Chapter 4: Water Resources

Water Supply

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

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

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

Table 1. General information regarding this WSP

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

PART 1. WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

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

A. Analysis of Water Demand

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

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

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

NA

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

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

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

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

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

Table 4. Large volume users

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

B. Treatment and Storage Capacity

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

Table 5. Water treatment capacity and treatment processes

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

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

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

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

Treatment and storage capacity versus demand

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

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

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

C. Water Sources

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

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

Table 7. Water sources and status

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

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

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

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

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

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

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

Table 8. Projected annual water demand

Year	Projected Total Population	Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)
2016	5020	5020	82	.411640	1.4
2017	5025	5025	81	.407025	1.4
2018	5030	5030	80	.402400	1.4
2019	5035	5035	79	.397765	1.4
2020	5045	5045	78	.393510	1.4
2021	5055	5055	77	.389235	1.4
2022	5065	5065	76	.384940	1.4
2023	5075	5075	75	.380625	1.4
2024	5100	5100	74	.377400	1.4
2025	5125	5125	74	.377400	1.4
2030	5200	5200	73	.379600	1.35
2040	5250	5250	72	.378000	1.35

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

Projection Method

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

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

E. Resource Sustainability

Monitoring – *Key DNR Benchmark*

Complete Table 8 by inserting information about source water quality monitoring efforts. The list should include all production wells, observation wells, and source water intakes or reservoirs. Additional information on groundwater level monitoring program at:

http://www.dnr.state.mn.us/waters/groundwater_section/obwell/index.html Add rows to the table as needed.

Table 9. Information about source water quality monitoring

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
00208995	X production well ☐ observation well ☐ source water intake ☐ source water reservoir	X Routine MDH sampling X Routine water utility sampling ☐ other	☐continuous ☐hourly X daily ☐ monthly ☐quarterly ☐annually	☐SCADA x grab sampling ☐ steel tape ☐ stream gauge
00208636	X production well ☐ observation well ☐ source water intake ☐ source water reservoir	X Routine MDH sampling X Routine water utility sampling ☐ other	☐continuous ☐hourly X daily ☐ monthly ☐quarterly ☐annually	☐SCADA x grab sampling ☐ steel tape ☐ stream gauge

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

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

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

Table 9. Water level data

Unique Well Number or Well ID	Aquifer Name	Seasonal Variation (Feet)	Long-term Trend in water level data	Water level measured during well/pumping maintenance
00208995	Drift	NA	☐ Falling	MM/DD/YY:___

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

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

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

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

Table 10. Natural resource impacts

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
☐ River or stream	None	☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	

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

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

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
		trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐Other: _____	☐ Mapping ☐ Monitoring ☐ Aquifer testing x Other: well casing		pumping ☐ Increase conservation ☐ Other	
☐ Endangered, threatened, or special concern species habitat, other Natural resource impacts	none					

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

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

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

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

Plan Type	Status	Date Adopted	Date for Update
WHP	X In Process ☐Completed ☐ Not Applicable		

Plan Type	Status	Date Adopted	Date for Update
SWP	X In Process ☐ Completed ☐ Not Applicable		

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

F. Capital Improvement Plan (CIP)

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

Adequacy of Water Supply System

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

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

Table 12. Adequacy of Water Supply System

System Component	Planned action	Anticipated Construction Year	Notes
Wells/Intakes	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Water Storage Facilities	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Water Treatment Facilities	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Distribution Systems (pipes, valves, etc.)	☐ No action planned - adequate X Repair/replacement ☐ Expansion/addition	2018,2020	
Pressure Zones	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Other:	☐ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		

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

Table 13. Proposed future installations/sources

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

Water Source Alternatives - *Key Metropolitan Council Benchmark*
Do you anticipate the need for alternative water sources in the next 10 years?
__ Yes X No

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

If you answered yes for either question, then complete table 14. If no, insert NA.
Complete Table 14 by checking the box next to alternative approaches that your community is considering, including approximate locations (if known), the estimated amount of future demand that could be met through the approach, the estimated timeframe to implement the approach, potential partnerships, and the major benefits and challenges of the approach. Add rows to the table as needed.
For communities in the seven-county Twin Cities metropolitan area, these alternatives should include approaches the community is considering to meet projected 2040 water demand.

Table 14. Alternative water sources

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
☐ Groundwater	NA					
☐ Surface Water	NA					
☐ Reclaimed Storm water	NA					
☐ Reclaimed Wastewater	NA					

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
☐ Interconnection to another supplier	NA					

