Comprehensive Plan

Appendix A. Water Supply Plan

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Introduction

The City of Saint Louis Park Water Supply Plan was prepared using the Minnesota Department of Natural Resources Microsoft Word template. Much of the text was left as shown in the original DNR template, which includes instructions and comments to the preparer of the Water Supply Plan.

DEPARTMENT OF NATURAL RESOURCES – DIVISION OF WATERS and METROPOLITAN COUNCIL
WATER SUPPLY PLANS

These guidelines are divided into four parts. The first three parts, Water Supply System Description and Evaluation, Emergency Response Procedures and Water Conservation Planning apply statewide. Part IV, relates to comprehensive plan requirements that apply only to communities in the Seven-County Twin Cities Metropolitan Area. If you have questions regarding water emergency and conservation plans, please call (651) 259-5703 or (651) 259-5647 or e-mail your question to wateruse@dnr.state.mn.us. Metro Communities can also direct questions to the Metropolitan Council at watersupply@metc.state.mn.us or (651) 602-1066.

DNR Water Appropriation Permit Number(s)	731007
Name of Water Supplier	City of Saint Louis Park, MN
Address	3752 Wooddale Avenue, Saint Louis Park, MN 55416
Contact Person	Scott Anderson
Title	Superintendent of Utilities
Phone Number	952-924-2557
E-Mail Address	sanderson@stlouispark.org

PART I. WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

The first step in any water supply analysis is to assess the current status of demand and supplies. Information in Part I can be used in the development of Emergency Response Procedures and Conservation Plans.

A. ANALYSIS OF WATER DEMAND

Fill in Table 1 for the past 10 years water demand. If your customer categories are different than the ones listed in Table 1, please note the changes below.
The City of Saint Louis Park's customers are categorized into either residential or commercial. There are no other customer categories.

TABLE 1 – Historic Water Demand

Year	Total Population	Population Served	Total Connections	Residential Water Sold (MG)	C/I/I Water Sold (MG)	Accounted for water losses (MG)	Total Water Sold (MG)	Total Water Pumped (MG)	Percent Unmetered/ Unaccounted	Average Demand (MGD)	Maximum Demand (MGD)	Residential gallons/ capita/day	Total gallons/ capita/day
1998	43,967	43,967	13,224	1,352.2	744.6	NA	2,096.8	2,305.4	9.0%	6.299	NA	84.0	143.3
1999	44,000	44,000	13,321	1,337.0	751.6	30.8	2,088.6	2,479.6	14.5%	6.793	NA	83.3	154.4
2000	44,126	44,126	13,318	1,338.0	756.0	18.4	2,094.0	2,498.7	15.5%	6.846	NA	83.1	155.1
2001	44,126	44,126	13,305	1,404.0	639.0	71.7	2,043.0	2,445.9	13.5%	6.701	15.061	87.2	151.9
2002	44,126	44,126	13,189	1,289.8	601.4	23.5	1,891.2	2,220.2	13.8%	6.083	11.554	79.9	137.5
2003	44,126	44,126	13,310	1,357.4	647.1	42.5	2,004.5	2,576.1	20.5%	7.058	13.315	84.3	159.9
2004	44,126	44,126	13,208	1,232.2	655.1	18.5	1,887.3	2,315.3	17.7%	6.343	11.196	76.5	143.8
2005	44,896	44,896	13,569	1,203.8	646.9	NA	1,850.7	2,229.8	17.0%	6.109	11.363	73.5	136.1
2006	44,896	44,896	13,616	1,268.3	723.1	29.3	1,991.4	2,411.2	16.2%	6.606	11.461	77.2	146.7
2007	44,896	44,896	13,485	1,325.3	729.5	31.0	2,054.8	2,293.8	9.1%	6.284	10.775	80.9	140.0

MG – Million Gallons **MGD** – Million Gallons per Day **C/I/I**- Commercial, Industrial, Institutional **NA-** Data not available

Residential. Water used for normal household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens.

Institutional. Hospitals, nursing homes, day care centers, and other facilities that use water for essential domestic requirements. This includes public facilities and public metered uses. You may want to maintain separate institutional water use records for emergency planning and allocation purposes.

Commercial. Water used by motels, hotels, restaurants, office buildings, commercial facilities, both civilian and military.

Industrial. Water used for thermoelectric power (electric utility generation) and other industrial uses such as steel, chemical and allied products, food processing, paper and allied products, mining, and petroleum refining.

Wholesale Deliveries. Bulk water sales to other public water suppliers. (Not included in table because City does not supply wholesale water to other water suppliers.

Accounted for Water Losses. Water used for backwashing, parks, rinks, hydrant flushing and carbon backwashing.

Unaccounted. Unaccounted for water is the volume of water withdrawn from all sources minus the volume sold.

Residential Gallons per Capita per Day = total residential sales in gallons/population served/365 days **Total Gallons per Capita per Day** = total water withdrawals/population served/365 days

NOTE: Non-essential water uses defined by Minnesota Statutes 103G.291, include lawn sprinkling, vehicle washing, golf course and park irrigation and other non-essential uses. Some of the above categories also include non-essential uses of water.

Water Use Trends. Discuss factors that influence trends in water demand (i.e. growth, weather, industry, conservation). If appropriate, include a discussion of other factors that affect daily water use, such as use by non-resident commuter employees or large water consuming industry.

The population of the City of Saint Louis Park has not changed significantly, having only increased by 2% in the past ten years. Although the population has remained about the same, water use for both residential and commercial customers is decreasing per capita. In the past ten years, both residential and commercial per capita consumption has decreased at about 1 gpcd/year.

Water demand in Saint Louis Park is somewhat more influenced by changes in weather since the population is relatively stable. For example, 2003 which was a dry year, had a per capita residential use of 84.3 gpcd which is 3.3 gpcd more than the average of 81.0 gpcd for the last ten years. While 2002 was a wet year with a per capita residential use of 79.9 gpcd or 2.1 gpcd below the average. Refer to Figure 1 which shows annual precipitation departure maps in Minnesota for 2002 and 2003. Figure 2 shows annual precipitation in the Minneapolis/St. Paul area between 2001 and 2005.

Per capita water use is anticipated to decrease in the future because of several factors that conserve water use. These items are discussed in detail under Part III. Conservation.

TABLE 2 – Large Volume Users

The top 10 largest water users for 2007 are shown below.

Customer	Gallons per year	% of total annual use
Novartis Corporation	123,974,250	7.34
Methodist Hospital	43,116,000	2.55
Bigos Properties Meadowbrook	18,323,250	1.09
Douglas Corporation	18,026,250	1.07
Metropointe	12,711,000	0.75
Double Tree Hotel	11,843,250	0.70
Recreation Center	11,666,250	0.69
St. Louis Park Plaza	11,010,000	0.65
Bigos Investments	10,479,750	0.62
Coperine	10,155,000	0.60

B. TREATMENT AND STORAGE CAPACITY

TABLE 3(A) – Water Treatment

Water Treatment Plant Capacity	15,120,000	Gallons per day
Describe the treatment process used (i.e., softening, chlorination, fluoridation, Fe/Mn removal, reverse osmosis, coagulation, sedimentation, filtration, others). Also, describe the annual amount and method of disposal of treatment residuals, if any.		

