CITY OF WHITE BEAR LAKE
WATER DEPARTMENT

THIRD GENERATION
LOCAL WATER SUPPLY PLAN

JANUARY 2017

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Local Water Supply Plan Template
Third Generation for 2016-2018

Formerly called Water Emergency & Water Conservation Plan

Cover photo by Molly Shodeen

For more information on this Water Supply Plan Template, please contact the DNR Division of Ecological and Water Resources at (651) 259-5034 or (651) 259-5100.

This information is available in an alternative format upon request.

Table of contents

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

INTRODUCTION TO WATER SUPPLY PLANS (WSP)

Who needs to complete a Water Supply Plan

Public water suppliers serving more than 1,000 people, and large private water suppliers in designated Groundwater Management Areas, and all water suppliers in the Twin Cities metropolitan area, are required to prepare and submit a water supply plan.

The goal of the WSP is to help water suppliers: 1) implement long term water sustainability and conservation measures; and 2) develop critical emergency preparedness measures. Your community needs to know what measures will be implemented in case of a water crisis. A lot of emergencies can be avoided or mitigated if long term sustainability measures are implemented.

Groundwater Management Areas (GWMA)

The DNR has designated three areas of the state as Groundwater Management Areas (GWMAs) to focus groundwater management efforts in specific geographies where there is an added risk of overuse or water quality degradation. A plan directing the DNRs actions within each GWMA has been prepared. Although there are no specific additional requirements with respect to the water supply planning for communities within designated GWMAs, communities should be aware of the issues and actions planned if they are within the boundary of one of the GWMAs. The three GWMAs are the North and East Metro GWMA (Twin Cities Metro), the Bonanza Valley GWMA and the Straight River GWMA (near Park Rapids). Additional information and maps are included in the DNR webpage at http://www.dnr.state.mn.us/gwmp/areas.html

Benefits of completing a WSP

Completing a WSP using this template, fulfills a water supplier's statutory obligations under M.S. M.S.103G.291 to complete a water supply plan. For water suppliers in the metropolitan area, the WSP will help local governmental units to fulfill their requirements under M.S. 473.859 to complete a local comprehensive plan. Additional benefits of completing WSP template:

- The standardized format allows for quicker and easier review and approval
- Help water suppliers prepare for droughts and water emergencies.
- Create eligibility for funding requests to the Minnesota Department of Health (MDH) for the Drinking Water Revolving Fund.
- Allow water suppliers to submit requests for new wells or expanded capacity of existing wells.
- Simplify the development of county comprehensive water plans and watershed plans.
- Fulfill the contingency plan provisions required in the MDH wellhead protection and surface water protection plans.
- Fulfill the demand reduction requirements of Minnesota Statutes, section 103G.291 subd 3 and 4.

- Upon implementation, contribute to maintaining aquifer levels, reducing potential well interference and water use conflicts, and reducing the need to drill new wells or expand system capacity.
- Enable DNR to compile and analyze water use and conservation data to help guide decisions.
- Conserve Minnesota's water resources

If your community needs assistance completing the Water Supply Plan, assistance is available from your area hydrologist or groundwater specialist, the MN Rural Waters Association circuit rider program, or in the metropolitan area from Metropolitan Council staff. Many private consultants are also available.

WSP Approval Process

10 Basic Steps for completing a 10-Year Water Supply Plan

1. Download the DNR/Metropolitan Council Water Supply Plan Template www.mndnr.gov/watersupplyplans
2. Save the document with a file name with this naming convention: WSP_cityname_permitnumber_date.doc.
3. The template is a form that should be completed electronically.
4. Compile the required water use data (Part 1) and emergency procedures information (Part 2)
5. The Water Conservation section (Part 3) may need discussion with the water department, council, or planning commission, if your community does not already have an active water conservation program.
6. Communities in the seven-county Twin Cities metropolitan area should complete all the information discussed in Part 4. The Metropolitan Council has additional guidance information on their webpage http://www.metrocouncil.org/Handbook/Plan-Elements/Water-Resources/Water-Supply.aspx. All out-state water suppliers do *not* need to complete the content addressed in Part 4.
7. Use the Plan instructions and Checklist document to insure all data is complete and attachments are included. This will allow for a quicker approval process. www.mndnr.gov/watersupplyplans
8. Plans should be submitted electronically – no paper documents are required. https://webapps11.dnr.state.mn.us/mpars/public/authentication/login
9. DNR hydrologist will review plans (in cooperation with Metropolitan Council in Metro area) and approve the plan or make recommendations.
10. Once approved, communities should complete a Certification of Adoption form, and send a copy to the DNR.

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)	**1969-0174**
Ownership	City of White Bear Lake
Metropolitan Council Area	District 11
Street Address	4701 Highway 61
City, State, Zip	White Bear Lake, MN 55110
Contact Person Name	White Bear Lake City Council c/o Ellen Hiniker
Title	City Manager
Phone Number	651-429-8516
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:

N/A

Table 2. 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	25,225	8014	720.5	317.9	UNK	2.9	1038.4	1242.9	UNK	16.5 %	3.4	8.1	UNK	78	135
2006	24,723	8036	843.2	207.8	UNK	5.4	1051.0	1084.8	UNK	3.1 %	3.0	7.1	UNK	92	117
2007	24,325	7950	633.7	362.9	UNK	37.4	996.6	1059.9	UNK	6.0 %	2.9	UNK	UNK	71	119
2008	24,325	8069	569.8	348.1	UNK	28.1	917.9	993.7	UNK	7.6 %	2.7	UNK	UNK	64	112
2009	24,325	8074	591.7	328.6	UNK	36.9	920.3	976.5	UNK	5.8 %	2.7	5.5	July 11	67	110
2010	24,734	8259	553.6	321.1	UNK	23.3	892.9	897.1	UNK	5.8 %	2.5	4.8	August 30	61	99
2011	23,797	7998	618.8	245.7	UNK	25.4	864.5	885.6	UNK	2.4 %	2.4	5.1	September 9	71	102
2012	23,797	8275	579.8	298.5	UNK	28.7	878.3	963.3	UNK	8.9 %	2.6	5.4	September 3	67	111
2013	23,797	8275	592	195.2	UNK	23.7	787.2	902	UNK	12.7 %	2.5	5.6	August 27	68	91
2014	23,993	8315	552.9	187.1	UNK	22.1	740	805.4	UNK	8.1 %	2.2	5.4	July 29	63	88
2015	23,931	8367	526	182.1	UNK	19.5	708.1	778	UNK	9.0 %	2.1	4.3	October 4	60	89
Avg. 2010-2015	24,175	8248	571	233.3	UNK	23.8	803.8	871.9	UNK	7.8 %	2.4	5.1	N/A	65	97

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

*Wholesale Deliveries to Birchwood Village and available to Gem Lake.

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 3. 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)
1900 Webber Street	Commercial	5,316,750	0.8%	UNK
1699 9th Street	Commercial	5,163,750	0.7%	UNK
1501 Park Street	Residential (irrigation)	4,203,600	0.6%	UNK
4495 Lake Avenue South	Residential	3,937,800	0.5%	UNK
4940 Highway 61	Commercial	3,850,875	0.5%	UNK
3666 Willow Lane	Residential (irrigation)	3,585,600	0.5%	UNK
4770 Centerville Road	Residential	3,540,000	0.5%	UNK
3675 Highland Avenue	Residential	3,472,800	0.5%	UNK
4780 Centerville Road	Residential	3,380,400	0.5%	UNK
1785 Elm Street	Residential (irrigation)	3,348,000	0.5%	UNK

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 4. 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 Treatment Plant	1965	7.2 Million	Chlorine Fluoridation Chemical Precipitation Filtration (Gravity) Sedimentation Stabilization	Disinfection Fluoridation Softening	0.8 MG	St. Paul Regional Water Services lime press, Farm field application	Yes

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?
Total	N/A	7.2 Million	N/A	N/A	0.8 MG	N/A	N/A

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 5. Storage capacity, as of the end of the last calendar year

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (Gallons)
Centerville Road	Elevated storage	1985	Steel	1 million
Century Avenue	Ground storage	1961	Steel	3 million
Clearwell	Ground storage	1965	Concrete	1 million
Total	NA	NA	NA	5 million

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 current storage capacity is 5 MG and the average daily demand is 2.4 MG. We expect our water demand to remain steady over the next 10 years. The City is fully developed and doesn't anticipate any major growth in the next 10 years. Any redevelopment that may increase demand will likely be offset by continued conservation measures.

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 6. 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	Jordan	014005 (#1)	1959	1100	490	Active Use	No
Groundwater	Ironton - Mt. Simon	222880 (#2)	1962	1650	970	Active Use	No
Groundwater	Prairie du Chien - Jordan	205733 (#3)	1966	2400	513	Active Use	Yes
Groundwater	Prairie du Chien - Jordan	226566 (#4)	1969	2570	476	Active Use	Yes
Groundwater	Jordan	226567 (#5)	1956	435	463	Emergency Only	No
Interconnection	White Bear Township (on Township Parkway)	N/A	1995	N/A	N/A	Emergency Only	No
Interconnection	White Bear Township (on Birch Lake Boulevard North)	N/A	2000	N/A	N/A	Emergency Only	No
Interconnection	White Bear Township (via Birchwood)	N/A	1982	N/A	N/A	Emergency Only	No
Interconnection	City of Mahtomedi (on County Road D)	N/A	1996	N/A	N/A	Emergency Only	No
Interconnection	City of Vadnais Heights (on Buerkle Road)	N/A	2014	N/A	N/A	Emergency Only	No

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.

None

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?

The total population served has declined due to an aging population in White Bear Lake remaining in the homes where they raised their families and overall smaller household sizes. The total number of connections has increased due to infill development and redevelopment. The total per capita water demand has decreased more than 20% in the past 10 years due to demographic trends of an aging population and concerted water conservation efforts. Maximum daily demand has trended downward significantly for the same reasons as well as a result of irrigation restrictions being implemented.

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 7. 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	23,931	24,831	90	2.23	5.1
2017	24,131	25,031	90	2.25	5.1
2018	24,231	25,131	107 *	2.69	5.1
2019	24,271	25,171	107	2.69	5.1
2020	24,300	25,200	107	2.70	5.1
2021	24,370	25,270	107	2.70	5.1
2022	24,440	25,340	107	2.71	5.1
2023	24,510	25,410	107	2.72	5.1
2024	24,580	25,480	107	2.73	5.1
2025	24,650	25,550	107	2.73	5.1
2030	25,000	25,900	107	2.77	5.1
2040	25,800	26,700	107	2.86	5.1

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

*A proposed meter replacement project will likely result in an increased sales volume registering due to higher accuracy of the new meters. 75 GPCD residential is anticipated.

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 City is fully developed and doesn't anticipate any major growth in the next 10 years. Any redevelopment that may increase demand will likely be offset by continued conservation measures. We are projecting a residential demand of 75 GPCD. If the demand does increase significantly, the City will adopt further conservation programs.