Part 2. Emergency Preparedness Procedures

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

A. Federal Emergency Response Plan

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

Do you have a federal emergency response plan? x Yes ☐ No

If yes, what was the date it was certified? ____12 22 2004_____

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

Table 15. Emergency Preparedness Plan contact information

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

B. Operational Contingency Plan

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

Do you have a written operational contingency plan? X Yes ☐ No

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

C. Emergency Response Procedures

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

Emergency Telephone List

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

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

Current Water Sources and Service Area

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

Do records and maps exist? X Yes ☐ No

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

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

Procedure for Augmenting Water Supplies

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

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

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

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

GPM – Gallons per minute MGD – million gallons per day

Table 17. Utilizing surface water as an alternative source

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

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

Allocation and Demand Reduction Procedures

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

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

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

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

Table 18. Water use priorities

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

GPD – Gallons per Day

Tip: Calculating Emergency Demand Reduction Potential

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

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

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

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

Notification Procedures

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

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

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

Enforcement

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

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

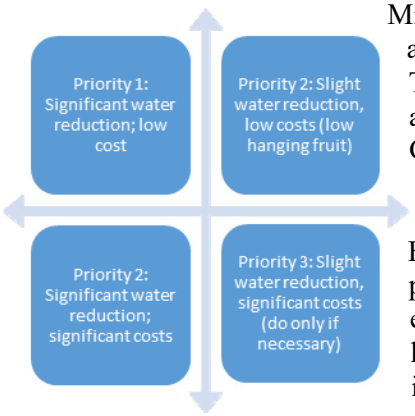
Important Note:
Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

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

be an ordinance, rule, regulation, policy under a council directive, or other official control)
X Yes ☐ No
If yes, attach the official control document to this WSP as **Appendix 7**.
If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions? ✕ Yes ☐ No
If yes, cite the regulatory authority reference: City Code Section 615 Regulating the Operation of Public Water System
If no, who has authority to implement water use restrictions in an emergency?

PART 3. WATER CONSERVATION PLAN



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

There are many incentives for conserving water; conservation:

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

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

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

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

Progress since 2006

Is this your community's first Water Supply Plan? ☐ Yes X No

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

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

Table 21. Implementation of previous ten-year Conservation Plan

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

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

Peak water demand for irrigation has been reduced

A. Triggers for Allocation and Demand Reduction Actions

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

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

Objective	Triggers	Actions
Protect Surface Water Flows	☐ Low stream flow conditions ☐ Reports of declining wetland and lake levels ☐ Other:	☐ Increase promotion of conservation measures ☐ Other: _____

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

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

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

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

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

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

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

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

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

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

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

Frequency of water audits: **x yearly** **☐ other (specify frequency) _____**

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

Year last leak detection survey completed: ____NA

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

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

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

Table 23. Information about customer meters

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

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

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

Meter Park Irrigation systems $14,000

Table 24. Water source meters

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

Objective 2: Achieve Less than 75 Residential Gallons per Capita Demand (GPCD)
The 2002 average residential per capita demand in the Twin Cities Metropolitan area was 75 gallons per capita per day.
Is your average 2010-2015 residential per capita water demand in Table 2 more than 75? ☐ Yes X No

What was your 2005 – 2014 ten-year average residential per capita water demand? 73.31 g/person/day
Describe the water use trend over that timeframe:

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

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

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

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

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

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

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

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

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

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

Objective 4: Achieve a Decreasing Trend in Total Per Capita Demand
Include as **Appendix 8** one graph showing total per capita water demand for each customer category (i.e., residential, institutional, commercial, industrial) from 2005-2014 and add the calculated/estimated linear trend for the next 10 years.

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

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

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

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

Calculate a ten year average (2005 – 2014) of the ratio of maximum day demand to average day demand: 1.23 Max. Ave. Demand/.480 Ave. Daily Demand
The position of the DNR has been that a peak day/average day ratio that is above 2.6 for in summer indicates that the water being used for irrigation by the residents in a community is too large and that efforts should be made to reduce the peak day use by the community.

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

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

Water Conservation Program

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

Current Water Rates

Include a copy of the actual rate structure in **Appendix 9** or list current water rates including base/service fees and volume charges below.
Volume included in base rate or service charge: _____ gallons or ____ cubic feet ___ other
Frequency of billing: X Monthly ☐ Bimonthly ☐ Quarterly ☐ Other:

Water Rate Evaluation Frequency: X every year ☐ every ___ years ☐ no schedule

Date of last rate change: 1/1/2016

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

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

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

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

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

****Conservation Neutral****

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

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

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

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

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

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

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

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

☐	Hire a Water Conservation Coordinator (part-time)
☐	Implement a Rebate program for water efficient appliances, fixtures, or outdoor water management
☐	Other

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

By Monitoring average GPC

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

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

A. Regulation

Complete Table 29 by selecting which regulations are used to reduce demand and improve water efficiencies. Add additional rows as needed.
Copies of adopted regulations or proposed restrictions or should be included in

Appendix 10 (a list with hyperlinks is acceptable).

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

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

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

B. Retrofitting Programs

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

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

Retrofitting Programs

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

Table 30. Retrofitting programs (Select all that apply)

Water Use Targets	Outreach Methods	Partners
X low flush toilets, ☐ toilet leak tablets, X low flow showerheads, ☐ faucet aerators;	X Education about ☐ free distribution of ☐ rebate for ☐ other	X Gas company ☐ Electric company ☐ Watershed organization

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

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

Reduced gallons per customer per day

C. Education and Information Programs

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

Proposed Education Programs

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

D. The City has maintained a relationship with neighboring communities in protection of the source of the City's drinking water by the establishment of the Anoka County Municipal Wellhead Protection Group in 1997. The Wellhead Group has developed the "Know the Flow" education and outreach website (www.knowtheflow.us) that provide water education and information to residents, businesses and property owners and relevant water pollution prevention and conservations. Additional accomplishments include the City participation in developing (with the Minnesota Department of Health) the "Sealing Your Unused Well" video that is the feature video on the KTF website and is aired on the City Cable access channels.

