The primary funding source for Plan activities is the City's Surface Water Management Fund. The Fund is anticipated to be supplemented by special assessments, grants and other available funding on a project specific basis. In consideration of recent municipal budget situations, a renewed focus will be placed on securing grants, enlisting regional watershed funding, seeking local partnerships with watershed organizations and adjacent communities and investigating other innovative financing mechanisms. **Figure 9D.5** provides a summary of the implementation plan.

# 9 - COMMUNITY FACILITIES AND SERVICES

**Figure 9D.5 - Implementation Plan**

Activity No.	Activity Description	Estimated Implementation Year(s)	Estimated Cost (City)	Estimated Cost (Others)
<b>Water Quality</b>				
1.1	Continue efforts to reduce chloride use (including ongoing equipment operator training)	Annually	\$1,000-\$2,000	TBD
1.2	Review CIP projects, new and redevelopment areas, in advance of construction to evaluate needs and opportunities for water quality improvements. Complete feasibility study where grant applications may be pursued.	Annually	\$10,000-\$25,000	TBD
1.3	Where CIP projects, new & redeveloped water quality improvement opportunities exist, work with Watershed(s) to identify state and/or local grants. Apply for grants if eligible.	Annually	\$3,000	TBD
1.4	Review City facilities include buildings and parks for water quality BMP opportunities.	Annually	Included with 1.2	TBD
1.5	Partner with Ramsey-Washington Metro and Rice Creek Watershed Districts on water quality improvement studies and implementation projects. Prioritize projects within the sub-watersheds of impaired waters listed in Table 24 or at-risk waters within RWMWD (Lake Owasso, Lake Emily and Shoreview Lake)	Annually	\$10,000	Variable
1.6	Use results from the RWMWD's macrophyte harvesting study to inform implementation of macrophyte management in Owasso Lake.	2018	TBD	\$100,000 (RWMWD)
1.7	Partner with RWMWD to perform a feasibility study of retrofit opportunities throughout the Shoreview Lake Subwatershed to improve water quality.	2017	\$2,000	\$30,000 (RWMWD)
1.8	Partner with RWMWD to perform a feasibility study of retrofit opportunities throughout the Lake Owasso Subwatershed to improve water quality	TBD	\$2,000	\$30,000 (RWMWD)
1.9	Partner with RWMWD to perform a feasibility study of retrofit opportunities throughout the Lake Emily subwatershed to improve water quality, including outflows from Lake Judy.			

**Figure 9D.5 - Implementation Plan continued on the next page.**

# 9 - COMMUNITY FACILITIES AND SERVICES

**Figure 9D.5 - Implementation Plan continued**

Activity No.	Activity Description	Estimated Implementation Year(s)	Estimated Cost (City)	Estimated Cost (Others)
<b>Water Quantity</b>				
2.1	Partner with Ramsey-Washington Metro and Rice Creek Watershed District on water quantity studies and implementation projects.	Annually	\$3,000-\$5,000	TBD
2.2	Partner with RWMWD to perform a feasibility study of retrofit opportunities throughout the Shoreview Lake Subwatershed to improve the water quality.	2017	\$3,000-\$5,000	\$30,000 (RWMWD)
2.3	Implement projects that are deemed feasible in the Shoreview Lake Subwatershed Feasibility Study	2018 2019-2026	\$100,000 TBD	\$200,000 (RWMWD)
2.4	Work with the RCWD to complete a RCD I Drainage System study for the Marsden Lake drainage areas north of County Rd I. The City would like RCWD to lead the effort, efforts are subject to RCWD Board Approval.	2019	\$25,000	TBD
2.5	Continue work with RWMWD to better assess the interaction between Grass and Vadnais Lakes.	2018-2020	\$5,000 - \$7,000	TBD
2.6	Complete a stormwater vulnerability assessment on City infrastructure to assess risks and possible risk reduction options.	2019-2020	\$30,000	TBD
2.7	Work with RWMWD (as lead) to develop an operations plan for managing water levels on Grass Lake system.	2019-2020	\$5,000	TBD
2.8	Create and implement an Emergency Response Plan for Owasso Lake	2017-2026	\$2,000	TBD
<b>Erosion Control</b>				
4.1	Continue project review process established in NPDES MS4 Program.	Annually	\$5,000 - \$10,000	TBD
<b>Groundwater</b>				
5.1	Create an infiltration vulnerability map based on DWSMAs located within the City boundary. Identify prohibited and restricted infiltration areas.	2018	\$2,000	TBD
5.2	Implement Rice Creek Fields Stormwater Reuse project to cut groundwater demand of the aquifer.	2019	\$200,000	\$50,000 (RCWD) \$150,000 (Met Council)

