

WATER RESOURCE MANAGEMENT PLAN – APPENDIX B

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 supply 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)	1979-6329
Name of Water Supplier	City of St. Francis
Address	4820 St. Francis BLVD NW PO Box 730 St. Francis MN 55070
Contact Person	Paul Teicher
Title	Public Works Director
Phone Number	(763) 235-2304
E-Mail Address	pteicher@stfrancismn.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.

TABLE 1 Historic Water Demand

Year	Total Population	Population Served	Total Connections	Residential Water Sold (MG)	C/I/I Water Sold (MG)	Wholesale Deliveries (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	NA	1,662	609	68.127	17.598	NA	85.228	113.982	25.2	0.312	NA	112	188
1999	NA	2,090	756	79.608	26.22	NA	105.828	126.953	16.6	0.348	NA	104	166
2000	4,910	2,147	756	110.094	30.278	NA	140.372	165.786	15.3	0.454	NA	140	212
2001	5,330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2002	5,680	NA	NA	108.107	16.031	NA	124.138	141.700	12.4	0.388	1.077	NA	NA
2003	6,177	3,600	1,275	151.533	14.911	NA	166.444	202.836	17.9	0.556	1.512	115	154
2004	6,500	3,964	1,404	146.759	35.470	NA	182.229	192.991	5.6	0.529	NA	101	133
2005	7,163	4,077	1,443	158.345	30.029	NA	188.374	212.758	11.5	0.583	NA	106	143
2006	7,201	4,153	1,489	160.804	22.135	NA	182.939	220.583	17.1	0.604	1.462	106	146
2007	7,312	4,347	1,532	171.329	19.141	NA	190.470	220.934	13.8	0.605	1.567	108	139

MG – Million Gallons MGD – Million Gallons per Day C/I/I- Commercial, Industrial, Institutional

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.

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 City's increasing water demand trend is influenced by population growth and seasonal weather variation.

TABLE 2 Large Volume Users - List the top 10 largest users.

Customer	Gallons per year	% of total annual use
Woodhaven Park	26,533,000	12.0
IND School Dist # 15	6,407,000	2.9
County Market	3,945,000	1.8
Abbeyfield Townhouses	2,519,000	1.1
Cedar Petroleum DBA Stop Shop #9	2,296,000	1.0
Brama Brothers	2,194,000	1.0
King Family Partnership	1,594,000	0.7
Turtle Ridge Townhomes	1,455,000	0.6
St. Francis McDonald's	1,269,000	0.5
First Baptist Church of	974,000	0.4

B. TREATMENT AND STORAGE CAPACITY.

TABLE 3(A) Water Treatment

Water Treatment Plant Capacity	4,800,000	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.		
A new treatment facility is currently under construction and will be completed in the fall of 2008. The treatment process consists of aeration, a detention tank, four inline gravity filters, chemical addition, and a clearwell. HMO addition for removal of radium prior to distribution. Iron and Manganese will also be removed		

TABLE 3(B) Storage Capacity - List all storage structures and capacities.

Total Storage Capacity	Average Day Demand (average of last 5 years)	
1,950,000	Gallons	575,000
		Gallons per day
Type of Structure	Number of Structures	Gallons
Elevated Storage	1	750,000
Ground Storage	1	1,200,000 (clearwell)
Other:		

C. WATER SOURCES. List all groundwater, surface water and interconnections that supply water to the system. Add or delete lines to the tables as needed.

TABLE 4(A) Total Water Source Capacity for System (excluding emergency connections)

Total Capacity of Sources	3,300	Gallons per minute
Firm Capacity (largest pump out of service)	2,300	Gallons per minute

TABLE 4(B) Groundwater Sources - Copies of water well records and well maintenance information should be included with the public water supplier’s copy of the plan in Attachment A. If there are more wells than space provided or multiple well fields, please use the List of Wells template (see Resources) and include as Attachment .

Well # or name	Unique Well Number	Year Installed	Well & Casing Depth (ft)	Well Diameter (in)	Capacity (GPM)	Geologic Unit	Status
1	209221	1974	417 & 233	16	900	Mt. Simon	Active
2	184885	1982	421 & 338	12	500	Mt. Simon	Active
3	622765	1998	231 & 179	16	900	Drift	Active
4	749387	2007	229 & 166	24	1000	Drift	Active

Status: Active use, Emergency, Standby, Seasonal, Peak use, etc. GPM – Gallons per Minute
 Geologic Unit: Name of formation(s), which supplies water to the well

TABLE 4(C) Surface Water Sources

Intake ID	Resource name	Capacity (GPM/MGD)
N/A		

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
N/A		

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 II C.