Table 31. Current and Proposed Education Programs

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

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

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

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

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

Part 4. ITEMS FOR METROPOLITAN AREA COMMUNITIES

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

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

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

A. Water Demand Projections through 2040

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

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

B. Potential Water Supply Issues

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

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

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

C. Proposed Alternative Approaches to Meet Extended Water Demand Projections

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

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

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

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

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

Source Water Protection Strategies

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

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

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

Local Control	Schedule to Implement	Potential Partners
☐ None at this time		
☐ Comprehensive planning that guides development in vulnerable drinking water supply management areas		
☐ Zoning overlay		
☐ Other:		

Technical assistance

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Acronyms and Initialisms

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

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

APPENDIX A

Internal Notification List

Internal Notification List

City Administration	Day	Cell
Patrick Antonen City Admin.	763-231-2605	763-760-211
Chandra Peterson, Asst. City Administrator	763-231-2611	612-328-5694

City Shop Personnel	Day	Night	Cell
Rich Lavell	763-784-6751	763-792-0341	612-723-9623
Tim Thompson	763-784-6751	763-780-4525	612-723-4686
Alan Hammill	763-784-6751	651-674-4267	612-741-6964
Jim Sorenson	763-784-6751	651-481-4925	612-716-6782
Dave Corder	763-784-6751	952-926-2404	612-723-1733

Pager	612-534-2790

APPENDIX B

External Contact List

Agency Contact List

Agency Name	Agency Service	Phone Number #1	Phone Number #2
MN Duty Officer	Point of Contact	651-649-5451	1-800-422-0798
FBI-Mpls. Office		612-376-3200	
Environmental Protection Agency		1-800-424-8802	
Nat'l Capital Poison Control Center		1-800-222-1222	
Nat'l Weather Center-Hutchinson		952-361-6708	
Anoka County Civil Defense		911	763-427-1212

Local Emergency Response Contact List

Agency Name	Agency Service	Phone Number #1	Phone Number #2
Centennial Lakes Police		911	
Centennial Fire Dept.		911	
Qwest	Telephone		
Connexus	Power	763-323-2660	763-323-2600
Xcel Energy	Power	800-895-1999	
United Hospital	Medical	651-241-8755	651-241-8000
Mercy Hospital	Medical	763-236-7144	763-236-6000
City of Blaine	Interconnect Water	763-785-6165	763-785-6700
City of Lino Lakes	Interconnect Water	651-982-2440	651-982-2400
City of Shoreview	Interconnect Water	651-490-4660	651-784-3629
City of Lexington	Interconnect Water	763-784-6849	763-784-2792

APPENDIX C

Example Notification Forms

Example Boil Water Notice

WARNING
BOIL YOUR WATER BEFORE USING

The City of Circle Pines water is contaminated with [fecal coliform/E. coli]

[Fecal coliform or E. coli] bacteria were found in the water supply on [November 5]. These bacteria can make you sick and are a particular concern for people with weakened immune systems.

What should I do?

- DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for ten minutes, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food until further notice. Boiling kills bacteria and other organisms in the water.

- Fecal coliform and E. coli are bacteria whose presence indicates that the water may be contaminated with organisms that can cause illness in humans. These organisms can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

- Organisms in drinking water are not the only cause of the symptoms above. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers.

What happened? What is being done?

The water distribution system was contaminated with fecal coliform. We are working with law enforcement and the public health department to investigate/resolve this issue. We are currently increasing the chlorination levels at the treatment plant as well as at the chlorine booster stations throughout the system. In addition, we are evaluating all available information and conducting tests to confirm the extent of the contamination of the system. We will inform you when tests show no bacteria and you no longer need to boil your water. We anticipate resolving the problem within the next 48 hours.

For more information, please contact [Joseph Smith] at [555-555-6789]. General guidelines on ways to lessen the risk of infection by microbes are available from the EPA Safe Drinking Water Hotline at 1-800-426-4794 and [the Public Health Department Hotline at 1-800-123-4567].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand.

Example Do Not Drink Notice

WARNING

DO NOT DRINK THE WATER

[Cyanide] found in the City of Circle Pines water supply on [October 10th]

Bottled water can be obtained at [Islington Station High School and Penn Road High School 24 hours per day].

What should I do?

- Do NOT drink the water.
- Symptoms associated with cyanide include dry mouth, itchy throat, headache, sweating, flushed skin, muscle rigidity, fever, confusion, lethargy, seizures, loss of consciousness, coma, and death.
- If you or someone you know exhibits any of these symptoms, immediately contact your health care provider. In addition, please notify the public health department at 1-800-123-4567.

What happened? What is being done?

On October 10th, the water distribution system was contaminated with cyanide. We are working with law enforcement and the public health department to investigate/resolve this issue. We have tested the water in various parts of the distribution system to verify the extent of the cyanide contamination. Based on these tests, we have isolated the portion of the system located north of Aspen Street and east of River Road. Everyone in this portion of the system **should not drink the water**. We have implemented additional security procedures to protect the system against further contamination. Additional information will be provided 24 hours/day on Channel 57- the local government television channel.