St. Louis Park water is disinfected to prevent contamination from microorganisms. Fluoride is added to enhance children's dental protection. The nuisance minerals iron and manganese are removed from the water by aeration and filtration. Radium is removed through chemical injection and filtration. Organic contaminates are removed from two wells by granular activated carbon filtration. The water treatment operators check the treatment system every day to ensure water quality standards are met.

The City of St. Louis Park has six water treatment plants, which are located near the wells.

Capacities at each water treatment plant, based on rated flow for the high service pumps (HSP), are as follow: WTP No. 1 = 5400 gpm, WTP No. 4 = 1250 gpm, WTP No. 6 = 3900 gpm, WTP No. 8 = 1200 gpm, WTP No. 10 = 4200 gpm, WTP No. 16 = 1600 gpm. The total HSP capacity from the treatment plants is 17,550 gpm.

The total well capacity going into the treatment plants though is less than the capacity of the high service pumps. The total well capacity (as shown below under Water Sources) is 10,500 gallons per minute (gpm) or 15.12 million gallons per day (MGD). These figures are based on the rated value of the well pumps. Actual pumping production will be influenced by water availability of the aquifers and time of year.

TABLE 3(B) – Storage Capacity

St. Louis Park has two underground concrete reservoirs, with one having a capacity of 1.5 million gallons and the other at 2.0 million gallons. There are two steel ground storage reservoirs each with a capacity of 1.5 million gallons. There are two two-legged tanks each with a 1.0 million gallon capacity and one fluted column tank with a 1.0 million gallon capacity. The total storage capacity is 9.5 million gallons. In the event of the malfunction, destruction, or contamination of one of the storage facilities, it could be taken out of service without any concern to satisfy maximum demand.

Total Storage Capacity		**Average Day Demand** (average of last 5 years)	
9,500,000	Gallons	6,480,000	Gallons per day
Type of Structure	Number of Structures		Gallons
Elevated Storage	3		3,000,000
Ground Storage	2		2,000,000
Other: Underground	2		3,500,000

C. WATER SOURCES

All groundwater, surface water and interconnections that supply water to the City of Saint Louis Park water system are shown below.

TABLE 4(A) – Total Water Source Capacity for System

(Excludes emergency connections)

Total Capacity of Sources	10,500 Gallons per minute (15.12 MGD)
Firm Capacity (largest pump out of service)	9,250 Gallons per minute (13.32 MGD)

TABLE 4(B) – Groundwater Sources

The City currently maintains detailed well record information including well logs and well maintenance for each of their municipal wells and has done so for many years. This large volume of data is kept in files at City facilities and is quickly accessible to City staff. For security reasons the water well records are not included in this plan as the plan will be submitted to two public agencies; the Department of Natural Resources and the Metropolitan Council.

Well # or name	Unique Well Number	Year Installed	Well & Casing Depth (ft)	Well Diameter (in)	Capacity (GPM)	Geologic Unit	Status
3	206440	1939	103	24	900	PS	Active Use
4	200542	1946	304	24-18	1250	PJ	Active Use
5	203196	1947	305	24-20	NA		Out of Service
6	206457	1948	303	24-20	1200	PJ	Out of Service
7	206436	1952	247	24-20	NA	PJ	Out of Service
8	203678	1955	311	24-16	1200	PJ	Active Use
9	206437	1956	289	24-16	NA	PJ	Out of Service
10	206442	1955	316	24-16	1250	PJ	Active Use
11	206439	1960	880	24-16	1200	MH	Active Use
12	206456	1965	900	30-24-16	1150	MH	Active Use
13	206424	1964	891	30-24-16	1200	MH	Active Use
14	227965	1965	389	30-24-16	1200	PJ	Active Use
15	215447	1969	389	30-24	1250	PJ	Alternate
16	203187	1973	425	30-24	1150	PJ	Active Use
17	147459	1983	818	36-30-24-16	1250	MH	Standby

Status: Active use, Emergency, Standby, Seasonal, Peak use, Out of Service, Alternate, etc.
Alternate: SLP10 or SLP15 can be operated but cannot both produce water at the same time.
Geologic Unit: Name of formation(s), which supplies water to the well
GPM – Gallons per Minute

Key to Symbols
MH = Mt. Simon-Hinckley
PJ= Prairie du Chien-Jordan
PS = Platteville-St. Peter

TABLE 4(C) – Surface Water Sources

Intake ID	Resource Name	Capacity (GPM/MGD)
No surface water sources	-	-

GPM – Gallons per Minute MGD – Million Gallons per Day

TABLE 4(D) – Wholesale or Retail Interconnections

List interconnections with neighboring suppliers that are used to supply water on a **regular basis** either wholesale or retail.

Water Supply System	Capacity (GPM/MGD)	Wholesale or Retail
No wholesale or retail interconnections	-	-

GPM – Gallons per Minute MGD – Million Gallons per Day

TABLE 4(E) – Emergency Interconnections

List interconnections with neighboring suppliers or private sources that can be used to supply water on an emergency or occasional basis. Suppliers that serve less than 3,300 people can leave this section blank, but must provide this information in Section IIC.

Water Supply System	Capacity (GPM/MGD)	Note any limitation on use
Plymouth	8" Plymouth main connected to a 12" SLP main (Betty Crocker Drive)	None noted
Minnetonka	6" Minnetonka main to 6" SLP main (Ford Road)	None noted

GPM – Gallons per Minute MGD – Million Gallons per Day

The Plymouth connection is adequate to supply the Shelard Park area west of Highway 169 to the Plymouth border and North of Interstate 394. The Minnetonka connection is adequate for the area west of Highway 169 to the Golden Valley border and south of Interstate 394. These lines are not of adequate size to supply large portions of the City.

A study was done many years ago about the possibility of connecting the east side of the City to a 48 inch main owned by Minneapolis. But no connection was ever implemented. Saint Louis Park is planning to reexamine the possibility of making a connection with that 48-inch main.

There is also a previously abandoned connection that could be reconnected with Golden Valley. It is a 12 inch connection.