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 8. Information about source water quality monitoring

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
014005 (#1)	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☐Routine MDH sampling ☑Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☐ monthly ☐quarterly ☐annually	☐ SCADA ☑ grab sampling ☐ steel tape ☐ stream gauge
222880 (#2)	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☐Routine MDH sampling ☑Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☐ monthly ☐quarterly ☐annually	☐ SCADA ☑ grab sampling ☐ steel tape ☐ stream gauge
205733 (#3)	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☐Routine MDH sampling ☑Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☐ monthly ☐quarterly ☐annually	☐ SCADA ☑ grab sampling ☐ steel tape ☐ stream gauge
226566 (#4)	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☐Routine MDH sampling ☑Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☐ monthly ☐quarterly ☐annually	☐ SCADA ☑ grab sampling ☐ steel tape ☐ stream gauge
226567 (#5)	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☐Routine MDH sampling ☐Routine water utility sampling ☑ other	☐continuous ☐hourly ☐ daily ☐ monthly ☐quarterly ☑ annually	☐SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge ☑periodic inspection

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
014005 (#1)	Jordan	40	☐ Falling ☑ Stable ☐ Rising	MM/DD/YY:____ MM/DD/YY:____ MM/DD/YY:____
222880 (#2)	Ironton-Mt. Simon	2	☑ Falling ☐ Stable ☐ Rising	MM/DD/YY:____ MM/DD/YY:____ MM/DD/YY:____
205733 (#3)	Prairie du Chien - Jordan	80	☐ Falling ☐ Stable ☑ Rising	MM/DD/YY:____ MM/DD/YY:____ MM/DD/YY:____
226566 (#4)	Prairie du Chien - Jordan	50	☐ Falling ☐ Stable ☑ Rising	MM/DD/YY:____ MM/DD/YY:____ MM/DD/YY:____
226567 (#5)	Jordan	UNK	☐ 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 or goal*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored	Notes
☑ Lake	**White Bear Lake**	☐ None anticipated ☑ Water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☑ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☑ Other: **N&E Metro Groundwater Management Area Plan – Nov 2015**	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ No data available ☑ Other: **unknown – pending Supreme Court ruling**	☐Not applicable ☐ Change groundwater pumping ☑ Increase conservation ☑ Other **Monitor lake level and changes in precipitation. During extended drought periods, increase water conservation education.**	☐Not applicable ☑ Newly collected data will be analyzed ☑ Regular check-in with these partners: **DNR** ☐ Other: _____	**WMO:RCWD** **White Bear Lake is rated as potentially vulnerable to changes in deep aquifer levels (page 2-17 and Figure 2-9)** **WBL water level is tracked by the DNR. Lake level appears to be highly influenced by extreme drought / precipitation patterns, as the lake level has rebounded in recent years.**
☑ Lake	**Goose Lake**	☐ None anticipated ☑ water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles)	☐ Not applicable ☑ Additional data is needed to establish ☐ See report: _____ ☑ No data available ☑ Other: **A resource protection threshold/goal has not been**	☐Not applicable ☐ Change groundwater pumping ☑ Increase conservation ☑ Other **Monitor changes in precipitation. During extended drought periods,**	☐Not applicable ☐ Newly collected data will be analyzed ☑ Regular check-in with these partners: **DNR, VLAWMO** ☐ Other: _____	**WMO:VLAWMO** **Goose Lake is rated as potentially vulnerable to changes in deep aquifer levels (page 2-17 and Figure 2-9)**

Resource Type	Resource Name	Risk	Risk Assessed Through*	Describe Resource Protection Threshold or goal*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored	Notes
			☑ Other: **N&E Metro Groundwater Management Area Plan – Nov 2015**	**established for this lake.**	**increase water conservation education.**		
☑ Lake	**Birch Lake**	☐ None anticipated ☑ water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☑ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles ☑ Other: **N&E Metro Groundwater Management Area Plan – Nov 2015**	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ No data available ☑ Other: **A resource protection threshold/goal has not been established for this lake.**	☐Not applicable ☐ Change groundwater pumping ☑ Increase conservation ☑ Other **Monitor lake level and changes in precipitation. During extended drought periods, increase water conservation education.**	☐Not applicable ☐ Newly collected data will be analyzed ☑ Regular check-in with these partners: **DNR, VLAWMO** ☐ Other: _____	**WMO:VLAWMO** **Birch Lake is rated as potentially vulnerable to changes in deep aquifer levels (page 2-17 and Figure 2-9)** **Birch Lake water level is tracked by the DNR. Lake level appears to be influenced by extreme drought / precipitation patterns, as the water level has trended upward in the last 10 years**
☑ Lake	**Priebe Lake**	☐ None anticipated ☑ water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☑ Other: **N&E Metro Groundwater Management Area Plan – Nov 2015**	☐ Not applicable ☑ Additional data is needed to establish ☐ See report: _____ ☑ No data available ☐ Other: **A resource protection threshold/goal has not been established for this lake.**	☐Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other **Monitor changes in precipitation. During extended drought periods, increase water conservation education.**	☐Not applicable ☐ Newly collected data will be analyzed ☑ Regular check-in with these partners: **DNR** ☐ Other: _____	**WMO: RCWD** **Priebe Lake is rated as potentially vulnerable to changes in deep aquifer levels (page 2-17 and Figure 2-9)** **Note: The City is not aware of significant water level decline in Priebe Lake**

Resource Type	Resource Name	Risk	Risk Assessed Through*	Describe Resource Protection Threshold or goal*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored	Notes
☑ Wetland	**PWI 62-131W & 62-135W**	☐ None anticipated ☑ water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☑Other: **Plant community impacts**	☐ Geologic atlas or other mapping ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☑ WRAPS or other watershed report ☑ Other: **N&E Metro Groundwater Management Area Plan – Nov 2015**	☐ Not applicable ☑ Additional data is needed to establish ☐ See report: _____ ☑ No data available ☐ Other: **A resource protection threshold/goal for water level and plant community health has not been established for these wetlands**	☐Not applicable ☐ Change groundwater pumping ☑ Increase conservation ☑ Other **During extended drought periods, increase water conservation education.**	☐Not applicable ☐ Newly collected data will be analyzed ☑ Regular check-in with these partners: **DNR, RWMWD** ☐ Other: _____	**WMO: RWMWD** **The wetlands are rated as potentially vulnerable to changes in deep aquifer levels (page 2-17 and Figure 2-9).** **The wetlands are also identified as containing native plant communities that are associated with groundwater (Figure 2-7)** **Note: Figure 1-7 in the RWMWD 2017-2026 WMP identifies water resources that are vulnerable to changes in the groundwater system. These wetlands were not labeled as vulnerable in this figure.**
☑ Aquifer		☐ None anticipated ☑ water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☑Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles)	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ No data available ☑ Other: **A resource protection threshold/goal**	☐Not applicable ☑ Change groundwater pumping ☑ Increase conservation ☐ Other	☐Not applicable ☐ Newly collected data will be analyzed ☑ Regular check-in with these partners: **DNR** ☑ Other: **Measure static water level in well #2 each month**	**Aquifer levels measured in 3 of the 4 active City wells indicate a stable or rising water level. Well #2 (Ironton-Mt. Simon aquifer) indicates a falling water level (see Table 9 in this Plan).**

Resource Type	Resource Name	Risk	Risk Assessed Through*	Describe Resource Protection Threshold or goal*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored	Notes
			☐ Other: _____	**has not been established.**		**(Ironton-Mt. Simon aquifer) and email the results to the DNR Data System Coordinator.**	

* 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	☐ In Process ☑ Completed ☐ Not Applicable	August 15, 2012	2022
SWP	☐ In Process ☐ Completed ☑ Not Applicable	N/A	N/A

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	☐ No action planned - adequate ☑ Repair/replacement ☐ Expansion/addition	Ongoing, 2018, 2019, 2020	Inspection of each well on a 5 year cycle. Bailing of sand at the base of Well #4. New pump for Well #1 and #4.
Water Storage Facilities	☐ No action planned - adequate ☑ Repair/replacement ☐ Expansion/addition	Ongoing, 2018	Interior tank coating inspections on a 5 year cycle. Exterior painting of the 1MG reservoir.
Water Treatment Facilities	☐ No action planned - adequate ☑ Repair/replacement ☐ Expansion/addition	2017, 2019	Filter Bay trough inspection, Filter Bay painting, Lime Silo painting, Lagoon modifications, Water Plant roof repairs.
Distribution Systems (pipes, valves, etc.)	☐ No action planned - adequate ☑ Repair/replacement ☐ Expansion/addition	Ongoing	Repair of watermain breaks (approximately 18 annually). Repair & replacement of non-functioning valves & hydrants during street reconstruction projects. Water distribution system analysis.

System Component	Planned action	Anticipated Construction Year	Notes
Pressure Zones	☑ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition	N/A	N/A
Other:	☐ No action planned - adequate ☑ Repair/replacement ☑ Expansion/addition	2017 - 2020	SCADA upgrades. Water meter replacement program city-wide.

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	N/A				
Surface Water	N/A				
Interconnection to another supplier	N/A				

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	N/A					
☐ Surface Water	N/A					
☐ Reclaimed Stormwater	N/A					
☐ Reclaimed Wastewater	N/A					
☐ Interconnection to another supplier	N/A					

Part 2. Emergency Preparedness Procedures

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

A. Federal Emergency Response Plan

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

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

If yes, what was the date it was certified? 2016 (Ramsey County Emergency Response Plan)

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 Manager	Dale Hager, Police Captain	651-426-8553 CELL# 651-247-9439	dhager@whitebearlake.org
Emergency Response Lead	Paul Kauppi, Public Works Director	651-429-8531 CELL# 651-485-2591	pkauppi@whitebearlake.org
Alternate Emergency Response Lead	Mark Meyer, Public Works Superintendent	651-747-3654 CELL# 763-229-6637	mmeyer@whitebearlake.org
Water Plant Operator	Marty Wippler, Water Plant Lead Operator	651-779-5106 CELL# 651-485-8567	mwippler@whitebearlake.org

B. Operational Contingency Plan

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

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

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

C. Emergency Response Procedures

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

Emergency Telephone List

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

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

Current Water Sources and Service Area

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency

purposes. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

Do records and maps exist? ☑ Yes ☐ No

Can staff access records and maps from a central secured location in the event of an emergency?

☑ Yes ☐ No

Does the appropriate staff know where the materials are located?

☑ Yes ☐ No

Procedure for Augmenting Water Supplies

Complete Tables 16 – 17 by listing all available sources of water that can be used to augment or replace existing sources in an emergency. Add rows to the tables as needed.

In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Municipalities are encouraged to execute cooperative agreements for potential emergency water services and copies should be included in **Appendix 6**. 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
City of Mahtomedi	UNK	None	Manual Valve Operation
White Bear Township (via Birchwood)	UNK	None	Manual Valve Operation
White Bear Township (on Township Parkway)	UNK	None	Manual Valve Operation
White Bear Township (on Birch Lake Blvd North)	UNK	None	Manual Valve Operation
City of Vadnais Heights	UNK	None	Manual Valve Operation

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
N/A				

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

We have mutual aid agreements with surrounding municipalities and Ramsey County to provide emergency services. Ramsey County Emergency Operations Department will implement the Emergency Operations Plan.