For more information, please contact [Joseph Smith] at [555-555-6789]. More information is also available from the EPA Safe Drinking Water Hotline at 1-800-426-4794 and [the Public Health Department Hotline at 1-800-123-4567].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand.

This notice is being sent to you by [City of Rolling Brook Water System]. State Water System ID#[50005]. Date distributed: [October 10, 2003]

Example Do Not Use Notice

WARNING

DO NOT USE THE WATER

[Lyonelle Water System] water is contaminated with [parathion]

Bottled water can be obtained at [Murray High School and Central High School 24 hours per day].

Parathion was found in the water supply on [November 14]. This chemical can make you sick and may result in death.

What should I do?

- DO NOT USE THE WATER. You should *not* use the water for drinking, making ice, brushing teeth, washing dishes, washing clothes, bathing, food preparation, or watering lawns. Bottled water should be used for all of the above necessities until further notice.

- Parathion is a chemical usually used to kill insects. It can cause constriction of the pupils, blurred vision, muscle and abdominal cramps, excessive salivation, sweating, nausea, vomiting, dizziness, headaches, convulsions, diarrhea, weakness, labored breathing, wheezing, and unconsciousness. Exposure can even lead to death.

- If you or someone you know exhibits any of these symptoms, immediately contact your health care provider. In addition, please notify the public health department at 1-800-123-4567.

What happened? What is being done?

The water distribution system was contaminated with parathion. We are working with law enforcement and the public health department to investigate/resolve this issue. We have tested the water in various parts of the distribution system to verify the extent of the parathion contamination. Based on these tests, we have isolated the portion of the system located north of Lincoln Avenue and east of Maple Road. Everyone in this portion of the system **should not use the water.** We have implemented additional security procedures to protect the system against further contamination. Additional information will be provided 24 hours/day on Channel 57- the local government television channel.

For more information, please contact [Joseph Smith] at [555-555-6789]. More information is also available from the EPA Safe Drinking Water Hotline at 1-800-426-4794 and [the Public Health Department Hotline at 1-800-321-4567].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand.

This notice is being sent to you by [Lyonelle Water System]. State Water System ID# [90008]. Date distributed: [November 14, 2003]

APPENDIX D

Action Plans

*Water System Contamination**

Threat Warning Stage

Threat Warning Received	Special actions and notifications to be taken: • Notify appropriate supervisor • Record and document all information pertaining to the threat warning • Do not disturb site if the threat warning could be a possible crime scene • Return to normal operations if no further action is required (i.e., the threat warning can be explained) • Begin the "Threat Decision Process" if the threat warning cannot be explained

↓

Threat Decision Process Stage

Is the Threat Possible? (Stage 1)	Special actions and notifications to be taken: • Notify local law enforcement • Notify State Drinking Water Primacy Agency • Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement • Initiate basic precautionary measures: 1. Alert staff and personnel about threat warning 2. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage

↓

If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.

Is the Threat Credible? (Stage 2)	Special actions and notifications to be taken: • Activate notification and personnel safety portions of ERP • Evaluate whether the threat is credible in consultation with assisting agencies • Visually inspect physical evidence and determine whether there is a change in normal system operating parameters (i.e., chlorine residuals, turbidity, odor, color, pH, etc.) • Conduct actions and testing as recommended by monitoring and sampling experts

↓

If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat been Confirmed" stage.

Has the Incident Been Confirmed? (Stage 3)	Special actions and notifications to be taken: • Initiate full ERP activation • Follow State Incident Command System • Isolate portion of system or backflush • Shut down system if obvious or confirmed contamination warrants • Issue public notice and issue follow-up media press releases • Continue sampling and water monitoring • Assess need to remediate storage tanks, filters, sediment basins, solids handling, etc.

*Structural Damage/Physical Attack to Water System or Facility(ies)**

Threat Warning Stage

Threat Warning Received	Special actions and notifications to be taken: • Notify appropriate supervisor • Record and document all information pertaining to the threat warning • Do not disturb site if the threat warning could be a possible crime scene • Return to normal operations if no further action is required (i.e., the threat warning can be explained) • Begin the "Threat Decision Process" if the threat warning cannot be explained

↓

Threat Decision Process Stage

Is the Threat Possible? (Stage 1)	Special actions and notifications to be taken: • Notify local law enforcement • Notify State Drinking Water Primacy Agency • Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement • Initiate basic precautionary measures: 1. Alert staff and personnel about threat warning 2. Heighten security at critical facilities 3. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage

↓

If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.

Is the Threat Credible? (Stage 2)	Special actions and notifications to be taken: • Activate notification and personnel safety portions of ERP • Physically secure water system facilities • Evaluate whether the threat is credible in consultation with assisting agencies

↓

If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat been Confirmed" stage.