D. DEMAND PROJECTIONS

TABLE 5 – Ten Year Demand Projections

Year	Population Served	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Projected Demand (MGY)
2008	45,597	6.625	11.859	2,418
2009	46,299	6.727	12.042	2,455
2010	47,000	6.829	12.224	2,493
2011	47,230	6.863	12.284	2,505
2012	47,460	6.896	12.344	2,517
2013	47,690	6.929	12.404	2,529
2014	47,920	6.963	12.463	2,541
2015	48,150	6.996	12.523	2,554
2016	48,380	7.030	12.583	2,566
2017	48,610	7.063	12.643	2,578

MGD – Million Gallons per Day MGY – Million Gallons per Year

Projection Method. Describe how projections were made (assumptions for per capita, per household, per acre or other methods used).
Average day demand was determined by multiplying the projected population served by 145.3 gallons per person per day (gpcd). The value 145.3 gpcd is the average total gpcd for the last five years. The maximum day demand was determined by multiplying the average day demand by 1.79, which is the 5 year average of the maximum day to average day ratio.

E. RESOURCE SUSTAINABILITY

Monitoring. Records of water levels should be maintained for all production wells and source water reservoirs/basins. Water level readings should be taken monthly for a production well or observation well that is representative of the wells completed in each water source formation.

TABLE 6 – Monitoring Wells

List all wells being measured

Unique Well Number	Type of Well (production, observation)	Frequency of Measurement (daily, monthly, etc.)	Method of Measurement (steel tape, SCADA, etc.)
Platteville-St. Peter Wells			
206440	Well 3 – production	Monthly	Transducer
Prairie du Chien-Jordan Wells			
200542	Well 4 - production	Monthly	Transducer
203196	Well 5 – production	None – out of service	N/A
206457	Well 6 – production	None	Cannot measure – sounder gets stuck
206436	Well 7 – production	None – out of service	Transducer
203678	Well 8 – production	Monthly	Well sounder
206437	Well 9 – production	None – out of service	N/A

206442	Well 10 – production	Monthly	Transducer
227965	Well 14 – production	Monthly	Well sounder
215447	Well 15 – production	Monthly	Well sounder
203187	Well 16 – production	Monthly	Transducer
Mt. Simon-Hinckley Wells			
206439	Well 11 – production	Monthly	Well sounder
206456	Well 12 – production	Monthly	Well sounder
206424	Well 13 – production	Monthly	Well sounder
147459	Well 17 – production	None – in standby	N/A

Water Level Data. Summarize water level data including seasonal and long-term trends for each ground and/or surface water source. If water levels are not measured and recorded on a routine basis then provide the static water level (SWL) when the well was constructed and a current water level measurement for each production well. Also include all water level data taken during well and pump maintenance.

The City of Saint Louis Park has some records for water levels in SLP 4, 5, 7, 8, 11, 12 and 14. These were taken manually using a well sounder. The wellheads for the other operational wells do not permit a well sounder to be inserted into the wells. Table A.1 in Appendix A shows the available water level records between August 2006 and July 2008.

There are also quarterly water levels available from the Reilly report. That data is not included in this report.

To be able to better analyze the sustainability of the City's aquifers in the future, Saint Louis Park has decided to improve their well level monitoring by installing well transducers in all of their production wells.

Starting this year, water levels have started being collected monthly for each well. This will be made easier with the well transducers being installed. Currently four wells (SLP 3, 4, 7 and 10) have had well transducers installed and a fifth will be installed later this year. These transducers are new within the last year. The plan is to install two well transducers each year. All wells should have well transducers within 5 years.

The City's Supervisory Control and Data Acquisition (SCADA) system will be modified to collect the well level monitoring data. The City is committed to revising this software so that static and pumping water levels are recorded on a periodic basis. Using this software the City will be able to trend the water level data and analyze the resource sustainability.

The City will have more well monitoring data for the next update of the Water Supply Plan which will allow the City to better analyze any seasonal or long term trends over the next ten years.

Appendix B includes well monitoring data (tables).

Ground Water Level Monitoring – DNR Waters in conjunction with federal and local units of government maintain and measure approximately 750 observation wells around the state. Ground water level data are available online www.dnr.state.mn.us/waters. Information is also available by contacting the Ground Water Level Monitoring Manager, DNR Waters, 500 Lafayette Road, St. Paul, MN 55155 4032 or call (651) 259-5700.

Natural Resource Impacts. Indicate any natural resource features such as calcareous fens, wetlands, trout streams, rivers or surface water basins that are or could be influenced by water withdrawals from municipal production wells. Also indicate if resource protection thresholds have been established and if mitigation measures or management plans have been developed.
The City does not have any natural resources that could be impacted by withdrawal from the production wells.

Sustainability. Evaluate the adequacy of the resource to sustain current and projected demands. Describe any modeling conducted to determine impacts of projected demands on the resource.
Precipitation recharges all aquifers. Recharge of the confined aquifers, used by City wells, takes place on a regional scale encompassing large areas that extend outside the City's DWSMAs. The Minnesota Department of Natural Resources has maintained a system for monitoring hydrologic data that addresses precipitation within the metropolitan region. The City is within a semi-humid region where average annual precipitation exceeds average annual evapotranspiration, leading to a net surplus of water. The Climatology Working Group (a cooperative effort between state and academic organizations) has developed an interactive web site to locate and access precipitation data. Based on regional data the metropolitan area receives an average annual precipitation of 28 inches. Local and regional precipitation is presented in Figure 2. The sustainability of the City's water sources (aquifers) is impacted by many factors including precipitation, aquifer characteristics such as transmissivity and thickness, water withdrawal from pumping or aquifer flow through and other factors. As discussed above there is some water level data for the years 2000 through 2004 but there is not adequate information to assess the sustainability of the aquifers. With the installation of well transducers and the monthly collection of static and pumping water levels, the City should have adequate information when the next Water Supply Plan is prepared to assess if the aquifer levels are changing over time. The City's Superintendent of Utilities is interested in the sustainability of the City's aquifer. For that reason he has been actively attending the Metro Water Supply Advisory committee meetings. Saint Louis Park is supplying data for the advisory committee to help the Metropolitan Council to determine the sustainability of the metropolitan area aquifers.

Source Water Protection Plans. The emergency procedures in this plan are intended to comply with the contingency plan provisions required in the Minnesota Department of Health's (MDH) Wellhead Protection (WHP) Plan and Surface Water Protection (SWP) Plan.	
Date WHP Plan Adopted	The plan was adopted in July 2006

Date for Next WHP Update	City plans to start preparing a WHP update in 2014 and completing the update in 2016.
SWP Plan:	☐ In Process ☐ Completed ☒ Not Applicable

F. CAPITAL IMPROVEMENT PLAN (CIP)

Adequacy of Water Supply System. Are water supply installations, treatment facilities and distribution systems adequate to sustain current and projected demands? ☒ Yes ☐ No If no, describe any potential capital improvement plans (CIP) over the next ten years and state the reasons for the proposed changes (See Appendix B for CIP).
There are no water supply installations, treatment facilities or distribution systems needed other than replacement of aging systems.

Proposed Water Sources. Does your current CIP include the addition of new wells or intakes? ☐ Yes ☒ No If yes, list the number of new installations and projected water demands from each for the next ten years. Plans for new production wells must include the geologic source formation, well location, and proposed pumping capacity.
No new water sources (wells) are included in the current CIP.