## 9 - COMMUNITY FACILITIES AND SERVICES

Figure 9D.5 - Implementation Plan continued

Activity No.	Activity Description	Estimated Implementation Year(s)	Estimated Cost (City)	Estimated Cost (Others)
<b>Recreation, Habitat, and Shoreline Management</b>				
6.1	Publish information relating to shoreland and habitat management and enhancement.	Annually	\$2,000	TBD
6.2	Assess and conduct buffer and natural areas restoration along the Owasso Lakes Area	2024-2026	\$2,000	\$70,000
6.3	Implement a shoreline management study to assist with lakeshore restoration and enhance lakeshore native habitat and stabilization	2018	\$2,000	\$25,000 (RWMWD)
6.4	Evaluate the carp population in Lake Owasso	2017-2018	TBD	\$15,0,000 (RWMWD)
6.5	Manage the carp population in Lake Owasso	2019-2026	TBD	\$240,000 (RWMWD)
<b>Public Participation, Information, and Education</b>				
7.1	Continue Storm water Education Program established in NPDES MS4 Program.	Annually	\$2,000	TBD
<b>Maintenance and Inspection</b>				
8.1	Develop BMP Maintenance Agreement Program through standards and/or City Code.	2018-2019	\$2,000	TBD
8.2	Implement prioritized pond cleanout program based on results of study completed in 2017. - Dredging - Planning and Design	Annually	\$125,000 \$50,000	TBD
<b>Maintenance and Inspection</b>				
9.1	Finalize Standards/Ordinance Updates for Projects Not Covered by RCWD and RWMWD	2018	\$5,000	TBD
9.2	Update NPDES MS4 Program in response to new permit issuance.	2018 2023 2028	\$5,000 \$5,000 \$5,000	TBD
9.3	Update Surface Water Management Plan	2028	\$50,000	TBD

# 9E - WASTE MANAGEMENT

Appropriate solid waste management is important to preserve environmental quality for both current and future City residents. The waste disposal habits of City residents and businesses should occur in a manner that protects land, air, water and other resources as well as public health. Waste reduction results in lower disposal costs and reduced pollution risk from landfills. In addition, reducing waste provides economic benefits from more efficient resource use.

## ROLES AND RESPONSIBILITIES

### State of Minnesota

In 2016 the Minnesota Pollution Control Agency (MPCA) adopted a Metropolitan Solid Waste Management Plan for managing the Twin Cities Metropolitan Area's (TCMA) solid waste through 2036. The MPCA sought input from the seven metropolitan counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington and other stakeholders during the development of the Plan.

All stakeholders, including the MPCA, are accountable for implementing the Plan. The Plan is comprised of four parts that describe the responsibilities of stakeholders, including product producers, all levels of government, waste generators, and waste management businesses.

The Plan outlines the challenges and opportunities for waste management in the TCMA over the next 20 years and includes a framework for change, including a system plan which promotes aggressive goals that support the upper end of the waste hierarchy. The Plan also describes the tools that the MPCA and metropolitan counties will use to implement the Plan and monitor the progress toward meeting the system objectives.

The metropolitan solid waste planning process is comprised of two parts: 1) the Plan as prepared by the MPCA in consultation with stakeholders; and 2) the more detailed county master plans, to be completed after adoption of the Plan that address the specific projects and programs to be implemented within the counties.

### Ramsey County

Metropolitan Counties are required per Minnesota State Statute to plan and implement activities to meet the State's policy for solid waste management. Ramsey County has developed a 20 year Solid Waste Management Master Plan to guide solid waste system development within the County. Some of the key elements to the plan include accountability, solid waste management hierarchy, product stewardship, waste-to-energy, government as a leader, and environmental benefits. The Plan also sets specific quantifiable objectives to reduce land disposal of waste through 2036. The objectives are provided in five-year increments beginning in 2015 and include objectives for waste reduction, recycling, organics recovery, resource recovery, and landfilling.

## 9 - COMMUNITY FACILITIES AND SERVICES

Ramsey County has partnered with Washington County and they are working together to find new technologies in the coming 20 years to process what is left in the trash from homes and businesses and get the most value out of what is thrown away even as they work to increase recycling and reduce the amount thrown away. The two Counties purchased the Ramsey/Washington Recycling & Energy Center in Newport, MN and plan to use the waste processing facility as a key component in managing waste and resources in the two counties. A Joint Waste Designation Plan was approved by the MPCA in 2016.

Ramsey County also administers a variety of programs that support the plan's vision for sustainability. These include, but are not limited to, business waste assistance, business and household hazardous waste, yard waste composting and recycling.

### Local Communities – City of Shoreview

The City's role in waste management is to ensure that solid waste generated in our community is managed in a manner that is environmentally and economically sound, and protects the public health and safety. Shoreview's waste management program includes managing private trash hauling through an open system, recycling, education, and establishing partnerships with other agencies and private industry.

## COUNTY WASTE MANAGEMENT AND TRENDS

Ramsey County has a successful system in place to manage solid waste in the county. In 2016, when measured by weight, 87% of discarded material was diverted from landfills through a recycling rate of 54% and an additional 33% used to generate electricity. Over the last 10 years the percentage of recycling, which includes the collection of organics, has risen steadily from a rate of 44% in 2007 while the percentage used to generate electricity has remained fairly steady.

The objectives listed in the County's Plan include a recycling rate of 60%, an organics recovery rate of 15%, resource recovery rate of 24%, and land fill rate of 1% of the waste stream by 2036.

## LOCAL WASTE MANAGEMENT PROGRAMS AND TRENDS

### Waste Collection

Shoreview has an open hauling system for garbage collection, which means that the City licenses private waste management companies for the collection, processing and disposal of solid waste. The City does not control rates through this licensing process. The City is divided into 5 zones for pick-up services and trash haulers must provide weekly trash pickup within each zone as a condition of the license. Because the City is committed to reducing, reusing and recycling products in our community, bi-weekly residential recycling occurs by a single hauler under contract with the City.