Has the Incident Been Confirmed? (Stage 3)	Special actions and notifications to be taken: • Initiate full ERP activation • Follow State Incident Command System • Deploy damage assessment team • Isolate damaged facility from rest of water system • Coordinate alternative water supply, as needed, or consider alternate (interim) treatment schemes • Issue public notice and issue follow-up media press releases • Repair damaged facilities • Assess need for additional protection/security measures

*Cyber Attack on SCADA or Operational Computer System**

Threat Warning Stage

Threat Warning Received	Special actions and notifications to be taken: • Notify appropriate supervisor • Record and document all information pertaining to the threat warning • Do not disturb site if the threat warning could be a possible crime scene • Return to normal operations if no further action is required (i.e., the threat warning can be explained) • Begin the "Threat Decision Process" if the threat warning cannot be explained

↓

Threat Decision Process Stage

Is the Threat Possible? (Stage 1)	Special actions and notifications to be taken: • Notify local law enforcement • Notify State Drinking Water Primacy Agency • Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement • Initiate basic precautionary measures: 1. Alert staff and personnel about threat warning 2. Temporarily shut down SCADA system and go to manual operation using established protocol 3. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage

↓

If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.

Is the Threat Credible? (Stage 2)	Special actions and notifications to be taken: • Activate notification and personnel safety portions of ERP • Continue manual operation using established protocol • Consider whether to isolate source water • Consider whether to shut down system and provide alternate water • Evaluate whether the threat is credible in consultation with assisting agencies • Conduct actions/testing recommended by monitoring and sampling experts

↓

If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat been Confirmed" stage.

Has the Incident Been Confirmed? (Stage 3)	Special actions and notifications to be taken: • Initiate full ERP activation • Follow State Incident Command System • Continue manual operation, source water isolation, or system shut down and alternate water supply, as appropriate • Issue public notice and issue follow-up media press releases • Make copy of all system information to preserve evidence • With law enforcement assistance, check for implanted backdoors and other malicious code before restarting SCADA system • Install safeguards before restarting SCADA system • Bring SCADA system up and monitor system • Assess/implement additional precautions for SCADA system

*Hazardous Chemical Release from Water System Facility(ies)**

Threat Warning Stage

Threat Warning Received	Special actions and notifications to be taken: • Notify appropriate supervisor • Record and document all information pertaining to the threat warning • Do not disturb site if the threat warning could be a possible crime scene • Return to normal operations if no further action is required (i.e., the threat warning can be explained) • Begin the "Threat Decision Process" if the threat warning cannot be explained

↓

Threat Decision Process Stage

Is the Threat Possible? (Stage 1)	Special actions and notifications to be taken: • Notify local law enforcement • Notify State Drinking Water Primacy Agency • Evaluate threat warning and make decisions in consultation with State Drinking Water Primacy Agency and local law enforcement • Initiate basic precautionary measures: 1. Alert staff and personnel about threat warning 2. Post full-time operations personnel at the chemical treatment areas of the facility 3. Verify that monitoring, leak detection, and personal protection equipment are fully operational 4. Prepare additional notification lists if the situation escalates to the "Is the Threat Credible?" stage

↓

If the threat is not possible, then return to normal operations. Otherwise, proceed to "Is the Threat Credible" stage.

Is the Threat Credible? (Stage 2)	Special actions and notifications to be taken: • Activate notification and personnel safety portions of ERP • Physically secure water system facilities and specifically the chemical treatment areas of the facility • Identify potentially hazardous chemical(s) to appropriate assisting agencies • Based on Risk Management program and ERP, evaluate potential extent of public evacuation or shelter in place order • Evaluate whether the threat is credible in consultation with assisting agencies

↓

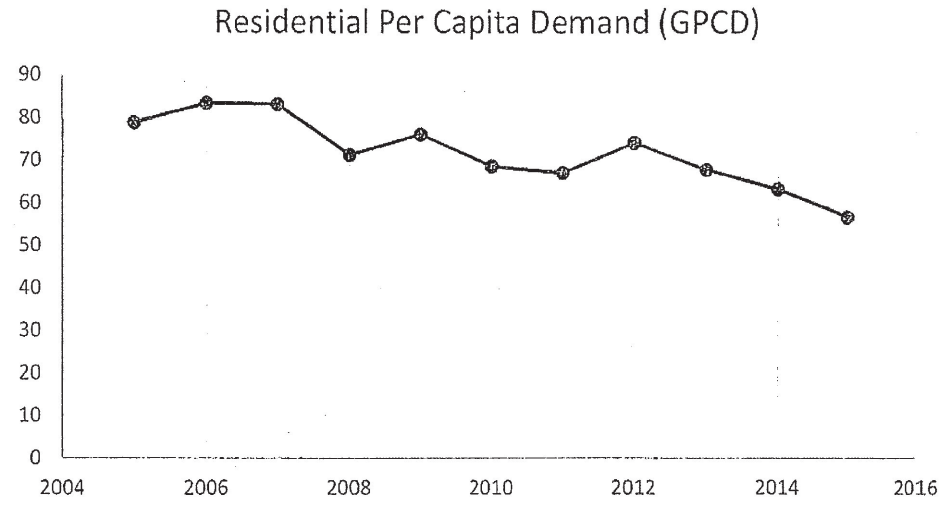
If the threat is not credible, then return to normal operations. Otherwise, proceed to "Has the Threat Been Confirmed" stage.