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	1,510,000	330,000
Institutional	1	UNK	UNK
Commercial	2	140,000	30,000
Industrial	2	390,000	80,000
Irrigation	6	UNK	UNK
Wholesale	1	70,000	190
Non-Essential	6	UNK	UNK
TOTAL	N/A	2,110,000	440,190

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
☑Contamination ☑Loss of production ☑Infrastructure failure ☑Executive order by Governor ☐ Other: _____	☑ Supply augmentation through Interconnection ☑ 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 Interconnection ☑ 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
☑ Short-term demand reduction declared (< 1 year)	☑ Website ☐ Email list serve ☑ Social media (e.g. Twitter, Facebook) ☑ Direct customer mailing, ☑ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☑ Daily ☐ Weekly ☐ Monthly ☐ Annually	Local newspapers, TV stations
☑ Long-term Ongoing demand reduction declared	☑ Website ☐ Email list serve ☑ Social media (e.g. Twitter, Facebook) ☑ Direct customer mailing, ☑ Press release (TV, radio, newspaper), ☑ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☐ Daily ☑ Weekly ☐ Monthly ☐ Annually	Local newspapers, TV stations
☑ Governor's Critical water deficiency declared	☑ Website ☐ Email list serve ☑ Social media (e.g. Twitter, Facebook) ☑ Direct customer mailing, ☑ Press release (TV, radio, newspaper),	☑ Daily ☑ Weekly ☐ Monthly ☐ Annually	Local newspapers, TV stations

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
	☑ Meeting with large water users (> 10% of total city use) ☐ Other: _____		

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) ☑ Yes ☐ No

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

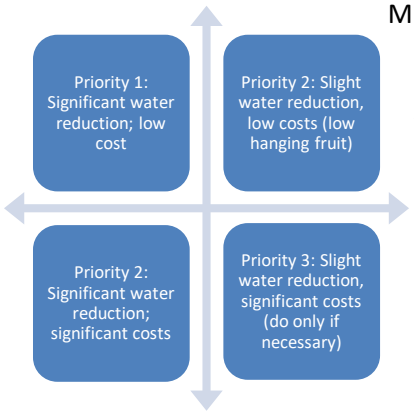
If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

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 401.090, 401.100 .

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

PART 3. WATER CONSERVATION PLAN



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

There are many incentives for conserving water; conservation:

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

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

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

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

Progress since 2006

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

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

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

Table 21. Implementation of previous ten-year Conservation Plan

2006 Plan Commitments	Action Taken?
Change Water Rates Structure to provide conservation pricing	☑ Yes ☐ No
Water Supply System Improvements (e.g. leak repairs, valve replacements, etc.)	☑ Yes ☐ No
Educational Efforts	☑ 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 ☐ No
Enforcement	☑ Yes ☐ No
Describe Other	☐ Yes ☐ No

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

Nearly $50,000 in rebates were awarded in 2016 for fixture and appliance retrofits. In general, it seems that the public's awareness of and participation in water conservation has improved significantly in recent years. This is evidenced by a 20% decline in total water demand in the past 10 years with approximately the same population.

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: _____
Short-term demand reduction (less than 1 year	☐ Extremely high seasonal water demand (more than double winter demand) ☑ Loss of treatment capacity ☑ Lack of water in storage ☑ State drought plan ☑ Well interference ☐ Other: _____	☐ 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 Interconnection ☑ Water allocation through Public Notice ☑ Meet with large water users to discuss user's contingency plan.
Long-term demand reduction (>1 year)	☑ 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	☑ Executive Order	☑ Restrict or suspend non-essential uses.

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%?

☐ **Yes** ☑ **No**

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

Periodic as needed.

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? 2015

Frequency of water audits: ☑ **yearly** ☐ **other (specify frequency) _____**
Leak detection and survey: ☐ **every year** ☐ **every other year** ☑**periodic as needed**
Year last leak detection survey completed: N/A

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

The unaccounted water is less than 10%. The City still strives to have this volume be as low as possible. Some City facilities are currently unmetered. In the next few years, meters will be added to these facilities. Over the past 5 years an effort has been undertaken to replace outdated commercial meters. Within the next 5 years, a program will be implemented to upgrade all residential meters city-wide. We expect the installation of new meters will result in more accurate readings which will likely show higher consumption than today, resulting in more water being accounted for.

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	7829	7829	UNK	3-5	___ / ___
Irrigation meters	243	243	UNK	3-5	___ / ___
Institutional	46	46	UNK	3-5	___ / ___
Commercial	441	441	UNK	3-5	___ / ___
Industrial	50	50	UNK	3-5	___ / ___
Public Facilities	14	14	UNK	3-5	___ / ___
Other	-	-	-	-	___ / ___
TOTALS	8623	8623	UNK		N/A

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.

The unmetered water consists of only a few City parks irrigation systems. Within the next 5 years, meters will be added to these systems to monitor water usage. Over the past 5 years an effort has been undertaken to replace outdated commercial meters. Within the next 5 years, a program will be implemented to upgrade all residential meters city-wide.

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)	4	Annual	4	___ / As necessary
Treatment Plant				___ / New in 2016

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

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

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

What was your 2005 – 2014 ten-year average residential per capita water demand? 70 g/person/day

Describe the water use trend over that timeframe:

Residential per capita water demand has fluctuated slightly from year to year, with a general trend of decreased demand in the past 10 years.

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.	Ongoing as technology evolves.
☑ 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	Ongoing as technology evolves and plumbing codes change.
☑ Revise ordinances to limit irrigation. Describe the restricted irrigation plan:	Ongoing.
☑ 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.	Ongoing as technology evolves.
☑ Make water system infrastructure improvements	Ongoing.
☑ Offer free or reduced cost water use audits) for residential customers.	Ongoing as technology evolves and plumbing codes change.
☑ Implement a notification system to inform customers when water availability conditions change.	Ongoing.
☑ 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.)	Ongoing as technology evolves and plumbing codes change.
☑ 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.)	Ongoing as technology evolves.
☑ Identify supplemental Water Resources	Ongoing.
☑ 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	Ongoing
☑ Install enhanced meters capable of automated readings to detect spikes in consumption	Ongoing
☑ 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.),	Ongoing
☑ Install water conservation fixtures and appliances or change processes to conserve water	Ongoing
☑ Repair leaking system components (e.g., pipes, valves)	Ongoing
☑ Investigate the reuse of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	Ongoing
☑ Reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	Ongoing
☑ Train employees how to conserve water	Ongoing
☑ Implement a notification system to inform non-residential customers when water availability conditions change.	As needed with emergency conservation measures.
☑ 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	Ongoing
☐ 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.

The per capita water demand for all customer categories has decreased in the past 10 years due to demographic trends of an aging population and concerted water conservation efforts. We expect that installation of new water meters proposed for 2018 will result in more accurate readings which will likely show higher consumption than today. This water is likely being used by customers today, but not being accounted for due to older meters. 75 GPCD residential is anticipated in the future, with other customer categories showing an increase in 2018 as well. The City is fully developed and doesn't anticipate any major growth in the next 10 years. Any redevelopment that may increase demand will likely be offset by continued conservation measures. Therefore we expect per capita demand to remain relatively constant for the next 10 years.

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? ☐ Yes ☑ No

Calculate a ten year average (2005 – 2014) of the ratio of maximum day demand to average day demand: 2.2

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 799 cubic feet ___ other

Frequency of billing: ☐ Monthly ☐ Bimonthly ☑ Quarterly ☐ Other: _____

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

Date of last rate change: 2/3/16

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	☐ Monthly Billing ☐ Increasing block rates (volume tiered rates) ☑ Seasonal rates ☐ Time of Use rates ☐ Water bills reported in gallons ☐ Individualized goal rates ☑ Excess Use rates ☐ Drought surcharge ☐ Use water bill to provide comparisons ☐ 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)

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
Commercial/ Industrial/ Institutional	☐ Monthly Billing ☐ Increasing block rates ☑ Seasonal rates ☐ Time of Use rates ☐ Bill water use in gallons ☐ Individualized goal rates ☑ Excess Use rates ☐ Drought surcharge ☐ Use water bill to provide comparisons ☐ 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:

N/A

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

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

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

☑	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)
☑	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 (Race2Reduce program through school district)
☐	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?

Success will be measured by total demand, per capita demand, and participation in the rebate program.

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	☐ ☑Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☑ Water efficient plumbing fixtures required	☑New Development ☑Replacement ☑Rebate Programs ☑ State Plumbing Code
☑ Critical/Emergency Water Deficiency ordinance	☑ Only during declared Emergencies
☑ Watering restriction requirements (time of day, allowable days, etc.)	☐ Odd/Even ☐ 2 days/week ☐ Only during declared Emergencies ☑ Hourly
☐ Water waste prohibited (for example, having a fine for irrigators spraying on the street)	☐ -Ongoing ☐ Seasonal ☐ Only during declared Emergencies

Regulations Utilized	When is it applied (in effect)?
☐ Limitations on turf areas (requiring lots to have 10% - 25% of the space in natural areas)	☐ New Development ☐ Shoreland/zoning ☐ Other
☐ Soil preparation requirements (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)	☑We do not have any ordinances regarding stormwater reuse, but do allow such systems to be installed.

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
☑ low flush toilets, ☐ toilet leak tablets, ☐ low flow showerheads, ☐ faucet aerators;	☑ Education about ☐ free distribution of ☑ rebate for ☐ other	☐ Gas company ☐ Electric company ☐ Watershed organization ☑ Metropolitan Council

Water Use Targets	Outreach Methods	Partners
☑ water conserving washing machines, ☐ dish washers, ☐ water softeners;	☑ Education about ☐ free distribution of ☑ rebate for ☐ other	☐ Gas company ☐ Electric company ☐ Watershed organization ☑ Metropolitan Council
☑ irrigation controllers,	☑ Education about ☐ free distribution of ☑ rebate for ☐ other	☐ Gas company ☐ Electric company ☐ Watershed organization ☑ Metropolitan Council
☑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.):

In 2016 the City received a grant of approximately $50,000 from Metropolitan Council to institute a rebate program for WaterSense certified toilets, Energy Star certified clothes washers, and WaterSense irrigation controllers. As of the date of this plan, over $44,000 of the grant funds have been distributed to qualifying property owners. Over 240 toilets, 40 clothes washers, and 6 irrigation controllers have been installed. These fixtures and appliances will save an estimated 5.0 million gallons of water per year. In recognition of this program's success, the City hopes to continue rebates in the future if grant funds are available.

82 rain barrels were sold through the City to residents at cost.