All solid waste collected within Shoreview, regardless of collection hauler, is brought to the Ramsey-Washington Recycling & Energy Center in Newport, Minnesota. This is required by law as of January 1, 2018. The Newport facility sorts material by type in order to remove as many recyclable items as

## 9 - COMMUNITY FACILITIES AND SERVICES

possible. Approximately 3.5% of all material delivered to the Center is removed and recycled. This material is composed mostly of aluminum and other metals. The remaining waste is ground into a powdered material that entities such as Xcel Energy burn to produce power. Because recyclable materials are removed prior to grinding, the powder substance used for incineration is composed mostly of plastic bags and non-recyclable paper.

Recycling collected curbside in Shoreview is taken to a materials recovery facility (MRF) where recycling is sorted, processed, and shipped for re-use. The exact location of the MRF(s) depends on the hauler currently under contract with the City. Republic Services collected recycling in Shoreview between 2011 and mid-2018. Materials collected by Republic are taken to their MRF in Minneapolis. The upcoming recycling contract is with Eureka Recycling and runs from mid-2018 to 2022. Once the new contract is in effect, all recyclable materials from Shoreview will be taken to the Eureka MRF in northeast Minneapolis for processing.

### Waste Reduction and Management

In addition to waste collection, Shoreview offers other methods to reduce and manage local wastes and in some instances coordinates these efforts with Ramsey County. These programs include curbside recycling, yard waste disposal sites, household hazardous waste disposal sites, and clean-up days. The City also administers several environmental programs to increase awareness of the impacts of waste generation and encourage waste reduction.

### Residential Programs

**Curbside Recycling.** The City of Shoreview contracts with a private hauler to provide curbside recycling service for residents. A collection company is selected to provide pick-up at all residential properties in the City. This program is funded in part through a charge collected with residential property taxes. In 2018 the charge is \$48.00 per residential unit. Additional funding is provided from Ramsey County (which receives state funds for this purpose).

Recyclable materials including newspaper, glass, metals, plastic, cardboard and mixed paper are collected once every other week. In 2005 the City switched to single sort recycling collection, which was well received by the community. Participation rates of approximately 90% have remained fairly steady since the switch. The amount of material collected has also remained steady over the last few years with around 2400 tons collected annually.

In June of 2007 the City entered into an agreement with a company that provides curb-side collection of clothing, shoes, and household goods on the same day recycling is collected. The first six months the program has been extremely successful with approximately 15 tons of items collected and over 87% of the residences within the City participating in the program.

**Yard Waste.** Minnesota law prohibits yard waste from being disposed of in a landfill or resource recovery facility. Yard waste is defined to include leaves, grass clippings, garden waste, and tree and shrub waste. Ramsey County operates a network of seven yard waste collection sites. These sites are open 38 hours per week, five days per week, from April through November, weather permitting. These sites are monitored by County staff, who provide assistance and prevent illegal dumping. Currently, there is

## 9 - COMMUNITY FACILITIES AND SERVICES

no fee charged for usage of the sites.

The closest site available to Shoreview residents is located on Sherwood Road east of the City, in White Bear Township, south of County Road J. Residents may be offered yard waste pick-up through their trash collection, with an additional cost for the service.

**Organics Recycling.** Ramsey County has organics recycling bins located at all of their yard waste collection sites to provide residents the opportunity to recycle organics. The County also offers free organics recycling collection caddies.

**Household Hazardous Waste (HHW).** Ramsey County provides a year-round household hazardous waste collection site and mobile sites that rotate between Ramsey County Cities every month. The County provides HHW collection services in conjunction with the City's clean-up days events. Materials collected include automotive products, cleaning products, cords and string lights, home improvement products, lawn and garden chemicals, mercury containing items, needles and syringes, and batteries.

Through an agreement with other Metropolitan counties, Ramsey County residents can also drop off HHW waste at any HHW collection site in the metropolitan region. The Ramsey County Public Works facility on Highway 96 accepts waste motor oil.

**Clean-Up Days.** The City of Shoreview sponsors "clean-up days" in the spring and fall each year. For a fee, residents can drop off, old appliances, tires, e-waste, and other items that are difficult to discard. The intent of this program is to reduce illegal dumping and provide a needed service to City residents. In 2017, approximately 155 tons of material was collected during the City's two clean-up days, not including e-waste, which totaled an additional 25 tons. Material is sorted and eligible items, such as scrap metal and tires, are recycled. Non-recyclable materials are disposed of properly.

### Non-residential and Business Programs

**BizRecycling.** This program helps businesses in Ramsey and Washington Counties to start, expand, improve, and manage business recycling, including organics collection. BizRecycling connects businesses with recycling experts who can help identify recycling and waste reduction opportunities.

**Minnesota Materials Exchange.** This program is a free service program that is designed to reduce waste by linking organizations that have reusable goods that they no longer need with those who can use them. By providing a business reuse network, the Materials Exchange program minimizes usable materials from entering the waste stream. Benefits to the program include; receiving low or no cost materials, reducing disposal and purchase costs, freeing-up storage space, and finding markets for surplus materials. The Exchange is operated on-line by the University of Minnesota and lists materials available or wanted for exchange. Catalogs and brochures promoting the service are distributed to businesses.

**Hazardous Waste.** In accordance with Statutory requirements, Ramsey County has adopted a Hazardous Waste Management Ordinance that outlines generator and facility licensing requirements, proper management of waste and enforcement provisions. The County provides hazardous waste generators with information and training on the proper management of hazardous waste and also conducts periodic inspection of licensed operations. Generator license fees vary based on the volume

## 9 - COMMUNITY FACILITIES AND SERVICES

of waste generated, providing an incentive to reduce waste generation.