Water Source Alternatives. If new water sources are being proposed, describe alternative sources that were considered and any possibilities of joint efforts with neighboring communities for development of supplies.
No new water sources are being proposed.

Preventative Maintenance. Long-term preventative programs and measures will help reduce the risk of emergency situations. Identify sections of the system that are prone to failure due to age, materials or other problems. This information should be used to prioritize capital improvements, preventative maintenance, and to determine the types of materials (pipes, valves, couplings, etc.) to have in stock to reduce repair time.
The City is committed to constant improvement of the water system and this includes long-term preventative maintenance. The City has a well maintenance program that includes complete well rehabilitation of each well at least once every seven years. Wells SLP 4, SLP8 and SLP10 are rehabilitated every 5 years because these wells are operated 24 hours a day and seven days a week. One area that the City knows it needs to improve is in hydrant maintenance. Currently there is not adequate funding and staff to provide an aggressive hydrant maintenance program as the City would like. The City's SCADA system provides printouts of items that need maintenance when required. Pumps are lubricated on a regular schedule based on number of hours pumped. City conducts periodic maintenance checks on the water systems valves. Backwash tanks are cleaned on an annual basis. Flow meters for wells and treatment plants are calibrated annually.

PART II. EMERGENCY RESPONSE PROCEDURES

Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failures, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. If your community already has written procedures dealing with water emergencies we recommend that you use these guidelines to review and update existing procedures and water supply protection measures.

FEDERAL EMERGENCY RESPONSE PLAN

Section 1433(b) of the Safe Drinking Water Act as amended by the Public Health Security and Bioterrorism Preparedness Response Act of 2002 (Public Law 107-188, Title IV – Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare and Emergency Response Plan. **Community water suppliers that have completed the Federal Emergency Response Plan and submitted the required certification to the U.S. Environmental Protection Agency have satisfied Part II, Sections A, B, and C of these guidelines and need only provide the information below regarding the emergency response plan and source water protection plan and complete Section D (Allocation and Demand Reduction Procedures), and E (Enforcement).**

Provide the following information regarding your completed Federal Emergency Response Plan:

Emergency Response Plan	Contact Person	Contact Number
Emergency Response Lead	Scott Anderson	612-751-0455
Alternate Emergency Response Lead	Bruce Berthiaume	612-751-0506
Emergency Response Plan Certification Date	June 28, 2004	

Operational Contingency Plan. An operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance is recommended for all utilities. Check here ☒ if the utility has an operational contingency plan. At a minimum a contact list for contractors and supplies should be included in a water emergency telephone list.

Communities that have completed Federal Emergency Response Plans should skip to Section D.

EMERGENCY RESPONSE PROCEDURES

Although the City has completed a Federal Emergency Response Plan, instead of skipping to Section D, some parts of Sections A, B and C include discussions and information about Saint Louis Park's system.

A. Emergency Telephone List

A telephone list of emergency contacts is included, as required, as Appendix C. The list includes key utility and community personnel, contacts in adjacent communities, and appropriate local, state and federal emergency contacts. **Please be sure to verify and update the contacts on the emergency telephone list on a regular basis (once each year recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community.** Responsibilities and services for each contact should be defined.

B. Current Water Sources and Service Area

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation, water well and maintenance records should be maintained in a central secured location so that the records are accessible for emergency purposes and preventative maintenance. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. Check here ☒ if these records and maps exist and staff can access the documents in the event of an emergency.

The City of Saint Louis Park has drawings of the water system including distribution system valves and mains, wells, wellhouses and treatment plants. These drawings are available in electronic and hard copy form and used on a daily basis. All Utility trucks also have copies of maps and intersection books. Currently there are two service trucks with laptop computers which include data and drawings of the water system. The City plans to install more laptops in the next couple years and plans to have laptops in all service trucks by the year 2010. The City is currently in the process of acquiring GIS coordinates for all manholes and valves in the City.

C. Procedure for Augmenting Water Supplies

List all available sources of water that can be used to augment or replace existing sources in an emergency. In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community.

Copies of cooperative agreements should be maintained with the City's copy of the plan. There are currently no formal cooperative agreements between the City and the adjoining communities.

Be sure to include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MN Department of Health are required for interconnections and reuse of water.

TABLE 7(A) – Public Water Supply Systems

List interconnections with other public water supply systems that can supply water in an emergency. The Saint Louis Park interconnections are shown in Table 4(E).

Water Supply System	Capacity (GPM/MGD)	Note any limitations on use
See Table 4(E)		

GPM – Gallons per Minute MGD – Million Gallons per Day

TABLE 7(B) – Private Water Sources

List other sources of water available in an emergency

Name	Capacity (GPM/MGD)	Note any limitations on use
No private sources		

GPM – Gallons per Minute MGD – Million Gallons per Day

D. Allocation and Demand Reduction Procedures

The plan must include procedures to address gradual decreases in water supply as well as emergencies and the sudden loss of water due to line breaks, power failures, sabotage, etc. During periods of limited water supplies public water suppliers are required to allocate water based on the priorities established in Minnesota Statutes 103G.261.

Water Use Priorities (Minnesota Statutes 103G.261)

First Priority. Domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets contingency requirements.

NOTE: Domestic use is defined (MN Rules 6115.0630, Subp. 9), as use for general household purposes for human needs such as cooking, cleaning, drinking, washing, and waste disposal, and uses for on-farm livestock watering excluding commercial livestock operations which use more than 10,000 gallons per day or one million gallons per year.

Second Priority. Water uses involving consumption of less than 10,000 gallons per day.

Third Priority. Agricultural irrigation and processing of agricultural products.

Fourth Priority. Power production in excess of the use provided for in the contingency plan under first priority.

Fifth Priority. Uses, other than agricultural irrigation, processing of agricultural products, and power production.

Sixth Priority. Non-essential uses. These uses are defined by Minnesota Statutes 103G.291 as lawn sprinkling, vehicle washing, golf course and park irrigation, and other non-essential uses.

List the statutory water use priorities along with any local priorities in Table 8. Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Local allocation priorities will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. In Table 8, list the priority ranking, average day demand and demand reduction potential for each customer category (modify customer categories if necessary).