C. Education and Information Programs

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

Proposed Education Programs

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

Table 31. Current and Proposed Education Programs

Education Methods	General summary of topics	#/Year	Frequency
Billing inserts or tips printed on the actual bill	Water conservation	4	☑ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Consumer Confidence Reports	Water quality	1	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Press releases to traditional local news outlets (e.g., newspapers, radio and TV)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Social media distribution (e.g., emails, Facebook, Twitter)	Water conservation, efficiency rebates		☑ 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	Water Conservation Event	1	☐ Ongoing ☑ Seasonal ☐ Only during declared Emergencies
Staff training	Water Conservation Event		☐ Ongoing ☑ Seasonal ☐ Only during declared Emergencies
Facility tours			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Displays and exhibits	Water Conservation Event		☐ Ongoing ☑ Seasonal ☐ Only during declared Emergencies
Marketing rebate programs (e.g., indoor fixtures & appliances and outdoor practices)	Conservation		☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Community news letters	Conservation, water quality	2	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Direct mailings (water audit/retrofit kits, showerheads, brochures)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies

Education Methods	General summary of topics	#/Year	Frequency
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			☐ Ongoing ☐ 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)	Race2Reduce (program through school district)		☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Community Events (children's water festivals, environmental fairs)	Water Conservation Event	1	☐ Ongoing ☑ Seasonal ☐ Only during declared Emergencies
Community education classes			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Water Week promotions			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Website (include address: www.whitebearlake.org)	Conservation		☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Targeted efforts (large volume users, users with large increases)	Water use (changing meters)		☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Notices of ordinances			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Emergency conservation notices			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies

Education Methods	General summary of topics	#/Year	Frequency
Other:			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies

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

All efforts are ongoing.

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	Ongoing	Neighboring municipalities
☐ 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
- ☐ 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

APPENDICES TO BE SUBMITTED BY THE WATER SUPPLIER

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 1

WELL RECORDS AND MAINTENANCE SUMMARIES

WELL RECORDS AND MAINTENANCE SUMMARIES

The four production wells are inspected and maintained on a 5-year rotating cycle. Each pump is pulled and the condition of the well casing, pump, and motor are all inspected at that time. Repairs and/or replacement of components are performed as needed. The depth of the sand cone at the bottom of the well is measured and if bailing of the sand is needed, this is also performed while the pump is out.

Well #1 – Inspected in 2010 and 2015. This well was bailed in 2010. The next inspection is scheduled for 2020 at which time we anticipate the need for a new pump, and the motor may require re-winding.

Well #2 – Inspected in 2011. This well is not used on a regular basis, so the next inspection is scheduled for 2021. We anticipate removing the expansion tank connected to this well in 2021.

Well #3 – Inspected in 2008 and 2013. This well was bailed in 2008. The next inspection is scheduled for 2018.

Well #4 – Inspected in 2009 and 2014. The next inspection is scheduled for 2019 at which time we anticipate the need for a new pump, and bailing of sand.

APPENDIX 2

WATER LEVEL MONITORING PLAN

WATER LEVEL MONITORING PLAN

Table 1. City of White Bear Lake Water Level Monitoring

Well Name	Unique Well #	Monitoring Location	Water Level Reading Freq.(1)	Reporting Frequency	Instrumentation Type	Hand Calibration Frequency	Well inspection
Well #1	014005	At the well	Continuous	NA	Transducer	Every 5 years	Every 5 years
Well #2	222880	At the well	Continuous	Monthly(2)	Transducer	Every 5 years	Every 5 years
Well #3	205733	At the well	Continuous	NA	Transducer	Every 5 years	Every 5 years
Well #4	226566	At the well	Continuous	NA	Transducer	Every 5 years	Every 5 years
Well #5	226567	Inactive					

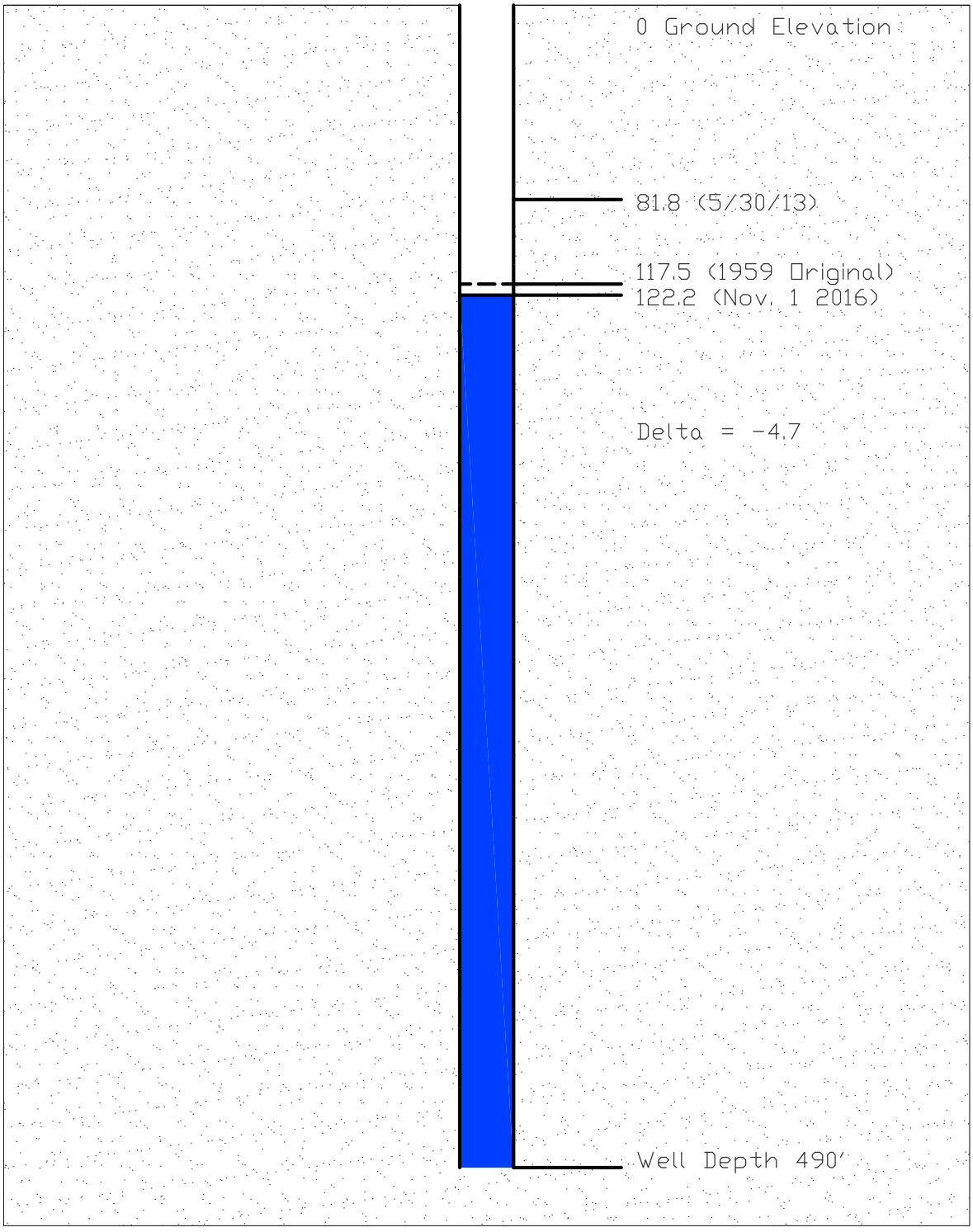
(1) All water levels in the City's four production wells are recorded continuously by a SCADA system and monitored routinely by Water Division staff.

(2) The City will measure the static water levels in the Ironton-Mt. Simon production well (well #2) each month. Records of monthly water level measurements will be entered into the provided Groundwater Level Monitoring Spreadsheet and e-mailed to the DNR Data System Coordinator at gwlevelcoor.dnr@state.mn.us