Has the Incident Been Confirmed? (Stage 3)	Special actions and notifications to be taken: • Initiate full ERP activation • Follow State Incident Command System • Determine extent/concentration of chemical release and deploy damage assessment team • Turn off chemical treatment equipment and isolate chemical treatment areas from rest of water system • Depending on extent and concentration of release, issue evacuation or shelter in place order per Risk Management Program and ERP • Coordinate alternative water supply, as needed, or consider alternate (interim) treatment schemes • Issue public notice and issue follow-up media press releases • Repair damaged facilities • Assess need for additional protection/security measures

Appendix 8: Graph Annual per Capita Water Demand

Annual Per Capita Water Demand

Year	Residential Per Capita Demand (GPCD)
2005	78.8
2006	83.4
2007	83.1
2008	71.2
2009	76
2010	68.5
2011	67
2012	74.1
2013	67.7
2014	63.3
2015	56.7
Avg. 2010-2015	71.80



Appendix 9: Water Rate Structure

Centennial Utilities
Rate & Fee Schedule

Water Rates and Fees

Residential Meter Size	Monthly Flat Rate	Effective Date
Less than 1.5"	$7.50	1/1/10
Without AMR	$30.00	9/1/12
1.5 Meter	$8.50	1/1/10
2" Meter	$12.50	1/1/10
3" Meter	$13.00	1/1/10
4" Meter	$18.00	1/1/10
6" Meter	$21.00	1/1/10

Volumetric Water Rates Based on Monthly Usage

RESIDENTIAL (with 1 meter)			APARTMENT/COMMERCIAL / TH 4+		
Tier	Rate per 1,000	Effective Date	Tier	Rate per 1,000	Effective Date
0 – 6,000	$1.90	1/1/16	0 – 6,000	$1.90	1/1/16
6,001 – 12,000	$2.20	1/1/16	6,001 – 12,000	$2.20	1/1/16
12,001 – 24,000	$2.55	1/1/16	12,001 – 24,000	$2.55	1/1/16
24,001+	$3.45	1/1/16	24,001 +	$3.45	1/1/16

Commercial Bulk Water Sales	$800 deposit +$25 per month fee+ $2.00/1,000 Gallons
Water Reconnection Fee	Standard labor rates apply
Water Access Charge	$1800 per residential equivalency (REC)
Water Access Charge-Filtration Plant	$1450 per residential equivalency (REC)
New Residential Water Connection Charge	$100 + 5.00 surcharge +WAC
New Commercial Water Connection Charge	$100 + 5.00 surcharge +WAC
Connection to Residential Repair	$100 + 5.00 surcharge
Connection to Commercial Repair	$100 + 5.00 surcharge

Sewer Rates and Fees

RESIDENTIAL					APARTMENT/COMMERCIAL				
Tier	Monthly Flat Fee	Effective Date	Rate per 1,000	Effective Date	Tier	Per REC Monthly Fee	Effective Date	Rate Per 1,000	Effective Date
0 – 6,000	$11.00	1/1/16	$3.80	1/1/15	0 – 6,000	$20.00	1/1/16	$3.80	1/1/15
6,001 – 12,000	$11.00	1/1/16	$4.09	1/1/15	6,001 – 12,000	$20.00	1/1/16	$4.09	1/1/15
12,001 - 24,000	$11.00	1/1/16	$4.48	1/1/15	12,001 – 24,000	$20.00	1/1/16	$4.48	1/1/15
24,001 +	$11.00	1/1/16	$4.80	1/1/16	24,001 +	$20.00	1/1/16	$4.80	1/1/16

Local Sewer Access Charge (SAC)	$1,500 per residential equivalency (REC)
New Residential Sewer Connection Charge	$100 + 5.00 surcharge +SAC
New Commercial Sewer Connection Charge	$100 + 5.00 surcharge +SAC
Connection to Residential Repair	$100 + 5.00 surcharge
Connection to Commercial Repair	$100 + 5.00 surcharge

Storm Sewer Rates and Fees

Rate Class	Monthly Flat Fee	Effective Date
Residential/Commercial	$6.50/residential equivalency (REC)	1/1/15

Natural Gas Rates and Fees

Type of Service		Distribution Rates	Effective Date
Residential		.285/ccf*	1/1/13
Commercial/No Service		.255/ccf*	1/1/13
Commercial/Service		.285/ccf*	1/1/13
Small Volume Interruptible		Set Monthly	
Large Volume Interruptible		Set Monthly	
Municipal/State		.225/ccf	1/1/13

Meter Fees	Monthly Fee	Effective Date
Residential	$10.50	1/1/16
Commercial		
Less than 800/ccf	$20.00	1/1/13
800 up to 2,000/ccf	$45.00	1/1/13
2,000 up to 5,000/ccf	$75.00	1/1/13
5,000/ccf plus	$100.00	1/1/13
BPI per unit	$50.00	1/1/13
Small Volume Interruptible	$125.00	1/1/13
Large Volume Interruptible	$200.00	1/1/13
Municipal/State	$18.00	1/1/13

*Customers who did not pay the per foot installation charge for a natural gas service line will pay $4.285 for the first ccf and the listed rate for every ccf thereafter.

Natural gas operating funds in a deficit cash position on December 31 will have added to their distribution rate a surcharge of $0.03/ccf for residential customers and $0.01/ccf for all other customer types.