TABLE 8 – Water Use Priorities

Customer Category	Allocation Priority	Average Day Demand (GPD)	Demand Reduction Potential (GPD)
Residential	1	4,053,000	3,247,300
Commercial	5	2,231,000	1,786,500
Non-essential	6	0	1,250,200
	TOTALS	6,284,000	6,284,000

GPD – Gallons per Day

Average Day Demands shown in Table 8 are based on water sold quantities in 2007. Demand Reduction Potentials shown in Table 8 are based on the water sold quantity of 516,865,500 for the fourth quarter (Oct., Nov., Dec.) of 2007 which gives an average winter day demand of 5,618,100 gallons. Average Day Water Pumped for all of 2007 was 6,284,000. Based on 2007 water sold the average day residential use was 3,631,000 or 57.8% of the total. Average day commercial use was 1,999,000 gallons or 31.8% of the total. Average day unaccounted for water and accounted for water losses in 2007 was 654,800 gallons or 10.1%. In Table 8 this 10.1% was applied proportionately to the residential and commercial water use to include water losses and unaccounted for water. Based on a served population of 44,896 in 2007 and a demand reduction potential of 3,247,300, the per person winter water use is 72 gallons per person per day. There are no second, third or fourth priority water demands in the City of Saint Louis Park. There are several hospitals located within the City of Saint Louis Park.

Demand Reduction Potential. The demand reduction potential for residential use will typically be the base demand during the winter months when water use for non-essential uses such as lawn watering do not occur. The difference between summer and winter demands typically defines the demand reduction that can be achieved by eliminating non-essential uses. In extreme emergency situations lower priority water uses must be restricted or eliminated to protect first priority domestic water requirements. Short-term demand reduction potential should be based on average day demands for customer categories within each priority class.

Triggers for Allocation and Demand Reduction Actions

Triggering levels must be defined for implementing emergency responses, including supply augmentation, demand reduction, and water allocation. Examples of triggers include: water demand >100% of storage, water level in well(s) below a certain elevation, treatment capacity reduced 10% etc. Each trigger should have a quantifiable indicator and actions can have multiple stages such as mild, moderate and severe responses. Check each trigger below that is used for implementing emergency responses and for each trigger indicate the actions to be taken at various levels or stages of severity in Table 9.

- ☒ Water Demand
- ☐ Treatment Capacity
- ☒ Storage Capacity
- ☐ Groundwater Levels
- ☐ Surface Water Flows or Levels
- ☒ Pump, Booster Station or Well Out of Service
- ☒ Governor's Executive Order – Critical Water Deficiency (required by statute)
- ☐ Water Main Break
- ☒ Loss of Production
- ☐ Security Breach
- ☐ Contamination
- ☐ Other (list in Table 9)

TABLE 9 – Demand Reduction Procedures

Condition	Trigger(s)	Actions
Ongoing Condition	No trigger	Permanent sprinkling restrictions are in place. Customers limit outdoor watering to every other day and no watering between noon and 6:00 p.m. Customers with odd-numbered street addresses alternate outdoor watering with even-numbered addresses. All municipal operations are placed on mandatory conservation with park irrigation limited as defined by the directors of parks and public works.
Water Storage Emergency Level 1	Water Supply Capacity < 10.5 MGD (summer) < 8.0 MGD (winter or storage capacity at 6 am < 5 MG	A mandatory water conservation decree is issued, limiting outdoor watering by customers to once every five days. Watering of trees will be allowed on an odd-even address basis. No watering between noon and 6:00 p.m. No private carwashing will be allowed. Special water users, as designated by the City Manager, may be allowed a supplemental water allowance in order to maintain operations.
Water Storage Emergency Level 2	Water Supply Capacity < 9.5 MGD (summer) < 7.0 MGD (winter) or storage capacity at 6 am < 4 MG	A mandatory water conservation decree is issued, banning all lawn watering. Major industrial/ commercial users over 10,000 gpd may be restricted at the discretion of the City Manager.
Water Storage Emergency Level 3	Water Supply Capacity < 8.5 MGD (summer) < 6.0 MGD (winter) or storage capacity at 6 am < 3 MG	A mandatory water conservation decree is issued, placing weekly limits on water use by all customers. Limits shall be set at the discretion of the City Manager, based on available supply system capacity, priority of users, and other pertinent considerations (i.e. nursing homes, hospitals, child care centers and schools).
Critical Water Deficiency (M.S. 103G.291)	Executive Order by Governor & as provided in above triggers	Stage 1: Restrict lawn watering, vehicle washing, golf course and park irrigation and other nonessential uses Stage 2: Suspend lawn watering, vehicle washing, golf course and park irrigation and other nonessential uses

Note: The potential for water availability problems during the onset of a drought are almost impossible to predict. Significant increases in demand should be balanced with preventative measures to conserve supplies in the event of prolonged drought conditions.

Notification Procedures. List methods that will be used to inform customers regarding conservation requests, water use restrictions, and suspensions. Customers should be aware of emergency procedures and responses that they may need to implement.
The City uses several methods to inform customers of water use restrictions. Any restrictions are included in the City newsletter which is published every month. During emergency conditions

where water use needs to be restricted over a very short term, the City contacts news agencies for local television and radio stations and asks these stations to notify their viewers/listeners about the water use restrictions in Saint Louis Park.

E. Enforcement

Minnesota Statutes require public water supply authorities to adopt and enforce water conservation restrictions during periods of critical water shortages.

Public Water Supply Appropriation During Deficiency.
Minnesota Statutes 103G.291, Subdivision 1.

Declaration and conservation.
(a) If the governor determines and declares by executive order that there is a critical water deficiency, public water supply authorities appropriating water must adopt and enforce water conservation restrictions within their jurisdiction that are consistent with rules adopted by the commissioner.
(b) The restrictions must limit lawn sprinkling, vehicle washing, golf course and park irrigation, and other nonessential uses, and have appropriate penalties for failure to comply with the restrictions.

Sample regulations are available at www.dnr.state.mn.us/waters.

Authority to Implement Water Emergency Responses
Emergency responses could be delayed if city council or utility board actions are required. Standing authority for utility or city managers to implement water restrictions can improve response times for dealing with emergencies. Who has authority to implement water use restrictions in an emergency?

☐ Utility Manager ☒ City Manager ☐ City Council or Utility Board
☐ Other (describe):

Emergency Preparedness. If city or utility managers do not have standing authority to implement water emergency responses, please indicate any intentions to delegate that authority. Also indicate any other measures that are being considered to reduce delays for implementing emergency responses.

The City Manager has authority to implement water emergency responses. These responses are published in the Sun-Sailer and Minneapolis Star Tribune newspapers and the City's newsletter. For shorter duration reduction measures, the City will notify various television news agencies, and radio stations. The local television stations include 4, 5, 9 and 11 and Cable TV channel 17. The radio stations include WCCO and KSTP.

PART III. WATER CONSERVATION PLAN

Water conservation programs are intended to reduce demand for water, improve the efficiency in use and reduce losses and waste of water. Long term conservation measures that improve overall water use efficiencies can help reduce the need for short-term conservation measures. Water conservation is an important part of water resource management and can also help utility managers satisfy the ever increasing demands being placed on water resources.

Minnesota Statutes 103G.291, requires public water suppliers to implement demand reduction measures before seeking approvals to construct new wells or increases in authorized volumes of water. Minnesota Rules 6115.0770, require water users to employ the best available means and practices to promote the efficient use of water. Conservation programs can be cost effective when compared to the generally higher costs of developing new sources of supply or expanding water and/or wastewater treatment plant capacities.