APPENDIX 3

WATER LEVEL GRAPHS for EACH WATER SUPPLY WELL

Well #1 Static Water Levels



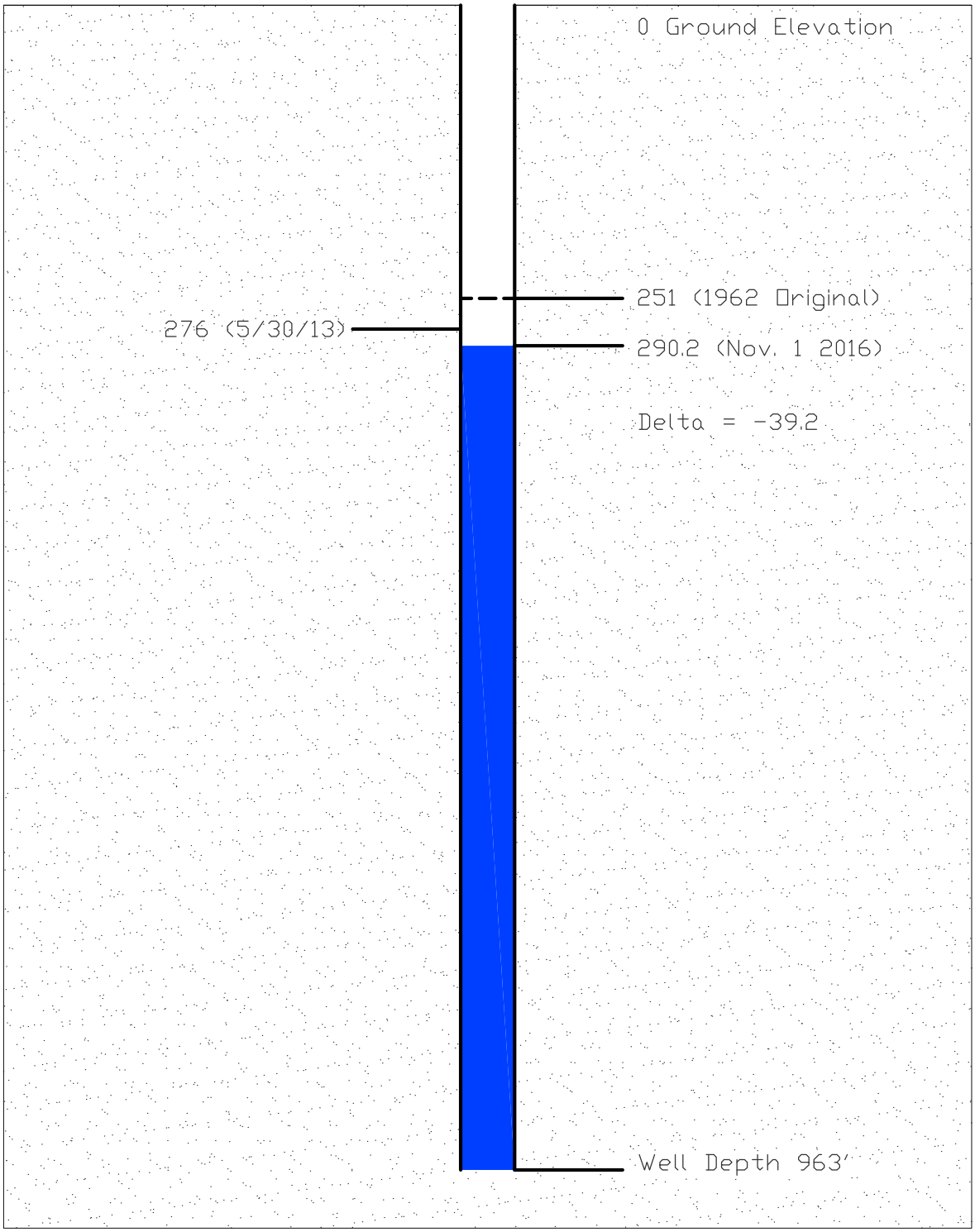
Jordan Aquifer

WELL DIAGRAM

White Bear Lake Municipal Well #1
Originally Constructed in 1959

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

Well #2 Static Water Levels



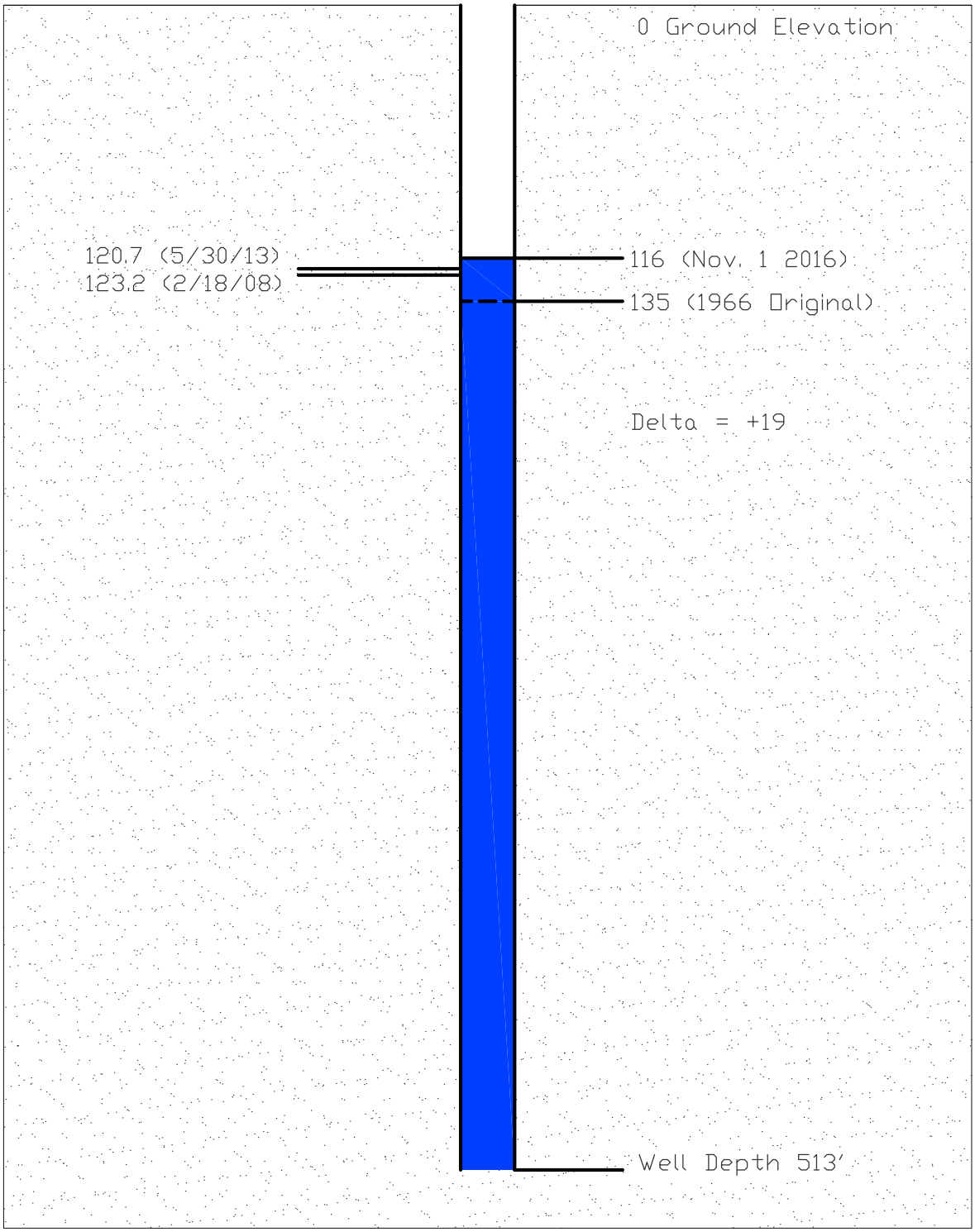
Ironton-MtSimon Aquifer

WELL DIAGRAM

White Bear Lake Municipal Well #2
Originally Constructed in 1962

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

Well #3 Static Water Levels



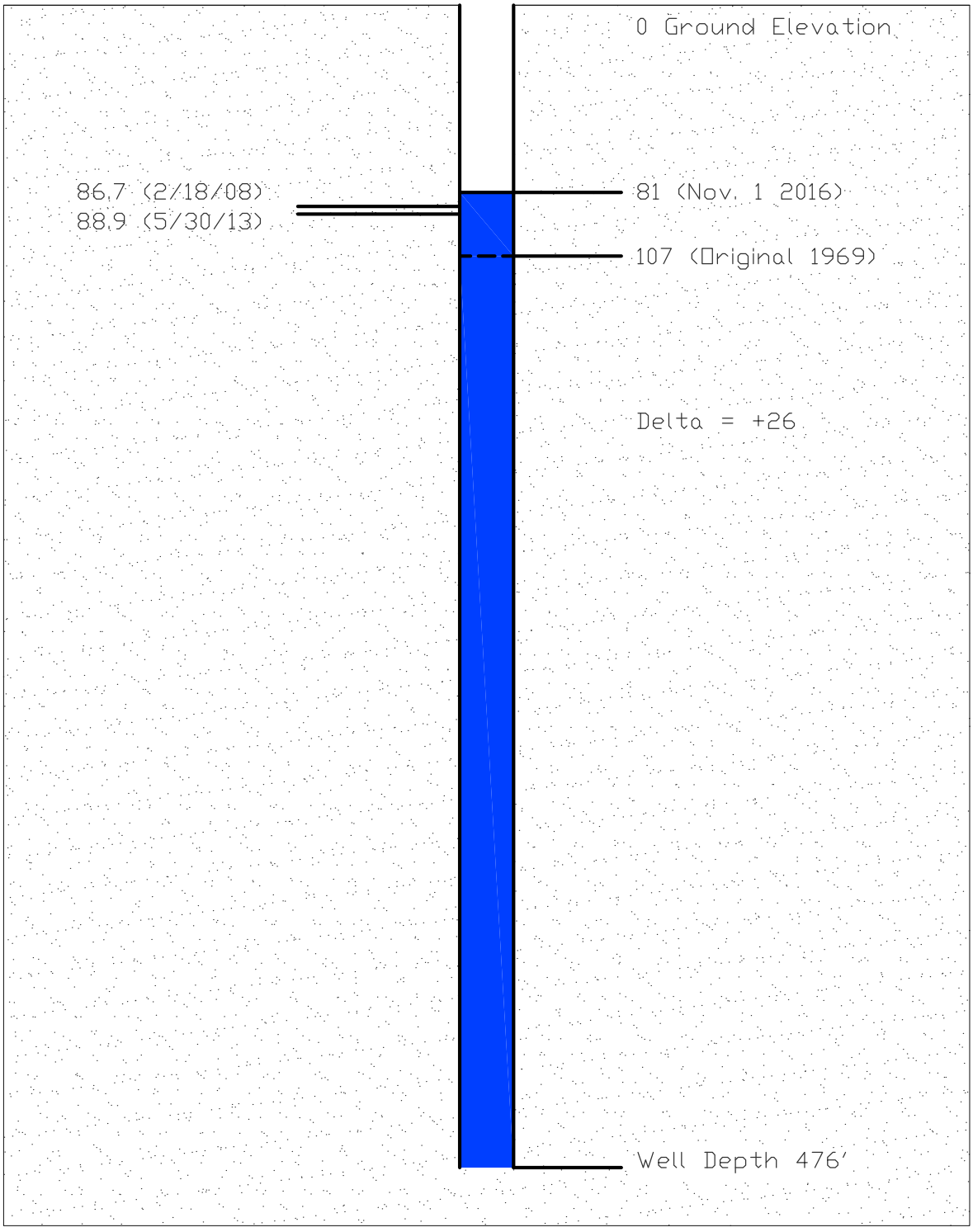
Prairie Du Chien-Jordan Aquifer

WELL DIAGRAM

White Bear Lake Municipal Well #3
Originally Constructed in 1966

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

Well #4 Static Water Levels



Prairie Du Chien-Jordan Aquifer

WELL DIAGRAM

White Bear Lake Municipal Well #4
Originally Constructed in 1969

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

APPENDIX 4

CAPITAL IMPROVEMENT PLAN

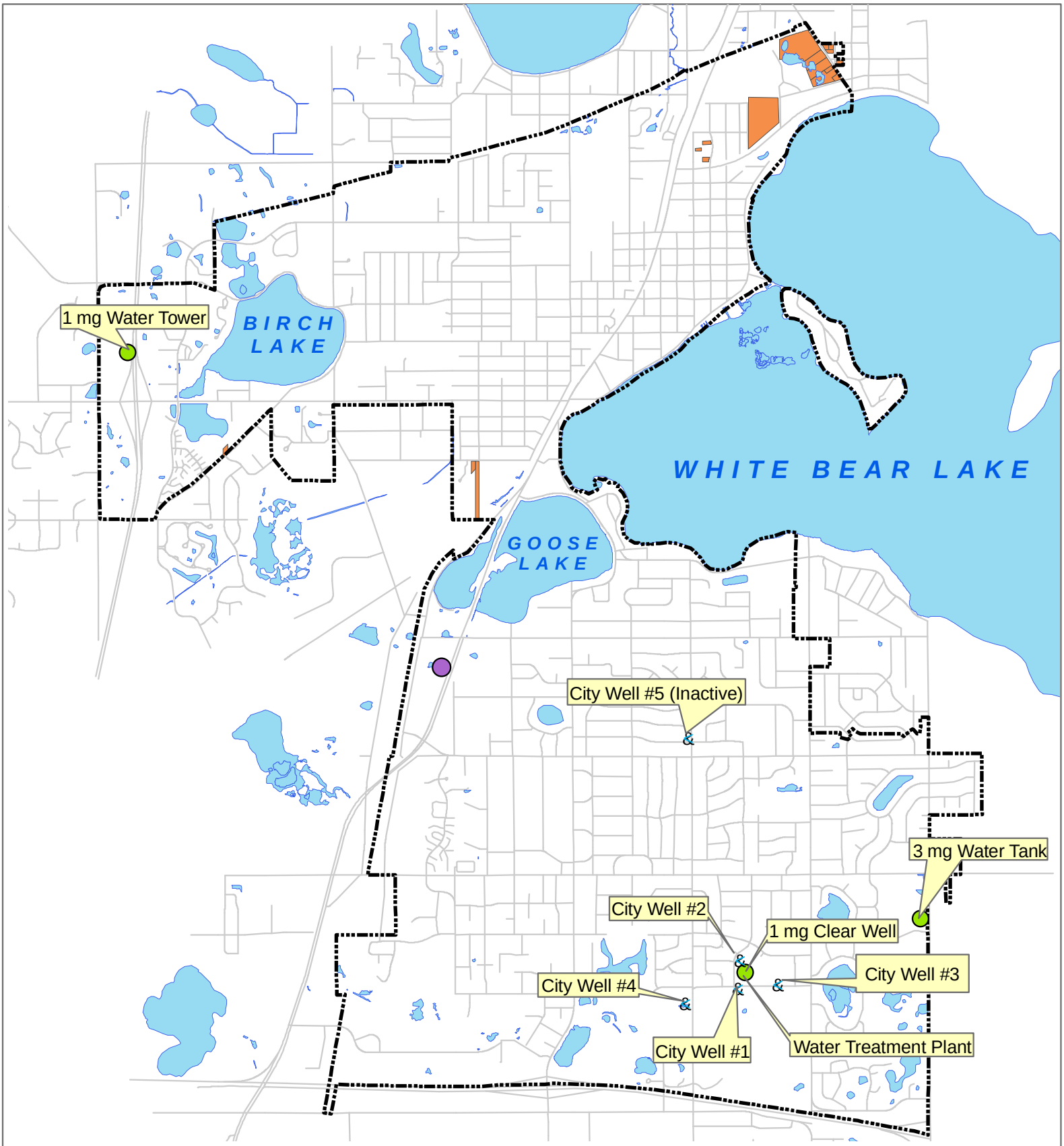
City of White Bear Lake
Capital Improvement Plan
2016 – 2020