Franchise fees will be shown as a separate line item on the gas portion of the bill. The amount collected will be a direct pass through of the amount charged by the customers' city.

Purchased gas costs will be billed as a pass through cost, which rate is to be set monthly.

The rates listed for the above services are not designed to guarantee continuous service.

Installation Fees

Circle Pines - $450 first 40 feet plastic lines, $8 per foot over 40 feet
Franchise Areas – Recovered in rates
Frost Charges - $10 per foot all areas

Labor Rate	.5 Hour $53.00 1 Hour 106.00 There is a one-half hour minimum and charges will be billed to the nearest one-quarter hour. After hours: $154.50/hour with a two-hour minimum ($309.00) After hours rates apply from 9 p.m. to 7 a.m. Monday – Thursday, and after 3:30 p.m. Friday until 7 a.m. Monday.
Reconnection/Non-Delinquent	.5 Hour Labor Charge
Disconnect/Reconnection Charge	10% of the balance that is due. After normal working hours (8 a.m. to 4:30 p.m.) 1 hour labor charge at above rates plus 10% of the balance that is due.

Garbage Rates – **Effective January 1, 2016**

Container Size	Monthly Rate	Senior Rate/Income Driven
35 Gallon	$8.80	$7.90
64 Gallon	$12.45	$11.20
96 Gallon	$17.45	$15.70

Garbage Disconnection fee $15 see policy 17

Recycling Rate – Effective January 1, 2016

Monthly Rate $3.25
Senior Monthly Rate $2.90

Yard Waste

Seasonal Weekly Pickup $85.00

Miscellaneous Charges

NSF Charge	$30

Revision: 01-2016
Effective: January 1, 2016

Appendix 10: Section 615 Regulating the Operation of Public Water System

610.20 **Additional Connection Charge.** Any person that does not connect to the municipal sanitary sewer system within 12 months after said sanitary sewer service is deemed available by action of the Utilities Commission, may be required to pay, in addition to all other charges enumerated above or by resolution of the Utilities Commission, the service connection charge imposed on the City by the Metropolitan Waste Control Commission, plus any additional charges set by the Utilities Commission.

SECTION 615 - REGULATING THE OPERATION OF PUBLIC WATER SYSTEM

615.01 **Lawn Sprinkling Restrictions.** The use of the municipal water system for lawn sprinkling and/or gardens shall be regulated as provided in this section. The sprinkling of lawns will be restricted to odd/even each year from June 1 through August 31. All properties with addresses that end with an odd number may be sprinkled only on odd numbered days, and properties with addresses that end with an even number may be sprinkled only on even numbered days. No sprinkling shall occur on any day between the hours of 10:00 AM and 7:00 PM. This section applies only to those individuals drawing water for sprinkling from the city supply.

615.02 **Additional Restrictions.** In the case of a severe shortage the City Administrator, subject to review of the Utilities Commission, is authorized to impose additional restrictions to provide for the safe operation of the municipal water supply.

615.03 **Violation.** No person shall cause water to be used in violation of the provisions of this Section.

SECTION 620 - SEWERS AND DRAINS

620.01 **Definitions.** Unless the context otherwise indicates, the following terms have the meanings stated:

Subd. 1 Sewage Works. All facilities for collecting, pumping, treating and disposing of sewage.

Subd. 2 Sewage. A combination of the water carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface and storm waters as may be present.

Subd. 3 Sewer. A pipe or conduit for carrying sewage.

Subd. 4 Public Sewer. A sewer owned or controlled by public authority, and available for public use.

Subd. 5 Combined Sewer. A sewer receiving both surface runoff and sewage.

Subd. 6 Sanitary Sewer. A sewer which carries sewage and to which storm, surface and ground waters are excluded and not intentionally admitted.

Subd. 7 Industrial Wastes. Liquid wastes from industrial processes as distinct from sanitary sewage.

Subd. 8 Building Drain. The piping of a drainage system inside the walls of a building and within five (5) feet outside the inner face of the building wall which receives the discharge from soil, waste, and other drainage pipes inside the walls and conveys such discharge to the building sewer outside.

Subd. 9 Building Sewer. The extension of the building drain to the public sewer or other place of disposal.

Subd. 10 District. North Suburban Sanitary Sewer District, or where appropriate its Board of Trustees or an authorized representative or employee of the District.

Subd. 11 Municipality. Any city, village, town, district, or other governmental unit having powers of a municipality under law.

Subd. 12 Street. Highway, road, alley, or other public thoroughfare.

620.02 Use of Public Sewers Required.

Subd. 1 Sewage and Industrial Waste. It is unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner upon any public or private property within the District, or in any area under and

Appendix 11: Implementation Checklist

Implementation Checklist

Continue to enforce lawn sprinkling restrictions. City Code Section 615	Ongoing
Continue to replace water main as street construction projects continue	Ongoing, Every two years
Continue ongoing maintenance on wells, treatment plant and hydrants	Ongoing
Continue providing "know the flow" education program	Ongoing

Appendix 12: City of Circle Pines Ordinance 154 Regulating nonessential water usage upon critical water deficiency as authorized by Minn. Stat. §103G.291, subd. 1 and 2

CITY OF CIRCLE PINES
COUNTY OF ANOKA
STATE OF MINNESOTA

ORDINANCE NO. 154
(Second Series)

The City Council of the City of Circle Pines ordains:

SECTION 1. The City Council of Circle Pines hereby adds Section 616 Regulating Nonessential Water Usage Upon Critical Water Deficiency to the City Code, to read as follows:

Section 616-AN ORDINANCE regulating nonessential water usage upon critical water deficiency as authorized by Minn. Stat. § 103G.291, subd. 1 and 2.