Water Supply System	Capacity (GPM/MGD)	Note any limitations on use
N/A		

GPM – Gallons per Minute MGD – Million Gallons per Day

D. DEMAND PROJECTIONS.

TABLE 5 Ten Year Demand Projections

Year	Population Served	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Projected Demand (MGY)
2009	4,990	0.624	1.622	228
2010	5,480	0.685	1.781	250
2011	5,970	0.746	1.940	272
2012	6,460	0.808	2.100	295
2013	6,950	0.869	2.259	317
2014	7,440	0.930	2.418	340
2015	7,930	0.991	2.577	362
2016	8,420	1.053	2.737	384
2017	8,910	1.114	2.900	407
2018	9,400	1.175	3.055	429

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).

The following assumptions were made: Usage rate of 125 total gpcpd and a peaking factor of 2.6. The population projection was determined with reference to Met Councils 30 year forecast and the new treatment plant 20 year capacity.

E. RESOURCE SUSTAINABILITY

Sustainable water use: use of water to provide for the needs of society, now and in the future, without unacceptable social, economic, or environmental consequences.

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. **If water levels are not currently measured each year, a monitoring plan that includes a schedule for water level readings must be submitted as Attachment: N/A.**

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.)
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.

Information Forthcoming

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.

N/A

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.

N/A.

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: May, 2004

Date for Next WHP Update: May, 2014

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 improvements over the next ten years and state the reasons for the proposed changes (CIP Attachment).

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.

The City is planning on retiring Well No. 2 due to high radium levels. The City is planning on replacing Well No. 2 with a similar well drilled into the Mt. Simon formation. The new well will be located at the treatment facility.

Proposed 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.

The City is currently constructing a new water treatment facility designed to treat groundwater.

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 flushes watermains and operating valves on a yearly basis. Surplus distribution materials are readily available to City staff for maintenance and replacement of the water system.

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 and 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 an 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 Sections 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	Matt Hysten	(763) 235-2301
Alternate Emergency Response Lead	Paul Teicher	(763) 235-2304
Emergency Response Plan Certification Date	N/A	

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

- A. Emergency Telephone List.** A telephone list of emergency contacts must be included as Attachment: NA to the plan (complete template or use your own list). The list should include 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.
- 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 your copy of the plan and include in Attachment N/A. 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.

Water Supply System	Capacity (GPM/MGD)	Note any limitations on use
N/A		

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
N/A		

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.
	<i>NOTE:</i> 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 (hospitals, nursing homes, etc.) 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	469,000	
Institutional			
Commercial	5	46,000	
Industrial			
Irrigation	3	6,300	
Wholesale			
Non-essential	6		
	TOTALS	521,300	

GPD – Gallons per Day

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.

- | | | | |
|-------------------------------------|--|--------------------------|-------------------------|
| <input type="checkbox"/> | Water Demand | <input type="checkbox"/> | Water Main Break |
| <input checked="" type="checkbox"/> | Treatment Capacity | <input type="checkbox"/> | Loss of Production |
| <input type="checkbox"/> | Storage Capacity | <input type="checkbox"/> | Security Breach |
| <input type="checkbox"/> | Groundwater Levels | <input type="checkbox"/> | Contamination |
| <input type="checkbox"/> | Surface Water Flows or Levels | <input type="checkbox"/> | Other (list in Table 9) |
| <input type="checkbox"/> | Pump, Booster Station or Well Out of Service | | |
| <input checked="" type="checkbox"/> | Governor’s Executive Order – Critical Water Deficiency (required by statute) | | |

Table 9 Demand Reduction Procedures

Condition	Trigger(s)	Actions
Stage 1 (Mild)	Treatment plant operates for 20 or more hours for 3 consecutive days	Request voluntary reduction measures.
Stage 2 (Moderate)	Treatment plant operates for 20 or more hours for 5 consecutive days	Implement odd/even sprinkling ban.
Stage 3 (Severe)	Treatment plant operates for 20 or more hours for 7 consecutive days	Implement total sprinkling ban.
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.