### FUTURE NEEDS

The City and County, working in conjunction with state and regional agencies and the private sector, have made significant progress toward reducing the amount of municipal solid waste disposed in landfills.

Achieving waste reduction and recycling goals require changes in individual behavior beyond the direct control of the City. The City should continue its programs to educate its citizens about waste reduction strategies and the long-term environmental, economic and social costs of waste disposal. The City should also take an active role in solid waste management and work with state, regional and county agencies in their waste reduction efforts.

### GOALS POLICIES AND RECOMMENDED ACTIONS

#### Goals

1. Protect land, air, water and other resources as well as public health through proper management and disposal of solid waste.
2. Reduce waste generation and promote efficiency in resource use through source reduction, reuse and recycling.

#### Policies

- A. Work to decrease the amount of landfill waste generated within the City.
- B. Educate residents on waste management issues and promote awareness of existing programs.
- C. Strive to increase participation in residential and non-residential recycling and organics collection programs.
- D. Encourage businesses to implement waste reduction, reuse, and recycling programs.
- E. “Close the loop” by encouraging the purchase of products using post-consumer recycled materials.

#### Recommended Actions

1. Continue the City’s efforts to promote the residential recycling program.
2. Continue the City’s efforts to educate residents on waste reduction, residential composting, and organics collection.
3. Work with the County to promote the BizRecycling Program.
4. Continue to advertise Ramsey County yard waste and household hazardous waste collection sites in City publications.
5. Provide information to residents and businesses on the same disposal of electronics.

## 9 - COMMUNITY FACILITIES AND SERVICES

6. Continue the City's clean-up day program, and consider expansion of the program.
7. Continue to monitor waste collection and recycling program. Consider program modifications as needed to increase participation rates, respond to trends, changing needs or new regulations.
8. Examine the feasibility of implementing ZeroWaste programs or principles for local government operations.

# 9F - PUBLIC SAFETY AND EMERGENCY MANAGEMENT

The ability of government to provide a safe environment to work and live contributes to residents' quality of life. A community that promotes safety retains desirable neighborhoods, attracts quality businesses and provides a positive social environment. The City can encourage public safety through a variety of measures including the provision of quality law enforcement and fire protection services, proactive programs in crime prevention and fire prevention and having an effective and comprehensive emergency management plan.

## EXISTING SERVICES

### Police

Law enforcement services within the City are provided by the Ramsey County Sheriff's Department. The City of Shoreview, along with the cities of Arden Hills, Falcon Heights, Little Canada, North Oaks, Vadnais Heights and White Bear Township, has a three-year agreement with Ramsey County for the provision of police services. This three-year agreement expires at the end of 2018 and is expected to be renewed for another three-year period. All other government units that contract with the Sheriff's Department are also expected to renew their contractual agreements.

The Sheriff's Department provides standard law enforcement services within the City including patrol and police protection, investigation, traffic enforcement, crime prevention (including neighborhood watch), and animal control. The Community Support Services unit partners Sheriff's office staff with volunteers to foster community relations and promote participation in law enforcement programs and services. This unit coordinates many volunteer programs such as the training and use of Community Affairs Officers (CAO's), Community Emergency Response Teams (CERT), Reserve Deputies, and Law Enforcement Explorers. Numerous community engagement activities include major events like Night to Unite, Hot Dog with a Deputy, and Coffee with a Cop along with holding annual Sheriff's Department Citizen Academies.

In addition, the Sheriff's Department provides patrol and police protection of the County parks, lakes, and open space areas in Shoreview through its Lake and Trails division that is located at 5 South Owasso Boulevard in Little Canada. To ensure safety on Shoreview's lakes, the City contracts for additional lake patrol hours during peak use periods (weekends and holidays between Memorial Day and Labor Day).

The Sheriff's Department is organized and supervised by an elected Ramsey County Sheriff. The Sheriff appoints an Undersheriff who is responsible for the Patrol, Investigation, Community Support Services, and Lakes and Trails Divisions of the Sheriff's Department. The patrol division is located at 1411 Paul Kirkwold Drive in Arden Hills. Dispatch services for the Sheriff's Department are provided by Ramsey County Emergency Communications Division that operates a consolidated dispatch center in St. Paul

## 9 - COMMUNITY FACILITIES AND SERVICES

for all law enforcement agencies and fire departments throughout the County.

### Medical

Allina Health EMS provides emergency medical service under the license issued by the State of Minnesota. The license covers most communities in northern Ramsey County. The central base station for Allina Health EMS in the north service area is located on Woodale Drive just west of Mounds View Boulevard in Mounds View. A substation is located in Shoreview near County Rd E and Victoria Street North. The Allina Health EMS response time standard for life-threatening emergencies is to arrive on scene within 10 minutes of a call. Ramsey County Sheriff's deputies and members of the Lake Johanna Fire department are trained as Emergency Medical Responders or Emergency Medical Technicians and assist in medical emergencies. All police cars and fire apparatus are equipped with defibrillators and basic first aid supplies.

### Fire

The City contracts with the Lake Johanna Fire Department (LJFD) for fire protection services. The Department also serves the cities of Arden Hills and North Oaks. The Department is a combination fire department with five full time employees and more than 70 paid on call firefighters. The Department is governed by a Board of Directors with four representatives from the cities (including two from Shoreview) and three elected representatives from the Fire Department. The Board appoints a Fire Chief who serves as the top administrative official within the Department and is responsible for the day to day operations of the Department including hiring, supervision, budgeting, and capital expenditures. The Department has two fully staffed 24 hour stations that respond to all fire and medical emergencies in the three contract cities.