616.01 Purpose.
This ordinance establishes water conservation restrictions; and the plan will be in effect at any time the governor declares by executive order a critical water deficiency, pursuant to Minnesota Statutes section 103G.291.

616.02 Definitions.
City Administrator means the person assigned duties pursuant pursuant to Minn. Stat. § 412.601 - 412.751

Department means the city water department.

Emergency means the declaration of a critical water deficiency by the governor.

Irrigation means the watering of shrubs, trees, sod, seeded areas, gardens, lawns, or any other outdoor vegetation, except outdoor vegetation utilized for agricultural purposes.

Notification to public means notification through local media, including interviews and issuance of news releases.

Public water supplier means the city or other entity that owns, manages, or operates a public water supply, as defined in Minn. Stat. § 144.382, subdivision 4.

Reclaimed water means water collected from rooftops, paved surfaces, or other collection devices and all water utilized more than once before re-entering the natural water cycle.

Water recirculation system means any system which enables a user to reuse water at least once prior to returning the water to the natural water cycle.

616.03 Application.
(a) This ordinance applies to all customers of public water suppliers who own or control water use on any premises.
(b) No person shall make, cause, use, or permit the use of water received from a public water supply for residential, commercial, industrial, governmental, or any other purpose in any manner contrary to any provision in this ordinance.
(c) Mandatory emergency conservation measures shall be implemented based upon the declaration of a critical water emergency by the governor.

616.04 Declaration of critical water deficiency.
Upon the declaration of a critical water deficiency by the governor, the public water supplier shall immediately post notice of the emergency declaration at the usual meeting place of the city council, or the official city bulletin board. The city shall provide notification to the public as quickly as possible or through established water supply plans emergency response plans or procedures.

616.05 Mandatory emergency water conservation measures.
Upon declaration of a water emergency and notification to the public, the following mandatory restrictions upon nonessential water use shall be enforced:
(1) Outdoor irrigation of yards, gardens, golf courses, parklands, and other non-agricultural land, except for those areas irrigated with reclaimed water, is prohibited.
(2) Washing or spraying of sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas with water from any pressurized source, including garden hoses, except to alleviate immediate health or safety hazards, is prohibited.
(3) The outdoor use of any water-based play apparatus connected to a pressurized source is prohibited.
(4) Restaurants and other food service establishments are prohibited from serving water to their customers, unless water is specifically requested by the customer.
(5) Operation of outdoor misting systems used to cool public areas is prohibited.
(6) The filling of swimming pools, fountains, spas, or other exterior water features is prohibited.
(7) The washing of automobiles, trucks, trailers, and other types of mobile equipment is prohibited, except at facilities

equipped with wash water recirculation systems, and for vehicles requiring frequent washing to protect public health, safety, and welfare.

616.06 Variances.
The City Administrator or their designee, is authorized to grant variances to this ordinance where strict application of its provisions would result in serious hardship to a customer. A variance may be granted only for reasons involving health or safety. An applicant may appeal the denial of a variance within five (5) days of the decision by submitting a written appeal to the City Administrator. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final.

616.07 Violation.
(a) Violations shall be determined and cited by the City Administrator or his/her designee. A violator may appeal the citation within five (5) days of its issuance by submitting a written appeal to the City. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final. Violators may be granted an administrative waiver if evidence is provided that equipment failure was the cause of the violation. A letter from a qualified vendor or equipment invoice will be required to show proof of equipment failure.
(b) Upon discovery of a first violation, the violator shall be issued, either personally or by mail, a warning letter that sets forth the violation and which shall describe the remedy and fines for future violations.
(c) Upon subsequent violations at the same location, the violator shall be issued, either personally or by mail, a citation that sets forth the violation and shall describe the remedy.
Fines shall be added to the monthly water bill of the owner or current occupant of the premises where the violation occurred. The imposition of the fine shall in no way limit the right of the City to pursue other legal remedies.

616.08 Enforcement.
The City Administrator or his/her designee is authorized to designate city employees or law enforcement personnel to enforce the provisions of this ordinance.

616.09 Severability.
If any provision of this ordinance or the application of any provision to a particular situation is held to be invalid by a

court of competent jurisdiction, the remaining portions of the ordinance and the application of the ordinance to any other situation shall not be invalidated.

616.10 Effective date.
The effective date is usually stated in the following manner:

SECTION 2. This ordinance shall be effective upon passage and official or summary publication.

Adopted this 28th day of February 2017, by the Circle Pines City Council.

_____
Dave Bartholomay, Mayor

ATTEST:

_____
Patrick Antonen, City Administrator

First Reading: February 28, 2017
Second Reading: Waived
Published: Quad Community Press, March 7, 2017

(SEAL)