WATER DIVISION

The Water Division operates, maintains and repairs all facilities necessary for the production, treatment, storage, and distribution of water to residents and commercial/industrial establishments in White Bear Lake. The City of White Bear Lake draws water from four deep wells, which is pumped from underground aquifers to the Water Treatment Plant where the raw water is softened and filtered to remove sediments, and disinfected with chlorine and fluoridated for dental health. The treated water is then pumped from the Water Treatment Plant into the distribution system and stored in 3 reservoirs throughout the city.

Planned expenditures include routine inspection and maintenance of wells and pumps, treatment plant boiler replacement, brick repairs, exterior painting and roof repairs, reservoir painting, SCADA upgrades, and replacement of customer meters.

A map of the Water Division infrastructure is included on the next page.



Commercial Well (1)

City Reservoir (3)

& City Well (5)

Private Wells (17)

R

0 1,500 3,000 Feet

CITY OF WHITE BEAR LAKE
2030 COMPREHENSIVE PLAN
WELLS MAP

Created February 26, 2008
By the Community Development Department
Utilizing Ramsey County GIS Data
For More Information, Call 651-429-8561

Page 7

WATER DIVISION SUMMARY

	2016	2017	2018	2019	2020	Total
Expenditures						
Wells	-	3,000	25,000	58,000	40,000	126,000
Water Treatment Plant	196,000	195,000	-	-	-	391,000
Water Storage Facilities	3,000	-	900,000	-	-	903,000
Other	50,000	50,000	25,000	25,000	25,000	175,000
Total Expenditures	***$ 249,000***	***$ 248,000***	***$ 950,000***	***$ 83,000***	***$ 65,000***	***$ 1,595,000***
Funding						
Interim Construction Fund	-	-	50,000	-	-	50,000
Municipal Building Fund	-	-	500,000	-	-	500,000
Park Improvement Fund	-	-	50,000	-	-	50,000
Water Improvement Fund	249,000	248,000	350,000	83,000	65,000	995,000
Total Revenues	***$ 249,000***	***$ 248,000***	***$ 950,000***	***$ 83,000***	***$ 65,000***	***$ 1,595,000***

2016	2017	2018	2019	2020	Total

WATER DIVISION

Project Name: Wells

Project Year: 2017, 2018, 2019 and 2020

Description and Location

Periodically remove and inspect wells. Minor maintenance and repair of the pumps or motors may be needed. Occasionally bailing of sand buildup at the base of the well is needed. Inspection of each well is on a 5-year cycle.

Improvements

Well #1 – Anticipate new pump in 2020, check motor also in 2020.
Well #2 – Not used on a regular basis, inspect in 2021.
Well #3 – landscape around well house. Inspect in 2018.
Well #4 – Inspect, bail, and possible new pump in 2019.

Expenditures	2016	2017	2018	2019	2020	Total
Well No. 1	-	-	-	-	40,000	40,000
Well No. 2	-	-	-	-	-	-
Well No. 3	-	3,000	25,000	-	-	28,000
Well No. 4	-	-	-	58,000	-	58,000
Total	$ -	$3,000	$25,000	$58,000	$40,000	$126,000
Funding						
Water Improvement Fund	-	3,000	25,000	58,000	40,000	126,000
Total	$ -	$3,000	$25,000	$58,000	$40,000	$126,000

Operations and Operating Costs Impacts

Ensuring equipment is operating properly improves pumping efficiency and thereby energy usage.

WATER DIVISION

Project Name: Water Treatment Plant

Project Year: 2016 and 2017

Description and Location

Located at 2401 Orchard Lane. The Water Treatment Plant was built in 1965 and supplies portable water for the 26,000 residents of White Bear Lake, Birchwood and portions of Mahtomedi and White Bear Township. The water is pumped from four deep wells. The Water Treatment Plant has the capability of producing 7.2 million gallons per day of softened water.

Improvements

This project will continue the progress that has been made in updating and improving the Water Treatment Plant building, components within the plant and surrounding grounds.

The lagoon was originally built to dispose of lime sludge, the byproduct of our water softening operation. The lagoon is no longer in use because the sludge is hauled to St. Paul Regional Water Service plant. The lagoon structure is becoming unsafe and needs to either be demolished or stabilized and possibly repurposed for cold storage.

Expenditures	2016	2017	2018	2019	2020	Total
Water Plant boiler replacement	70,000	-	-	-	-	70,000
Water Plant roof repair	25,000	-	-	-	-	25,000
Garage replacement	7,000					7,000
Filter Bay trough inspection	X	-	-	-	-	X
Filter Bay painting	-	90,000	-	-	-	90,000
Lime Silo painting	15,000	-	-	-	-	15,000
Water Plant fence repair	5,000	5,000	-	-	-	10,000
Water Plant brick repair	60,000	-	-	-	-	60,000
CO2 Tank painting touch-up	5,000	-	-	-	-	5,000
Lagoon/Cold Storage facility	5,000	100,000	-	-	-	105,000
Pipe Gallery lighting upgrade	4,000	-	-	-	-	4,000
Total	$196,000	$195,000	$ -	$ -	$ -	$391,000
Funding						
Water Improvement Fund	196,000	195,000	-	-	-	391,000
Total	$196,000	$195,000	$ -	$ -	$ -	$391,000

WATER DIVISION

Project Name: Water Storage Facilities

Project Year: 2016 and 2018

Description and Location
Protective coating for elevated storage tanks.

Improvements
Exterior painting for the 1 MG Reservoir and interior coating inspections for both the 1 MG and 3 MG Reservoir. To paint the exterior, the tower will have to be shrouded and temporary cell towers erected on site to maintain service.

Expenditures	2016	2017	2018	2019	2020	Total
1 MG reservoir – exterior painting	-	-	900,000	-	-	900,000
1 MG reservoir – interior coating inspection	1,500	-	-	-	-	1,500
3 MG reservoir – interior coating inspection	1,500	-	-	-	-	1,500
Total	$3,000	$ -	$900,000	$ -	$ -	$903,000

Funding						
Interim Construction Fund	-	-	50,000	-	-	50,000
Municipal Building Fund	-	-	500,000	-	-	500,000
Park Improvement Fund	-	-	50,000	-	-	50,000
Water Improvement Fund	3,000	-	300,000	-	-	303,000
Total	$3,000	$ -	$900,000	$ -	$ -	$903,000

WATER DIVISION

Project Name: Other

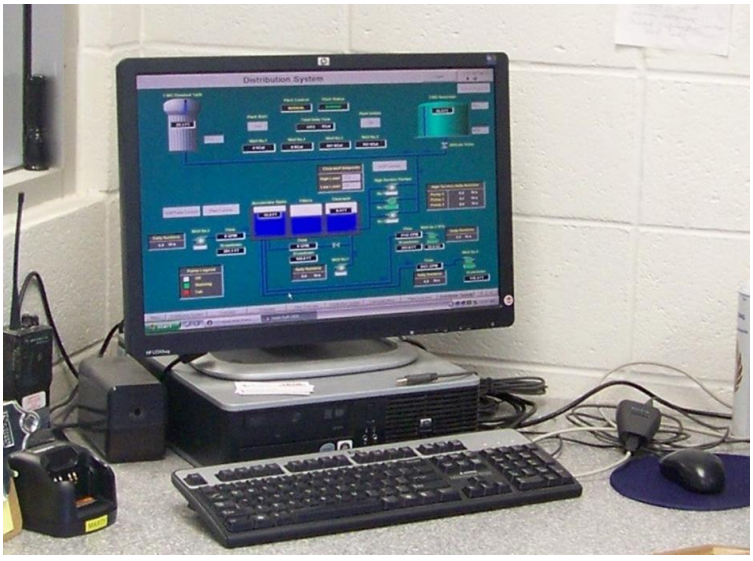
Project Year: 2016, 2017, 2018, 2019 and 2020

Description and Location

SCADA (supervisory control and data acquisition) is a software application program for the gathering of data in real time from remote locations in order to control equipment and conditions. The SCADA system monitors and controls all water system operations including wells, treatment plant and reservoirs.

Improvements

Upgrade SCADA system to allow better control of water system operations. Replacement of residential and commercial water meters that reach the end of their service life. Customers would likely be billed for the meter replacement but funds would be required to cover the cost up front.



Expenditures	2016	2017	2018	2019	2020	Total
SCADA upgrades	50,000	25,000	-	-	-	75,000
Meter replacement program	-	25,000	25,000	25,000	25,000	100,000
Total	$50,000	$50,000	$25,000	$25,000	$25,000	$175,000
Funding						
Water Improvement Fund	50,000	50,000	25,000	25,000	25,000	175,000
Total	$50,000	$50,000	$25,000	$25,000	$25,000	$175,000

Operations and Operating Costs Impacts

Replacing customers' water meters will provide a more accurate reading of their water usage.