The Department operates from three stations. The City of Shoreview owns two of the stations including one located in southern Shoreview at 3615 Victoria Street (Station No. 4) and the second station located in northern Shoreview at 1150 West County Road I (Station No. 3). A station located at 4676 Hodgson Road in North Oaks (Station No. 2) serves the central portion of Shoreview. These station locations are identified on the Civil Defense Sirens and Emergency Services Map (**Map 9.F.1**).

The Lake Johanna Fire Department provides a full range of services, including fire suppression, inspection and prevention. The City entered into a five-year service contract with the Department commencing on January 1, 1999. This agreement includes three five-year extensions and expires in December 31, 2019.

The Fire Department has auto-aid agreements which provide for immediate response to major fires in certain parts of the service area with Roseville and Vadnais Heights fire departments as well as mutual aid with all surrounding departments. There is a joint Hazardous Material team with other area departments and an Advanced Technical Rescue Team with the Roseville Fire Department

### Emergency Management

Emergency management reduces the community's vulnerability from the impacts of natural or other

## 9 - COMMUNITY FACILITIES AND SERVICES

disasters and increases our ability to cope with them.

Emergency management is often thought of as a cycle:

- » Preparedness - planning, training, conducting drills and exercises, testing equipment and public education.
- » Response - all of the actions immediately after a disaster taken to save lives, as well as activities to protect property and the environment from the effects of the disaster.
- » Recovery - Returning a disaster-affected community to “normal” after a disaster, including financial recovery and rebuilding.
- » Mitigation - reducing or removing disaster risks in the community.

Natural disasters, technological disasters (power failure, computer failure) and disasters caused by people, whether accidental or intentional (terrorism), pose a threat to the health and safety of the community’s residents. Some potential disasters may include; tornadoes, floods, blizzards, train derailment, plane crashes, communicable disease outbreaks, explosions, and the release of hazardous materials. An emergency management plan encompasses the actions necessary to mitigate, prepare for, effectively respond to and recover from emergencies and disasters.

Ramsey County is the physically smallest and most densely populated county in Minnesota and in order to more effectively manage disaster preparation, mitigation response and recovery, each suburban city adopted Ramsey County’s Emergency Plan as its own plan in 2005. This has enabled a higher level of coordination and mutual support among suburban emergency managers and responders. In addition, it has reduced the amount of time expended by each city to meet state and federal reporting requirement. It has also served federal requirements for collective agreements (Ramsey County, Dakota County and the City of St. Paul) to be eligible for certain emergency management grants.

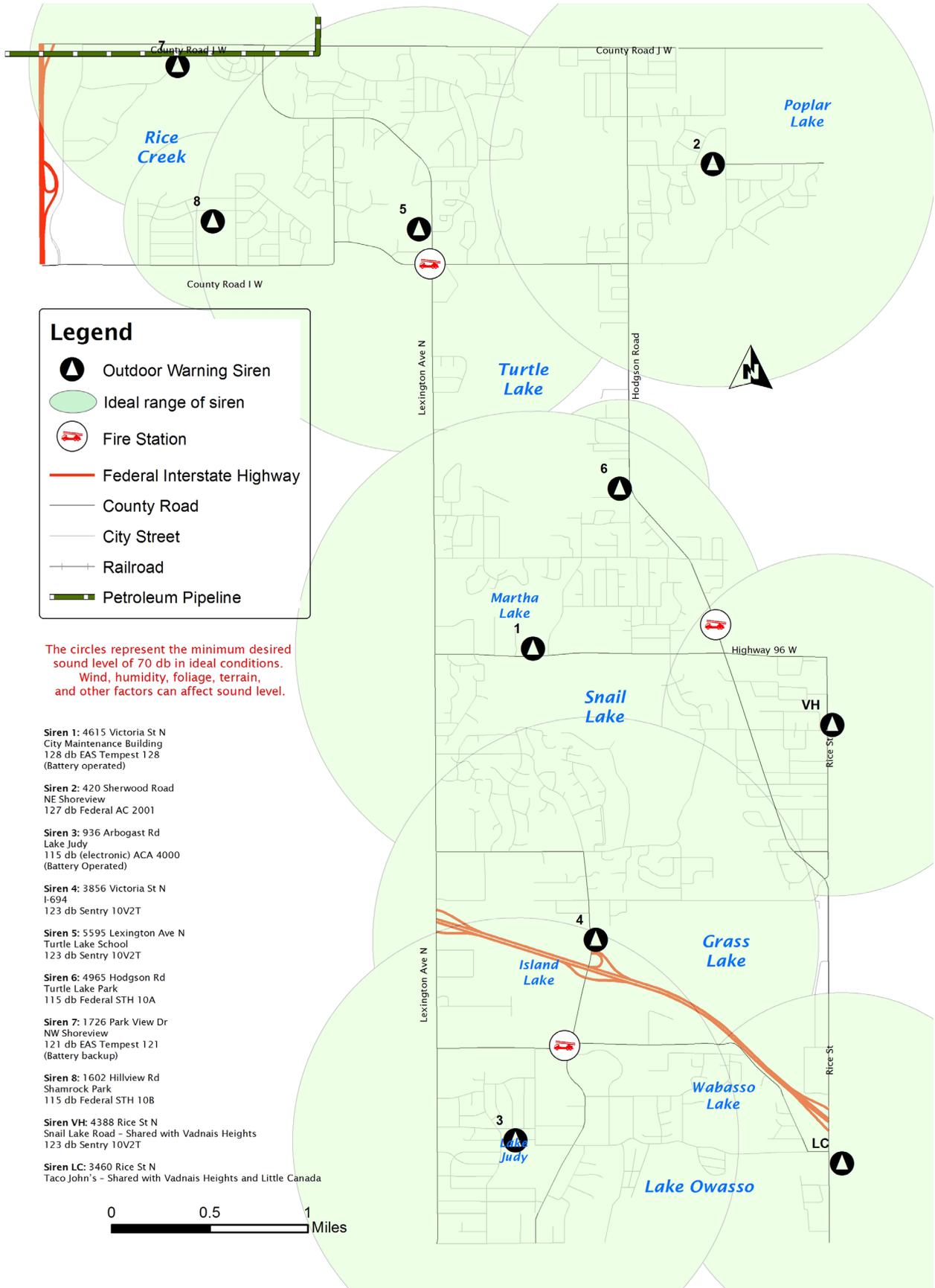
The Plan’s Mission is to:

- » Minimize impact to property and the environment
- » Secure our critical infrastructure and facilities
- » Resume the regular provision of services to our citizens

The basic purpose of the plan is to provide a guide for emergency governmental operations. The County’s Emergency Operations Plan is reviewed annually and updated as needed. The city maintains guidelines, references and contact lists for city leadership and emergency managers from other cities and other levels of government who may be called on to help during and/or after emergency response and recovery efforts.

Warning and notification of natural and anthropogenic disasters are disseminated to the general public through the City’s 10 civil defense sirens (**Map 9F.1**). Outdoor sirens are designed for persons who are outdoors at the time of an event. They sound to alert people to get indoors and find out what the situation is and then take appropriate action. Outdoor sirens have two types of warning tones: a steady wail is used to warn of significant weather (tornadoes, severe storms with potential high winds) while the warble tone, or the up-and-down tone is used to alert people of civil emergency situations (serious

# Map 9F.1 - Civil Defense Sirens and Emergency Services

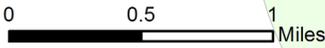


**Legend**

- Outdoor Warning Siren
- Ideal range of siren
- Fire Station
- Federal Interstate Highway
- County Road
- City Street
- Railroad
- Petroleum Pipeline

The circles represent the minimum desired sound level of 70 db in ideal conditions. Wind, humidity, foliage, terrain, and other factors can affect sound level.

- Siren 1:** 4615 Victoria St N  
City Maintenance Building  
128 db EAS Tempest 128  
(Battery operated)
- Siren 2:** 420 Sherwood Road  
NE Shoreview  
127 db Federal AC 2001
- Siren 3:** 936 Arbogast Rd  
Lake Judy  
115 db (electronic) ACA 4000  
(Battery Operated)
- Siren 4:** 3856 Victoria St N  
I-694  
123 db Sentry 10V2T
- Siren 5:** 5595 Lexington Ave N  
Turtle Lake School  
123 db Sentry 10V2T
- Siren 6:** 4965 Hodgson Rd  
Turtle Lake Park  
115 db Federal STH 10A
- Siren 7:** 1726 Park View Dr  
NW Shoreview  
121 db EAS Tempest 121  
(Battery backup)
- Siren 8:** 1602 Hillview Rd  
Shamrock Park  
115 db Federal STH 10B
- Siren VH:** 4388 Rice St N  
Snail Lake Road - Shared with Vadnais Heights  
123 db Sentry 10V2T
- Siren LC:** 3460 Rice St N  
Taco John's - Shared with Vadnais Heights and Little Canada



## 9 - COMMUNITY FACILITIES AND SERVICES

chemical leaks, nuclear attack, etc.). There is no “all clear” alert tone. An “all clear” notification is only announced through media outlets when the situation which prompted the siren activation has passed.

**Map 9F.2** identifies the location of “302 Facilities” in the City. A “302 Facility” is any facility that has reported an amount equal to or greater than the Threshold Planning Quantity (TPQ) of any “Extremely Hazardous Substance” covered by Federal Law. This map also shows buffer areas around these facilities and facilities that are at risk, however, the extent of the buffer area may vary depending on the chemical, amount stored, weather and other variables.