A. Conservation Goals

The following section establishes goals for various measures of water demand. The programs necessary to achieve the goals will be described in the following section.

Unaccounted Water (calculate five year averages with data from Table 1)		
Average annual volume unaccounted water for the last 5 years	383,220,000	gallons
Average percent unaccounted water for the last 5 years	16.1	percent
AWWA recommends that unaccounted water not exceed 10%. Describe goals to reduce unaccounted water if the average of the last 5 years exceeds 10%.		

Because of the high unaccounted for water losses, the City has implemented several programs in the last few years.

To be able to track water use the City currently meters all customers for their water use including City owned facilities. All residential meters are currently being replaced every 15 years and all commercial meters are planned to be replaced every 10 years. Since meters typically underreport water usage as they age, the water meter replacement program should dramatically reduce unaccounted for water loss related to old meters. The City also recently started conducting calibration of all water meters at wells and treatment plants. The City plans to calibrate these meters every one to three years. Recent calibration discovered that some meters were only reporting at 80% of actual water flow.

The City also has started conducting annual leak detection surveys.

The City also has programs in place to track water usage. The billing software compares customer water use with the same period the previous year. Water use that exceeds 25% over the previous year generates a notice to utility staff. City staff then conducts an onsite visit to these customers' homes/businesses and performs a water audit to determine what is causing the excessive water use.

Residential Gallons Per Capita Demand (GPCD)	
Average residential GPCD use for the last 5 years (use data from Table 1)	78.5 GPCD
In 2002, average residential GPCD use in the Twin Cities Metropolitan Area was 75 GPCD. Describe goals to reduce residential demand if the average for the last 5 years exceeds 75 GPCD.	
Both Figure 3 which shows GPCD for the past 10 years and Figure 4 which shows GPCD for the past five years, indicate that although the City's residential GPCD exceeds the Twin Cities 75 GPCD average, over the past ten years the GPCD has been steadily decreasing. If the City continues at the annual decreases shown in these figures, within five years Saint Louis Park's per capita residential water use will fall below the 75 GPCD Twin Cities average. Continued public education on conservation plus the other conservation methods mentioned below are anticipated to continue the City's ongoing reduction in residential GPCD use.	

Total Per Capita Demand: From Table 1, is the trend in overall per capita demand over the past 10 years ☐ increasing or ☒ decreasing? If total GPCD is increasing, describe the goals to lower overall per capita demand or explain the reasons for the increase.
Trend in overall per capita demand is decreasing. The total per capita demand has decreased somewhat more than the residential in the last 10 years but a total per capita has had a more significant decrease in the last 5 years. Figures 3 and 4 which graph the water use trends from Table 1 show these trends. The decrease is likely partly due to the City's shift to an ongoing odd-even sprinkling ban during the summer months and a ban on sprinkling in the middle of the day. As mentioned above the City will continue to track these trends.

Peak Demands (calculate average ratio for last five years using data from Table 1)	
Average maximum day to average day ratio	1.79
If peak demands exceed a ratio of 2.6, describe the goals for lowering peak demands.	

B. Water Conservation Programs

Describe all short term conservation measures that are available for use in an emergency and long term measures to improve water use efficiencies for each of the six conservation program elements listed below. Short term demand reduction measures must be included in the emergency response procedures and must be in support of, and part of, a community all hazard emergency operation plan.

1. Metering

The American Water Works Association (AWWA) recommends that every water utility meter all water taken into its system and all water distributed from its system at its customer's point of service. An effective metering program relies upon periodic performance testing, and repair and maintenance of all meters. AWWA also recommends that utilities conduct regular water audits to ensure accountability.

Complete Table 10 (A) regarding the number and maintenance of customer meters.

TABLE 10(A) – Customer Meters

	Number of Connections	Number of Metered Connections	Meter testing schedule (years)	Average age/meter replacement schedule (years)
Residential	12,697	12,697	15	5 /15
Commercial	788	788	10	5 /10
Public Facilities			10	/ 20
Other				
TOTALS	13,485	13,485		

Unmetered Systems: Provide an estimate of the cost to install meters and the projected water savings from metering water use. Also indicate any plans to install meters.
The only unmetered water use is from water leaks, watermain breaks and hydrant use (flushing/fire use). Metering of these water uses is not practical or possible and the City has no plans to meter this use. But the City does estimate hydrant use for annual watermain flushing.

TABLE 10(B) – Water Source Meters

	Number of Meters	Meter testing schedule (years)	Average age/meter replacement schedule (years)
Water Source (wells/intakes)	11	5-7	10 / 15
Treatment Plant	6	5-7	10 / 15

2. Unaccounted Water

Water audits are intended to identify, quantify, and verify water and revenue losses. The volume of unaccounted for water should be evaluated each billing cycle. The AWWA recommends a goal of ten percent or less for unaccounted-for water. Water audit procedures are available from the AWWA and MN Rural Water Association.

Frequency of water audits: ☒ each billing cycle ☐ yearly ☐ other:

Leak detection and survey: ☒every year ☐ every years ☐ periodic as needed
Year last leak detection survey completed: 2007

The City's billing software checks for bills that exceed the previous year's volume by 25%. Utility staff then conducts a water audit for these customers.

The City conducts an annual leak detection survey of the distribution system.

Reducing Unaccounted Water. List potential sources and efforts being taken to reduce unaccounted water. If unaccounted water exceeds 10% of total withdrawals, include the timeframe for completing work to reduce unaccounted water to 10% or less.
Potential sources for unaccounted water include water leaks, watermain breaks, treatment plant backwashing and hydrant flushing. Watermain breaks are difficult to account for the water lost

and no efforts are planned to account for this water use. The City is now tracking the time spent flushing their hydrants so as to account for some of the water use from the hydrants. Over the last ten years the typical annual volume of water used during hydrant flushing has been estimated to have been between 6 to 10 million gallons for each year. The City also tracks water used for backwashing that is not recovered.

In the "Unaccounted Water" section above there are further discussions on steps being taken by the City to reduce the unaccounted for water including calibration and replacement of old meters.

3. Conservation Water Rates

Plans must include the current rate structure for all customers and provide information on any proposed rate changes. Discuss the basis for current price levels and rates, including cost of service data, and the impact current rates have on conservation.

Billing Frequency: ☐ Monthly ☐ Bimonthly ☒ Quarterly
☐ Other (describe):

The City of Saint Louis Park's customers are billed quarterly. Utility bills are sent out each month to one third of the customers. For example some customers are billed for January, February and March, while other customers are billed for February, March and April and the remaining customers are billed for March, April and May. This makes it difficult to match up annual water pumped data with annual water sold data.