APPENDIX 5

EMERGENCY TELEPHONE LIST

Appendix 5

City of White Bear Lake

Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
City Emergency Manager	Dale Hager, Police Captain	651-429-8553	651-247-9439
Emergency Response Lead	Paul Kauppi, Public Works Director	651-429-8531	651-485-2591
Alternate Emergency Response Lead	Mark Meyer, Public Works Superintendent	651-747-3654	763-229-6637
Water Operator	Marty Wippler	651-779-5106	651-343-3170
Alternate Water Operator	On Call	651-485-8567	
Public Communications	Kara Coustry, City Clerk	651-429-8508	
City Manager	Ellen Hiniker	651-429-8516	651-338-0531

State and Local Emergency Response Contacts	Name	Work Telephone	Alternate Telephone
State Incident Duty Officer	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
County Emergency Management Director	Judd Freed	651-266-1020	
County Emergency Management Coordinator	Kristin Sailer		
National Guard	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
Mayor/Board Chair	Jo Emerson	651-653-0731	
Fire Chief		651-429-8567	
Sheriff	Ramsey County	651-266-9333	
Police Chief	Julie Swanson	651-429-8551	651-245-6462
Ambulance			
Hospital			
Doctor or Medical Facility			

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer	Lucas Martin	651-201-4144	651-201-4700
MDH	Drinking Water Protection	651-201-4700	
State Testing Laboratory	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
MPCA	Minnesota Duty Officer	800-422-0798 Out State	651-649-5451 Metro
DNR Area Hydrologist	Jenifer Sorensen	651-259-5754	
County Water Planner			

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Xcel Energy	800/895-1999	
Gas Company	Xcel Energy	800/895-2999	911
Telephone Company	Century Link	800/223-7508	
Gopher State One Call	Utility Locations	800-252-1166	651-454-0002
State Highway Department	MnDOT	651-234-7110	
County Highway Department	Ramsey County	651-266-7100	

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System			
Emergency Water Connection	Bruce Thielen, City of Mahtomedi	651-773-9730	
Emergency Water Connection	Dale Reed, White Bear Township	651-747-2777	
Emergency Water Connection	Jesse Farrell, City of Vadnais Heights	651-204-6050	

Materials			
Wholesale Customer	Dale Powers, City of Birchwood Village	651-426-3403	
Wholesale Customer	Dale Reed, City of Gem Lake	651-747-2777	

Technical/Contracted Services/Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800-367-6792	
Well Driller/Repair	Keys Well Drilling	651-696-7871	
Pump Repair	General Repair	651-766-0874	
Electrician	Cap Electric	651-426-4600	
Plumber	Hugo Plumbing	651-433-4866	
Backhoe	Capra Utilities	651-762-2500	
Chemical Feed	DPC Industries	651-437-1333	
Meter Repair	Ferguson	612-850-4050	
Generator	Cummins	651-636-1000	
Valves	Ferguson	651-850-4050	
Pipe & Fittings	Minnesota Pipe	651-463-6090	
Water Storage			
Laboratory	Twin Cities Water Clinic	952-935-3556	
Engineering firm			

Communications	Name	Work Telephone	Alternate Telephone
News Paper	White Bear Press, Debra Neutkens	651-407-1230	
Radio Station	WCCO	612-370-0611	
School Superintendent	Michael Lovett	651-407-7563	
Property & Casualty Insurance	Beulke Insurance	651-429-3383	

Critical Water Users	Name	Work Telephone	Alternate Telephone
Hospital Critical Use:			
Nursing Home Critical Use:			
Public Shelter Critical Use:			

WATERMAIN BREAK PROCEDURES

1. Go to location and verify.
2. If on a weekend, check with supervisor to see when break should be repaired before you schedule it. Example: should repair be done on the weekend or wait until Monday morning.
3. Check on map to locate gate valves. Turn off valves that will not affect residents' water. Throttle down last gate valve, preferably closest to the break area so that residents have water and water flows less.
4. Barricade any areas that will be a problem for pedestrian or vehicle traffic.
5. Call Gopher State 1 Call for an Emergency Locate.

   Phone 651-454-0002

   Our called ID# is 1112 and we are in Ramsey County, must have exact address & cross street and a very good idea of the area to be marked.
6. Call Metro Leak Detection to pin point break location.

   Dean Mortenson @ 612-730-9226.
7. Call Capra Utility Company to dig/repair break

   Available 24-7-365

   Business # 651-762-2500

   Mike Capra mobile # 651-248-0707

   Mike Capra home # 651-351-7857

   Email: mikelcapra@yahoo.com
8. When confirmed data and time is known, notify all residents and businesses in the area as soon as possible. Let them know their water will be shut off and an approximate time it will be turned back on. Be sure to include ample time for potential problems.

APPENDIX 6

COOPERATIVE AGREEMENTS for EMERGENCY SERVICES

CITY OF WHITE BEAR LAKE - CITY OF MAHTOMEDI
CONTRACT FOR EMERGENCY WATER SUPPLY

THIS AGREEMENT made and entered into this ____ day of _____, 1996, by and between the City of White Bear Lake, a municipal corporation in Ramsey County, Minnesota, hereinafter called "White Bear", and the City of Mahtomedi, a municipal corporation in Washington County, Minnesota, hereinafter called "Mahtomedi".

WITNESSETH:

WHEREAS, it is deemed desirous by the governing bodies of the respective municipalities, parties to this Agreement, that White Bear sell and Mahtomedi buy water meeting current State health standards, produced from the water works system of White Bear, at a fair, just, reasonable, and equitable rate during the term of this contract; and

WHEREAS, the water works system of White Bear produces water in quantities sufficient to meet the obligations of this Agreement;

NOW, THEREFORE, it is mutually agreed as follows:

1. Agreement Duration. The terms and conditions hereinafter provided shall be in effect for a period of ten (10) years unless it is mutually agreed by both parties to end the Agreement before that time.

2. Sale of Water. That White Bear shall sell, furnish, and deliver to Mahtomedi water from the water works system of White Bear for the use of Mahtomedi when Mahtomedi is experiencing emergency water supply conditions.

3. Supply of Water.

   a. White Bear will deliver to Mahtomedi, on demand during emergency water supply conditions, such amount of water as is needed by Mahtomedi. "On demand" is defined as a continuous supply of water instantaneously available. "Emergency water supply conditions" is defined as any period of time when pressure in the Mahtomedi water supply system drops below 35 psi. It is intended that the emergency water supply will be used for emergency fire protection of Mahtomedi's industrial customers which are located in the southwestern part of Mahtomedi.

   b. Although White Bear agrees to furnish as much water in emergency conditions as needed by Mahtomedi, White Bear does not guarantee such amount in the event sufficient water is not available for any reason whatsoever, except that arbitrary and capricious refusal shall not constitute a valid reason for not delivering said amount of water.

c. White Bear does not guarantee to Mahtomedi that White Bear will deliver water to Mahtomedi at any definite amount of watermain pressure, excepting as the White Bear water system as now constructed and operated will supply to Mahtomedi.

4. Investment in Facilities. White Bear shall make investment in and retain title to all facilities necessary to the production, storage, and transmission of water up to the point of delivery of water to Mahtomedi.

Mahtomedi shall make investments in and retain title to all facilities necessary to the metering, transmission, storage, and distribution of water from the point of delivery of water to Mahtomedi.

5. Delivery - Measurement. Water shall be furnished and delivered by White Bear to Mahtomedi in accordance with the rules and regulations of White Bear insofar as they apply to the operation of its water department and are not in conflict with the provisions of this contract. The water shall be measured by a master meter to be furnished and maintained by Mahtomedi at its own cost and expense at such reasonable location to be designed by Mahtomedi and approved by White Bear, and such meter shall be of suitable make and setting and shall be installed and housed properly, subject to the reasonable approval of White Bear. Such meter shall be subject to testing upon request to one party by the other party. Both parties shall coordinate removal and testing of the meter within a reasonable time from the meter testing request. If the meter is found to be operating within the rated accuracy of the meter, the party that requested the meter reading shall be responsible for paying the costs associated with meter reading. If the meter, as determined by meter testing, is found to be operating outside the rated accuracy of the meter, the total water volume discrepancies will be mutually determined and agreed upon by both parties. The mutually agreed upon water volume discrepancies shall be promptly paid, at the rates set forth in this agreement. If the meter is found to be operating outside the rated accuracy of the meter, the cost for meter reading shall be paid for by the party that has benefited from the meter inaccuracy. All water furnished as herein provided shall be transmitted to the point of delivery through approved valves, watermains, and connections furnished by Mahtomedi.

6. Maintenance. Mahtomedi will finance and maintain at no expense to White Bear its entire Mahtomedi water system from the point of delivery to Mahtomedi, and the maintenance of the system shall be performed by a Mahtomedi service crew.

7. Supplements to Water. Mahtomedi reserves the right to supplement its water supply with any supply approved by the State Board of Health, provided that no such supplemental water will be allowed to enter the water system of White Bear and any connection or transmission of supplemental water through mains transmitting water purchased from White Bear shall be subject to approval of the White Bear Engineer, provided, however, that such approval shall not be arbitrarily withheld.

8. Use of White Bear Streets. Mahtomedi is hereby granted the power and authority to enter upon the streets under the jurisdiction of White Bear to lay, construct, maintain, and operate necessary watermains within White Bear city limits to reach the point of delivery. All such installations, operations, and maintenance shall be the cost and expense of Mahtomedi, and shall be made in accordance with the ordinances and regulations of White Bear at locations suitable to Mahtomedi and designated by White Bear. Prior to any construction, excavation, or maintenance, Mahtomedi shall submit plans and specifications to the White Bear Engineer for approval.

9. Liability of White Bear. White Bear shall not be liable for reasonable interruptions in service, provided, however, that White Bear shall not discriminate against Mahtomedi in the event of any such interruptions or for failure to deliver water which results from failure of supply, inability to secure necessary processing materials, breakdown or damage to processing, pumping, or transmission facilities, work stoppage, or other conditions beyond the control of White Bear.

10. Default. White Bear shall have the right to terminate water service to Mahtomedi in the event that Mahtomedi fails to comply with any of the terms and conditions of this Agreement or to pay the charges lawfully due White Bear within 120 days after becoming due. However, such service may be terminated only after reasonable notice to Mahtomedi, and Mahtomedi shall have a reasonable opportunity to correct any condition which is cited by White Bear as a cause for termination of water service. Sixty days notice shall be considered a reasonable time for terminating service for failure to pay water charges when due.

11. Indemnification. Mahtomedi agrees to indemnify and defend White Bear Lake and to hold White Bear Lake harmless from any and all third party demands, claims, or judgments arising out of or which may result from actions or inactions of Mahtomedi in connection with the use, installation, maintenance, and repair of facilities as set forth in this Agreement or from the use of water supplied pursuant to this Agreement. White Bear Lake agrees to indemnify and defend Mahtomedi and to hold Mahtomedi harmless from any and all third party demands, claims, or judgments arising out of or which may result from actions or inactions of White Bear Lake in connection with the use, installation, maintenance, and repair of facilities as set forth in this Agreement or from the use of water supplied pursuant to this Agreement.

12. Rates. The rates for water sold by White Bear to Mahtomedi shall be fair, just, reasonable, and equitable. In the event that the rates charged for water by White Bear are such as to produce moneys which are used substantially for the operation of other functions of White Bear, governmental or otherwise, other than the proportional share property allocable to the water department of White Bear, then the rates charged Mahtomedi shall be deemed unreasonable and shall be renegotiated and fair rates determined and shall therefore be applied as hereinafter provided.