### PUBLIC SAFETY STATISTICS AND TRENDS

#### Sheriff’s Department

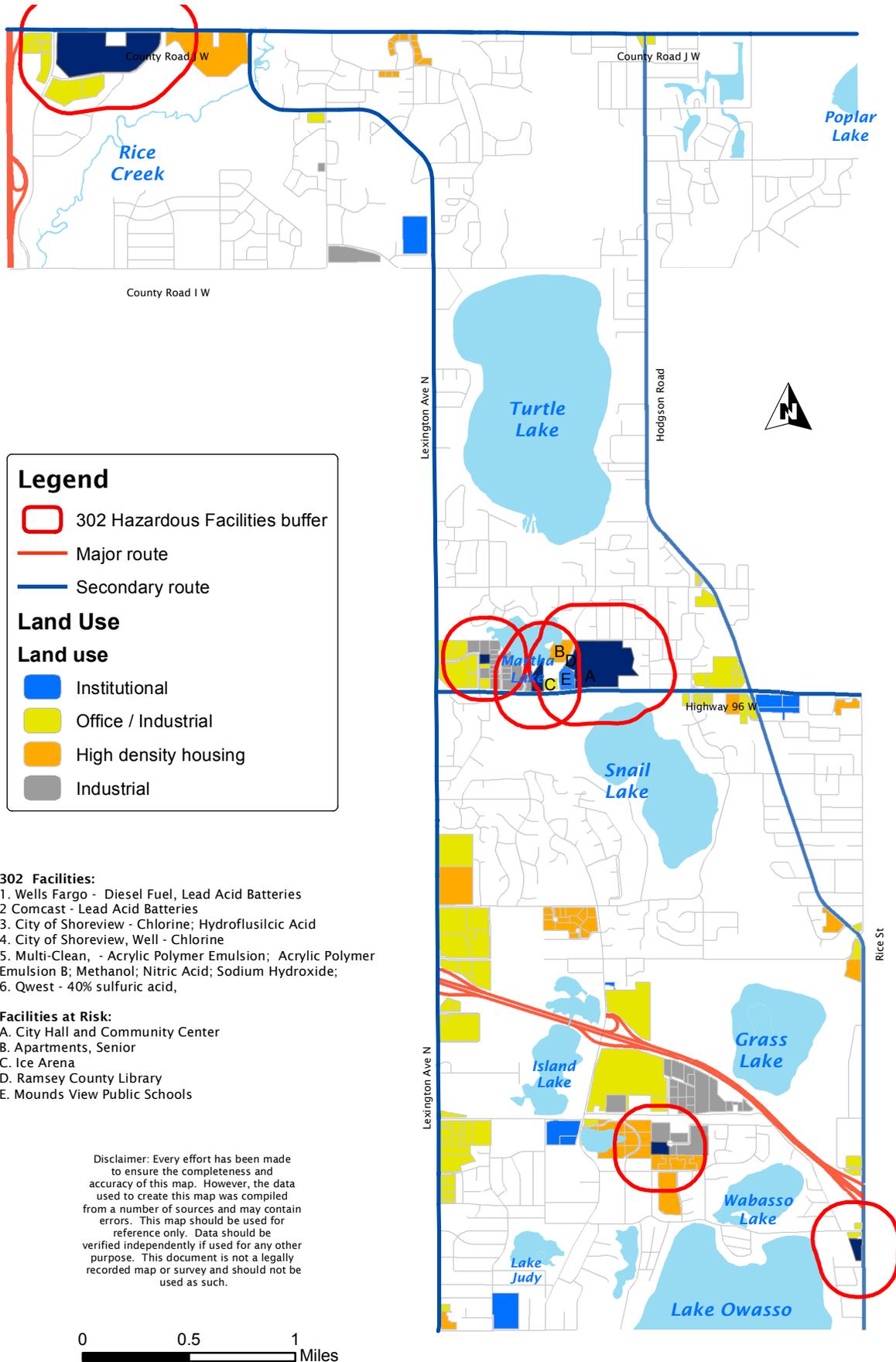
The Ramsey County Sheriff’s Department updated its record management system in 2015 and has tracked its calls for service using this new system in a consistent records format since that time. The Sheriff’s Department reported 8,533 calls for service in 2016 and 8,839 calls for service in 2017 in Shoreview. Overall, crime trends have generally remained fairly consistent through the years with traffic stops accounting for more than 18% of the calls in the City, followed by medical calls that account for 15.5% of the calls. Other categories that are included in the top five calls are parking complaints (6.7%), reports of suspicious activity (5.4%), and assisting citizens (3.1%).

Overall, Shoreview is considered a very safe city with one of the lowest crime rates of similar sized communities in the metropolitan area. The greatest public safety concerns that have been identified by residents in community surveys have historically been traffic speeding, followed by youth crimes and vandalism. A fairly large percentage of Shoreview residents don’t identify any public safety concerns within the City. An overwhelming majority of residents believe that the amount of patrolling that is done by the Sheriff’s Department in their neighborhood is about right. In the 2015 community survey, 95% of the survey respondents rated police protection in the City as either excellent (54%) or good (41%).

In recent years, the Sheriff’s Department has increased its community outreach efforts by starting programs such as Coffee with a Cop and Hot Dog with a Deputy, to supplement their annual Night to Unite event that is always held the first Tuesday in August. These events have been well received and have helped create a stronger community connection between the Sheriff’s Department and residents. In addition, the Sheriff’s Department has held regular Citizen Academies to allow interested residents to learn more about the full scope of law enforcement services provided by the County.

A recent trend has been the growing number of cases that are being investigated by the Sheriff’s Department. During the past five years, the number of cases investigated has grown from 805 cases in 2013 across the six contract cities to nearly 1700 cases in 2017. This growth is due in part to increases in electronic crimes, deputies being more aggressive in the arrest and charging of crimes as a result of traffic stops and patrol activities, as well as advances in investigative technology. Even though an additional investigator position was recently funded by the contract cities, it has not sufficiently addressed the higher case loads that have occurred. The contract cities are working with the Sheriff’s Department to address this growing need.