Notification will be posted in City Hall, the City’s website, and the local newspaper.

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.

An ordinance that has been adopted or a draft ordinance that can be quickly adopted to comply with the critical water deficiency declaration must be included in the plan (include with other ordinances in Attachment 7 for Part III, Item 4). Enforcement responsibilities and penalties for non-compliance should be addressed in the critical water deficiency ordinance.

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.

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	27,933,000	gallons
Average percent unaccounted water for the last 5 years	13.2	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%.		
A large portion of the unaccounted for water is attributed to City use such as watermain and hydrant flushing, fire department use, city building use, park and skating rink usage. The City plans to consistently meter usage from these utilities.		

Residential Gallons Per Capita Demand (GPCD)		
Average residential GPCD use for the last 5 years (use data from Table 1)	107	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.		
The large residential usage rate is attributed to turf establishment from new home construction. The City is planning to address the usage rate by increasing educational programs to customers.		

Total Per Capita Demand: From Table 1, is the trend in overall per capita demand over the past 10 years <input type="checkbox"/> increasing or <input checked="" type="checkbox"/> decreasing? If total GPCD is increasing, describe the goals to lower overall per capita demand or explain the reasons for the increase.

Peak Demands (calculate average ratio for last five years using data from Table 1)		
Average maximum day to average day ratio	2.58	
If peak demands exceed a ratio of 2.6, describe the goals for lowering peak demands.		
N/A		

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, repair, 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	1,454	1,454	As requested	5-10 years / none
Institutional	3	3	As requested	5-10 years / none
Commercial	40	40	As requested	5-10 years / none
Industrial				
Public Facilities				/
Other	35	35	As requested	5-10 years / none
TOTALS	1,532	1,532		

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.

All connections are metered.

TABLE 10 (B) Water Source Meters

	Number of Meters	Meter testing schedule (years)	Average age/meter replacement schedule (years)
Water Source (wells/intakes)	3	Once per year	NA
Treatment Plant	NA	NA	NA

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: NA

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.

Consistent metering of public utility/service use beginning next year.

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):

Volume included in base rate or service charge: Volume not included.

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, 2008

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

\$12.03 base rate plus \$3.50 per 1000 gallons.

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.

N/A

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 should be included in Attachment: N/A 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 10 am and 7 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:
- Tree ratios (plant one tree for every square feet to reduce turf evapotranspiration)
Describe ordinance:
- 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): See Appendix D (City Ordinances)

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.

Citations are issued for violations. The City's Police Department assists in monitoring for compliance.

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	1
Consumer Confidence Reports	1
Local news papers	
Community news letters	
Direct mailings (water audit/retrofit kits, showerheads, brochures)	
Information at utility and public buildings	
Public Service Announcements	
Cable TV Programs	
Demonstration projects (landscaping or plumbing)	
K-12 Education programs (Project Wet, Drinking Water Institute)	
School presentations	
Events (children’s water festivals, environmental fairs)	
Community education	
Water Week promotions	
Information provided to groups that tour the water treatment plant	
Website (include address:)	www.stfrancismn.org
Targeted efforts (large volume users, users with large increases)	
Notices of ordinances (include tips with notices)	website
Emergency conservation notices (recommended)	As Needed
Other:	

List education efforts for the last three years in Attachment: N/A of the plan. Be sure to indicate whether educational efforts are on-going and which efforts were initiated as an emergency or drought management effort.

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).
N/A

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).

N/A

Plan Approval. Water Supply 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	or Submit electronically to
Water Permit Programs Supervisor	wateruse@dnr.state.mn.us
500 Lafayette Road	
St. Paul, MN 55155-4032	

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."

It is the goal of The City of St. Francis to provide high quality water to its citizens without negatively impacting natural resources.

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.

N/A

Demand Projections

Year	Total Community Population	Population Served	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Projected Demand (MGY)
2010	7,700	5,480	0.685	1.781	250
2020	10,400	10,400	1.300	3.380	475
2030	12,800	12,800	1.600	4.160	584
Ultimate	NA	NA			

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 (i.e., service to other communities, not complete service within community etc.).

Not complete service within the community.

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