Volume included in base rate or service charge: zero gallons

Conservation Rate Structures

☐ Increasing block rate: rate per unit increases as water use increases
☐ Seasonal rate: higher rates in summer to reduce peak demands
☐ Service charge or base fee that does not include a water volume

Conservation Neutral Rate Structure

☒ Uniform rate: rate per unit is the same regardless of volume

Non-conserving Rate Structures

☐ Service charge or base fee that includes a large volume of water
☐ Declining block rate: rate per unit decreases as water use increases
☐ Flat rate: one fee regardless of how much water is used (unmetered)

Other (describe):

Water Rates Evaluated: ☒ every year ☐ every years ☐ no schedule
Date of last rate change: January 1, 2004

Declining block (the more water used, the cheaper the rate) and flat (one fee for an unlimited volume of water) rates should be phased out and replaced with conservation rates. Incorporating a seasonal rate structure and the benefits of a monthly billing cycle should also be considered along with the development of an emergency rate structure that could be quickly implemented to encourage conservation in an emergency.

Current Water Rates. Current water rates including base/service fees and volume charges are shown below.
The rate structure is to pay for the true cost of supplying, treating, and delivering the water, including maintenance, billing, and all planned water system capital improvements. All customers are billed at a rate of $1.14 per 100 cubic feet of water used. A service charge is applied to all connections based on meter size.

Non-conserving Rate Structures. Provide justification for the rate structure and its impact on reducing demands or indicate intentions including the timeframe for adopting a conservation rate structure.
Rate structure is a uniform rate with no water usage included in the base charge. Therefore all water use is charged. This is a conservation neutral rate structure. The City conducted an informal internal rate study in 2005 which came up with annual rate adjustments through 2008. The City plans to conduct another informal internal rate assessment in late 2008. At that time the City will determine how best to implement a water rate structure that meets the 2008 amendment to the 103G.291 Minnesota Statutes. The 2008 amendments require all metropolitan area public water suppliers serving more than 1,000 persons to use conservation rate structures by January 1, 2010.

4. Regulation

Plans should include regulations for short term reductions in demand and long term improvements in water efficiencies. Sample regulations are available from DNR Waters. Copies of adopted regulations or proposed restrictions are included in Appendix D of the plan. Indicate any of the items below that are required by local regulations and also indicate if the requirement is applied each year or just in emergencies.

☒ Time of Day: no watering between 12 pm and 6 pm
(reduces evaporation) ☒ year around ☐ seasonal ☐ emergency only
☒ Odd/Even: (helps reduce peak demand) ☒ year around ☐ seasonal ☐ emergency only
☐ Water waste prohibited (no runoff from irrigation systems)
Describe ordinance:
☐ Limitations on turf areas for landscaping (reduces high water use turf areas)
Describe ordinance:
☐ Soil preparation (such as 4”-6” of organic soil on new turf areas with sandy soil)

Describe ordinance: All front yards, rear yards and side yards shall be sodded over a minimum of four (4) inches of black dirt.

☐ Tree ratios (plant one tree for every square feet to reduce turf evapotranspiration)
Describe ordinance: Each lot shall also contain one boulevard deciduous over story tree and one front yard deciduous over story tree of two and one half-inch (2 ½") caliper or six foot (6') coniferous tree. In addition, all corner lots will contain an additional boulevard tree along the corner side yard.

☐ Prohibit irrigation of medians or areas less than 8 feet wide
Describe ordinance:

☐ Permit required to fill swimming pool ☐ every year ☐ emergency only

☐ Other (describe):

State and Federal Regulations (mandated)

☒ Rainfall sensors on landscape irrigation systems. Minnesota Statute 103G.298 requires "All automatically operated landscape irrigation systems shall have furnished and installed technology that inhibits or interrupts operation of the landscape irrigation system during periods of sufficient moisture. The technology must be adjustable either by the end user or the professional practitioner of landscape irrigation services."

☒ Water Efficient Plumbing Fixtures. The 1992 Federal Energy Policy Act established manufacturing standards for water efficient plumbing fixtures, including toilets, urinals, faucets, and aerators.

Enforcement. Are ordinances enforced? ☒ Yes ☐ No If yes, indicate how ordinances are enforced along with any penalties for non-compliance.
The City applies fines for non-compliance with the sprinkling ordinance. The first offense fine for failing to follow sprinkling restrictions is $25. After that, the fine rises by $10 for each subsequent violation. (For example, the second violation is $35, the third violation is $45, etc.)

5. Education and Information Programs

Customers should be provided information on how to improve water use efficiencies a minimum of two times per year. Information should be provided at appropriate times to address peak demands. Emergency notices and educational materials on how to reduce water use should be available for quick distribution during an emergency. If any of the methods listed in the table below are used to provide water conservation tips, indicate the number of times that information is provided each year and attach a list of education efforts used for the last three years.

Current Education Programs	Times/Year
Billing inserts or tips printed on the actual bill	
Consumer Confidence Reports	1
Local news papers	1
Community news letters	4
Direct mailings (water audit/retrofit kits, showerheads, brochures)	
Information at utility and public buildings	always
Public Service Announcements	1
Cable TV Programs	
Demonstration projects (landscaping or plumbing)	

K-12 Education programs (Project Wet, Drinking Water Institute)	4
School presentations	12
Events (children's water festivals, environmental fairs)	
Community education	
Water Week promotions	
Information provided to groups that tour the water treatment plant	By request only
Website : http://www.stlouispark.org/residents/water.htm#2426	always
Targeted efforts (large volume users, users with large increases)	
Notices of ordinances (include tips with notices)	
Other:	

Proposed Education Programs. Describe any additional efforts planned to provide conservation information to customers a minimum of twice per year (required if there are no current efforts).

The City of Saint Louis Park a water conservation outreach program to educate its citizens and businesses. An integral part of this program is that the Superintendent of Public Utilities gives talks and hands out information to kindergarten through 3rd grade students.

During late spring and summer months, the City publishes information about the City's sprinkling ban and the fines for non-compliance in the City's newsletter, the Park Perspective. The City also has water conservation information available at City Hall. AWWA water conservation pamphlets are provided at community events such as the Fire Open House.

These are all ongoing educational efforts by the City. No new additional education programs are currently planned.

A packet of conservation tips and information can be obtained by contacting DNR Waters or the Minnesota Rural Water Association (MRWA). The American Water Works Association (AWWA) www.awwa.org or www.waterwiser.org also has excellent materials on water conservation that are available in a number of formats. You can contact the MRWA 800/367-6792, the AWWA bookstore 800/926-7337 or DNR Waters 651/259-5703 for information regarding educational materials and formats that are available.

6. Retrofitting Programs

Education and incentive programs aimed at replacing inefficient plumbing fixtures and appliances can help reduce per capita water use as well as energy costs. It is recommended that communities develop a long term plan to retrofit public buildings with water efficient plumbing fixtures and that the benefits of retrofitting be included in public education programs. You may also want to contact local electric or gas suppliers to see if they are interested in developing a showerhead distribution program for customers in your service area.