# Map 9F.2 302 Facilities in the City



## 9 - COMMUNITY FACILITIES AND SERVICES

### Fire Department

As the Lake Johanna Fire Department has implemented the Duty Crew program that has provided full 24/7 staffing at two stations over the past several years, the call numbers have increased dramatically. This is primarily the result of the department responding to all medical emergency calls in the three contract cities. During the past five years, the total number of calls in Shoreview has grown from 1,275 calls in 2013 to 1,858 calls in 2017, nearly a 50% increase. Approximately, 75% of all of the department's calls are medical emergencies, while the remaining 25% of calls are related to fires, hazardous conditions, or other alarm calls. The average response time to all of the calls in Shoreview was (4:49) in 2017 and the average response time across the entire department is (5:33).

The estimated value of fire losses in Shoreview during the past five years has ranged from a low of \$174,000 in 2013 to a high of \$750,000 in 2015. In 2017, the estimated value of fire loss was \$208,000. Across all three contract cities, the average annual estimated dollar value of fire loss during the past five years has been \$1,365,000.

In the 2015 community survey, 93% of survey respondents rated the quality of fire service in the community as either excellent (57%) or good (36%).

Although there has been a growing trend of across some cities in the metropolitan area to add more full time firefighters, the Lake Johanna Department believes it is now right sized for the next several years. Even with an increased number of firefighters that have retired in the past several years, the department has been able to effectively recruit and train new paid on call firefighters. Department leadership believes a complement of 70-80 paid on call firefighters is sufficient to fill the available shifts at the two staffed stations. The department may need to either increase the number of firefighters or explore other methods of best serving the cities if the third station at Lexington and County Road I requires Duty Crew staffing as the Rice Creek Commons development in Arden Hills is built out.

### Medical

Allina Health EMS responded to 1,451 medical calls in Shoreview during 2017, a slight increase from 1,410 calls in 2016. Of these calls, more than 1040 were considered to be emergency calls and the average response time was (7:06), a slight improvement over 2016 and well within their objective of responding to 90% of medical calls within (10:59). Response time is measured from the time the emergency dispatcher picks up the phone to when the ambulance arrives at the address.

The top 5 medical calls types in Shoreview include:

- » General medical (sick person)
- » Falls
- » Breathing problems
- » Chest pain
- » Mental health

## 9 - COMMUNITY FACILITIES AND SERVICES

In general, the number of medical calls in Shoreview has been increasing due primarily to the increased number of senior housing facilities that have been constructed in the City during the past 20 years as well as having an aging population that often requires more medical attention.

### GOALS POLICIES AND RECOMMENDED ACTIONS

#### Goals

1. Sustain the quality of life within the City by providing an environment that promotes a sense of security and safety.
2. Prepare for the response, recovery and mitigation to any type of threat or hazard.
3. Provide public safety and emergency management services that continue to meet the changing needs of the community

#### Policies

- A. Encourage public safety through participation in on-going education, crime prevention and fire prevention programs.
- B. Maintain an Emergency Management Plan with the purpose of protecting life and property, ensuring continuity of government, sustain survivors and provide guidance in the event of a disaster.
- C. Partner with governmental agencies and organizations to provide public safety and emergency management services.
- D. Monitor the public safety needs in the community and modify programs and services if needed to respond to changing community needs.

#### Recommended Actions

1. Continue to work with the Ramsey County Sheriff's Department on public safety issues, including:
  - » Reviewing crime reports for any emerging trends, identify "hot spots" and establish a response plan for these areas.
  - » Evaluating the effectiveness of community outreach and crime prevention efforts.
  - » Continuing proactive use of speed control boards and assignment of traffic deputies to address traffic issues on City streets.
  - » Emphasizing and promoting public safety programs.
2. Continue to work with the Lake Johanna Fire Department, including:
  - » Participating on the Board of Directors to establish service levels and budget.
  - » Collaborating with neighboring cities and Ramsey County on proving quality fire and

## 9 - COMMUNITY FACILITIES AND SERVICES

- emergency medical services.
  - » Emphasizing and promoting fire education and awareness programs.
  - » Assessing delivery of services related to medical calls.
3. Continue and enhance education and community public safety programs, including:
    - » Promoting and encouraging participation in the Ramsey County Sheriff's crime prevention and outreach programs such as the Neighborhood Watch and Night to Unite.
    - » Supporting and encouraging participation in Sheriff' Department volunteer opportunities such as Community Affairs Officers program, Sheriff's Department Reserve and Explorer programs, and Lakes and Trails Reserve program.
    - » Providing incentives for multi-family residential complexes to participate in the Sheriff's Multi-family Crime Free Multi-Family Housing Program.
    - » Supporting Lake Johanna Fire Department's public education programs and activities.
    - » Improving awareness of emergency preparedness and response through the Sheriff's Department's Community Emergency Response Team (CERT) program.
    - » Supporting the Public Safety Committee to provide feedback to the Council on various public safety matters in the community.
  4. Work to address public safety concerns during development and public infrastructure projects by:
    - » Evaluating the Development Code and safety codes and consider updates or changes as needed.
    - » Assessing public safety impacts of significant development proposals and public infrastructure projects.
    - » Encouraging crime prevention through environmental design, where feasible.
  5. Carry out the responsibilities necessary to protect life and property from the various types of disasters the City may encounter.
    - » Reviewing and revising the City's Emergency Management Plan to be consistent with the Ramsey County plan as necessary.
    - » Continuing partnerships with other emergency management organizations.
  6. Assess the public health impacts of an aging population.
    - » Review response reports from Allina and Lake Johanna Fire Department for any emerging trends, evaluate the effectiveness of current services and implement changes as needed.