A study by the AWWA Research Foundation (Residential End Uses of Water, 1999) found that the average indoor water use for a non-conserving home is 69.3 gallons per capita per day (gpcd). The average indoor water use in a conserving home is 45.2 gpcd and most of the decrease in water use is related to water efficient plumbing fixtures and appliances that can reduce water, sewer and energy costs. In Minnesota, certain electric

and gas providers are required (Minnesota Statute 216B.241) to fund programs that will conserve energy resources and some utilities have distributed water efficient showerheads to customers to help reduce energy demands required to supply hot water.

Retrofitting Programs. Describe any education or incentive programs to encourage the retrofitting of inefficient plumbing fixtures (toilets, showerheads, faucets, and aerators) or appliances (washing machines).

The 1992 Energy Policy Act requires all household plumbing fixtures manufactured after 1993 to be water efficient. The Saint Louis Park plumbing code requires all new homes and retrofits of existing homes to utilize compliant fixtures. These regulations help to ensure long-term improvements in water use efficiencies. There currently are no retrofitting programs or education programs to encourage retrofitting of inefficient plumbing in the City.

The City's education program provides customers information on the benefits of low water use fixtures.

Plan Approval

Water Emergency and Conservation Plans must be approved by the Department of Natural Resources (DNR) every ten years. Please submit plans for approval to the following address:

DNR Waters
Water Permit Programs Supervisor
500 Lafayette Road
St. Paul, MN 55155-4032

or Submit electronically to
wateruse@dnr.state.mn.us.

Adoption of Plan

All DNR plan approvals are contingent on the formal adoption of the plan by the city council or utility board. Please submit a certificate of adoption (example available) or other action adopting the plan.

Metropolitan Area communities are also required to submit these plans to the Metropolitan Council. Please see PART IV. ITEMS FOR METROPOLITAN AREA PUBLIC SUPPLIERS.

METROPOLITAN COUNCIL

PART IV. ITEMS FOR METROPOLITAN AREA PUBLIC SUPPLIERS

Minnesota Statute 473.859 requires water supply plans to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process. Much of the required information is contained in Parts I-III of these guidelines. However, the following additional information is necessary to make the water supply plans consistent with the Metropolitan Land Use Planning Act upon which local comprehensive plans are based. Communities should use the information collected in the development of their plans to evaluate whether or not their water supplies are being developed consistent with the Council's Water Resources Management Policy Plan.

Policies. Provide a statement(s) on the principles that will dictate operation of the water supply utility: for example, "It is the policy of the city to provide good quality water at an affordable rate, while assuring this use does not have a long-term negative resource impact."
The St. Louis Park Water Utilities mission is to provide an uninterrupted supply of safe, high quality water to our customers. We also strive to be an integral part of the community-ready to educate children and adults about drinking water and the system delivering it. In addition to pumping, treating and delivering water to our customers, the City's Minnesota Department of Health certified water treatment operators provide educational seminars to schools and others groups about the city's water system and water quality issues.

Impact on the Local Comprehensive Plan. Identify the impact that the adoption of this water supply plan has on the rest of the local comprehensive plan, including implications for future growth of the community, economic impact on the community and changes to the comprehensive plan that might result.
The City is preparing an updated comprehensive plan in 2008. The results in this Water Supply Plan are being incorporated into that plan.

Year	Total Community Population	Population Served	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Projected Demand (MGY)
2010	47,000	47,000	6.829	11.859	2,418
2020	49,300	49,300	7.163	12.822	2,614
2030	51,500	51,500	7.482	13.394	2,731
Ultimate	51,500	51,500	7.482	13.394	2,731

Population projections should be consistent with those in the Metropolitan Council's *2030 Regional Development Framework* or the Communities 2008 Comprehensive Plan update**.** If population served differs from total population, explain in detail why the difference (ie, service to other communities, not complete service within community etc.).
Population projections are the same as the Metropolitan Council's.

Plan Submittal and Review of the Plan

The plan will be reviewed by the Council according to the sequence outlined in Minnesota Statutes 473.175. **Prior to submittal to the Council, the plan must be submitted to adjacent governmental units for a 60-day review period.** Following submittal, the Council determines if the plan is complete for review within 15 days. If incomplete, the Council will notify the community and request the necessary information. When complete the Council will complete its review within 60 days or a mutually agreed upon extension. The community officially adopts the plan after the Council provides its comments.

Plans can be submitted electronically to the Council; however, the review process will not begin until the Council receives a paper copy of the materials. Electronic submissions can be via a CD, 3 ½" floppy disk or to the email address below. Metropolitan communities should submit their plans to:

Reviews Coordinator Metropolitan Council 390 Robert St, St. Paul, MN 55101	electronically to: watersupply@metc.state.mn.us

Figures

Figure 2
Minneapolis/St Paul Area
Monthly/Annual Precipitation (2001-2005)

Year	MMM	Precip	Annual Totals
2001	Jan	1.56	**33.22**
	Feb	1.73	
	Mar	1.12	
	Apr	6.77	
	May	4.50	
	Jun	3.02	
	Jul	2.91	
	Aug	3.79	
	Sept	3.15	
	Oct	0.65	
	Nov	3.39	
	Dec	0.63	
2002	Jan	0.48	**38.71**
	Feb	0.62	
	Mar	2.00	
	Apr	4.29	
	May	4.56	
	Jun	7.46	
	Jul	6.16	
	Aug	5.26	
	Sept	3.30	
	Oct	4.19	
	Nov	0.12	
	Dec	0.27	
2003	Jan	0.38	**26.71**
	Feb	0.82	
	Mar	1.48	
	Apr	2.91	
	May	6.33	
	Jun	6.80	
	Jul	1.77	
	Aug	0.64	
	Sept	2.27	
	Oct	1.22	
	Nov	1.15	
	Dec	0.94	

Year	MMM	Precip	Annual Totals
2004	Jan	0.50	**31.30**
	Feb	1.54	
	Mar	1.77	
	Apr	2.22	
	May	7.16	
	Jun	4.10	
	Jul	2.58	
	Aug	1.54	
	Sept	4.65	
	Oct	3.62	
	Nov	1.30	
	Dec	0.32	
2005	Jan	1.38	**40.45**
	Feb	1.83	
	Mar	1.69	
	Apr	1.92	
	May	3.65	
	Jun	7.07	
	Jul	3.23	
	Aug	3.36	
	Sept	8.53	
	Oct	4.54	
	Nov	1.92	
	Dec	1.33	

Source: National Weather Service
Coon Creek Station 211785
[31N 23W S21]
[Lat: 45.16087 Lon: 93.21470]

Appendix A
City of Saint Louis Park Water Level Data

Appendix B
City of Saint Louis Park
Water System Capital Improvement Plan

Appendix C
Emergency Notification Lists

Appendix D
City Water System Ordinances