The rates for water sold by White Bear to Mahtomedi shall be:

a. $0.84 cents per one hundred (100) cubic feet, subject to the provisions hereinafter provided.

b. Should the cost of producing water go up so as to necessitate an increase of water rates for the residents of White Bear, then the rate charged Mahtomedi shall be increased as the White Bear consumer rate is increased, and likewise any decrease to the White Bear consumer shall decrease the rate to Mahtomedi as the White Bear rate is decreased.

c. White Bear shall give Mahtomedi written notice of the effective date of such change in water rates. Sixty days prior to the commencement of a new quarter period shall be considered sufficient time. No rate increase shall be made without explanation and justification.

13. Quarterly readings of the master meter at the point of delivery to Mahtomedi shall be made by White Bear on the last working day of each quarter. Billings by White Bear to Mahtomedi for each quarter shall be mailed to Mahtomedi on or before the tenth day of the following quarter and payments on such bills shall be made by Mahtomedi to White Bear on or before the thirtieth day of said following quarter.

14. Termination. This agreement may be terminated upon mutual consent of both parties to the agreement.

IN WITNESS WHEREOF, the City of White Bear has caused these presents to be executed in its behalf, by its proper officers, thereunto duly authorized by action of the City Council on the ___ day of _____, 1996, and the City of Mahtomedi has caused these presents to be executed in its behalf by its proper officers thereunto duly authorized by action of its City Council on the 25 day of March, 1996, and both parties have caused their corporate seals to be hereunto affixed the day and year above written.

IN PRESENCE OF:

_____

_____

Mary Shea Kadunson

Susan Tombrecall

CITY OF WHITE BEAR LAKE

By: Patricia A. Butcher
Mayor

By: Cindy Bengtson Cook
Clerk

CITY OF MAHTOMEDI

By: Henry DeWaske
Mayor

By: John J. Klinger
Clerk

CITY OF WHITE BEAR LAKE
CITY OF VADNAIS HEIGHTS
MUNICIPAL WATER SYSTEM
INTERCONNECTION AGREEMENT

I. **PARTIES** – This agreement is dated the 9th day of June, 2015, and is entered into, pursuant to the provisions of the Minnesota Joint Powers Act (MSA 471.59), by and between the City of White Bear Lake (herein "White Bear Lake"), a municipal corporation and political subdivision of the State of Minnesota and the City of Vadnais Heights (herein "Vadnais Heights), a municipal corporation and political subdivision of the State of Minnesota.

II. **RECITALS** – White Bear Lake and Vadnais Heights share a common street, Buerkle Road, that leads into and out of both cities. Each City's municipal water system is located within Buerkle Road, but is separated by railroad tracks. Each City has determined that in the event of certain emergencies, it would be mutually beneficial to have an interconnection between their municipal water systems.

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

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

(A) Project – A eight-inch interconnection will be constructed by the City of White Bear Lake connecting the two City water systems located within Buerkle Road. The project includes the placement of a casing beneath the railroad tracks and the installation of a control valve on each system. White Bear Lake will prepare the plans and specifications for the project and be the lead agency selecting the contractor by seeking bids. White Bear Lake shall perform the necessary inspection of the improvements. Vadnais Heights agrees to share in 50% of the project cost, including plan and specification preparation, permit costs, construction and field staking and inspection costs.

(B) Maintenance – Each City shall be responsible for maintenance of the water main within their City border. Any work necessary on the water main within the casing pipe shall be completed by Vadnais Heights and the cost equally divided between the two cities.

(C) Use of Interconnection – The interconnection shall only be used by a party if a water main break results in a loss of adequate pressure in the party's municipal water system, or if a party's water system becomes polluted or otherwise unusable, or if a fire fighting emergency exists and adequate pressure is not available in a party's water system.

(D) Notice – Prior to the use of the interconnection, the party requesting use must give notice to the other party's Director of Public Works. The notice shall indicate the reason for the intended use. Actual notice must be given during normal business hours and

reasonable efforts to notify must be made during non-business hours. Unless usage of a party's water supply continues beyond a 48-hour period, neither party shall charge for the use of its water supply. Where a water use charge is imposed, it shall be at a rate equal to the prevailing rate for usage by single family residential users in the City which supplies the water and in an amount agreed to by the White Bear Lake Director of Public Works and the Vadnais Heights Director of Public Service, or at a rate initially agreed upon at the time of usage request.

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

(F) Terms of Agreement – This agreement shall become effective upon its approval of an appropriate resolution for each party and shall continue in force and effect for an indefinite term, provided that either party may terminate the agreement by giving the other party one year written notice. If termination occurs, the interconnection shall belong to the party in which the assets are located.

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

CITY OF WHITE BEAR LAKE

Pursuant to City Council authorization granted on the 9 day of June, 2014/15

Jo Emerson, Mayor

Mark Sather, City Manager

CITY OF VADNAIS HEIGHTS

Pursuant to City Council authorization granted on the 17th day of September, 2014

Marc Johannsen, Mayor

Kevin Watson, City Administrator

EMERGENCY WATER SUPPLY AGREEMENT

CITY OF BIRCHWOOD VILLAGE - TOWN OF WHITE BEAR

THIS AGREEMENT made and entered into this 19th day of July, 1982, by and between the City of Birchwood Village, Washington County, Minnesota, hereinafter referred to as "City", and the Town of White Bear, Ramsey County, Minnesota, hereinafter referred to as "Town";

WHEREAS, said City and Town are conterminous along the East County Line of Ramsey County, and

WHEREAS, each of said parties has and maintains its own separate water lines and system, Town having its own wells and water supply and City purchasing its water supply from the City of White Bear Lake, and

WHEREAS, both parties agree it would be mutually advantageous in the event of an emergency or failure in the water supply of either party to have a water interconnection between the two systems; WITNESSETH:

NOW THEREFORE, In consideration of the mutual covenants contained herein, the parties agree as follows:

1. City, at its expense, will build, construct, install and maintain a six (6) - inch main water line between its system and the Town system at or near the intersection of Ramsey County's "County Road F" and "East County Line" subsequent to approval of plans and specifications by Town.

2. That said line will be equipped and constructed with a meter to measure flow in each direction, and valves which will be

kept in the closed position to prevent flow in either direction until opened as hereinafter provided.

3. In the event of an emergency affecting the water supply or service to residents of either party, the affected party shall immediately notify the other party and be granted permission to open the necessary valves to allow water to flow from other party's watermains to affected party's watermains. Such permission shall be automatically granted unless other party has a water supply problem at the same time, other party also reserving the right to restrict the amount of water to be supplied to the amount available based on demands of other party's residents. The provider of water to City of Birchwood Village shall be notified of the emergency and the opening of the valves.

4. Water will be supplied to the affected party for only so long as the emergency is in effect, the affected party hereby agreeing to immediately correct the condition causing the emergency, the intent of this agreement being to supply emergency water only and not to supply water for any other purpose.

5. Each party will charge the other party for the water flowing from its area, as measured by the meter, at the same rate as City charges its residents, the City agreeing to keep Town advised of current rates.

6. Each affected party using emergency water from other party will be billed by other party for the amount of water used at the end of each month in which the water was used, and each party is responsible for maintaining continuous records of meter readings.

7. In the event of sprinkling bans during periods of

emergency water service, both parties shall enforce the provisions of the sprinkling ban of the supplier party, subject to restrictions in number 3 above.

8. City and Town agree to hold each other, as well as the City of White Bear Lake, harmless from any claims or damage, whether made or suffered by residents, City or Town, that may result from water flow between City and Town, possible delays in emergency water supplies, differences in water pressure between systems, or in any way, directly or indirectly resulting from the rights granted by this Agreement.

9. The initial term of this Agreement is twenty (20) years from the date hereof, said term to be automatically extended for successive ten (10) year terms unless written termination hereof is made at least twenty-four (24) months prior to the end of a term.

IN WITNESS WHEREOF, the City of Birchwood Village and the Town of White Bear have caused this Agreement to be executed on their behalf by the proper officers, council and Board.

CITY OF BIRCHWOOD VILLAGE

Mayor

Clerk

TOWN OF WHITE BEAR

Town Board Chairman

Town Clerk-Treasurer

CONSENT BY CITY OF WHITE BEAR LAKE

The City of White Bear Lake, Ramsey County, Minnesota, the supplier of water to the City of Birchwood Village, hereby consents and agrees to the foregoing Agreement between the City of Birchwood Village and the Town of White Bear and agrees to the terms thereof.

IN WITNESS WHEREOF, the City of White Bear Lake has caused this Consent to be executed on its behalf by its proper officers and Council this 10th day of August, 1982.

CITY OF WHITE BEAR LAKE

APPENDIX 7

MUNICIPAL CRITICAL WATER DEFICIENCY ORDINANCE

of the last billing not paid by the appropriate date at the time each quarterly statement is prepared and presented. The City reserves the right to shut off water service if the account is delinquent for an unreasonable length of time as determined by the City Manager. (See also §401.090) (Ref. §1201.040, Code 1966; Ord Nos. 499, 7/14/70; 713, 3/12/86; 822, 11/27/90)

§401.060 MUNICIPAL WATER SYSTEM; LIEN. Each charge levied by and pursuant to this chapter is hereby made a lien upon the corresponding lot, land or premises served by a connection to the water or sewer system of the City and all such charges which are on July Thirty-First (3lst) of each year more than thirty (30) days past due and having been properly billed to the occupant of the premises served, shall be certified by the City Clerk to the Auditor of Ramsey County before the tenth (1Oth) day of October of each year. A certification fee of fifteen (15.00) dollars shall be added to the delinquent amount. The City Clerk in so certifying such charges to the County Auditor shall specify the amount thereof, the descriptions of the premises served and the name of the owner thereof. The amount so certified shall be extended by the Auditor on the tax rolls against such premises in the same manner as other taxes, collected by the County Treasurer and paid to the City Clerk, along with other taxes. (Ref. §1201.050, Code 1966, Ord. No. 713 3/12/86)

§401.070 MUNICIPAL WATER SYSTEM; BROKEN SERVICE LINES. If at any time a break or blockage occurs in the service line between the building connection and the lateral or main in the street, the property owner shall repair the same at his expense. If the property owner fails to make the necessary repairs, the City Manager after giving the property owner ten (10) days written notice, may effect the necessary repairs and the cost thereof shall be a lien against the property and collected in the same manner as is provided in section 401.060 of the Code. (Ref. §1201.060, Code 1966; Ord. No. 451, 2/13/68)

§401.080 MUNICIPAL WATER SYSTEM; INSPECTION OF PREMISES. Every water consumer shall at all reasonable times permit any duly authorized officer or agent of the City to enter his premises or buildings and to examine the building, the water pipes and fixtures, the meter and the manner in which water is used. (Ref. §1201.070, Code 1966)

§401.090 MUNICIPAL WATER SYSTEM; DISCONTINUANCE OF SERVICE. The City expressly reserves the right to shut off the water at any time when deemed necessary or desirable and to discontinue the service on any or all premises. (Ref. §1201.080, Code 1966)

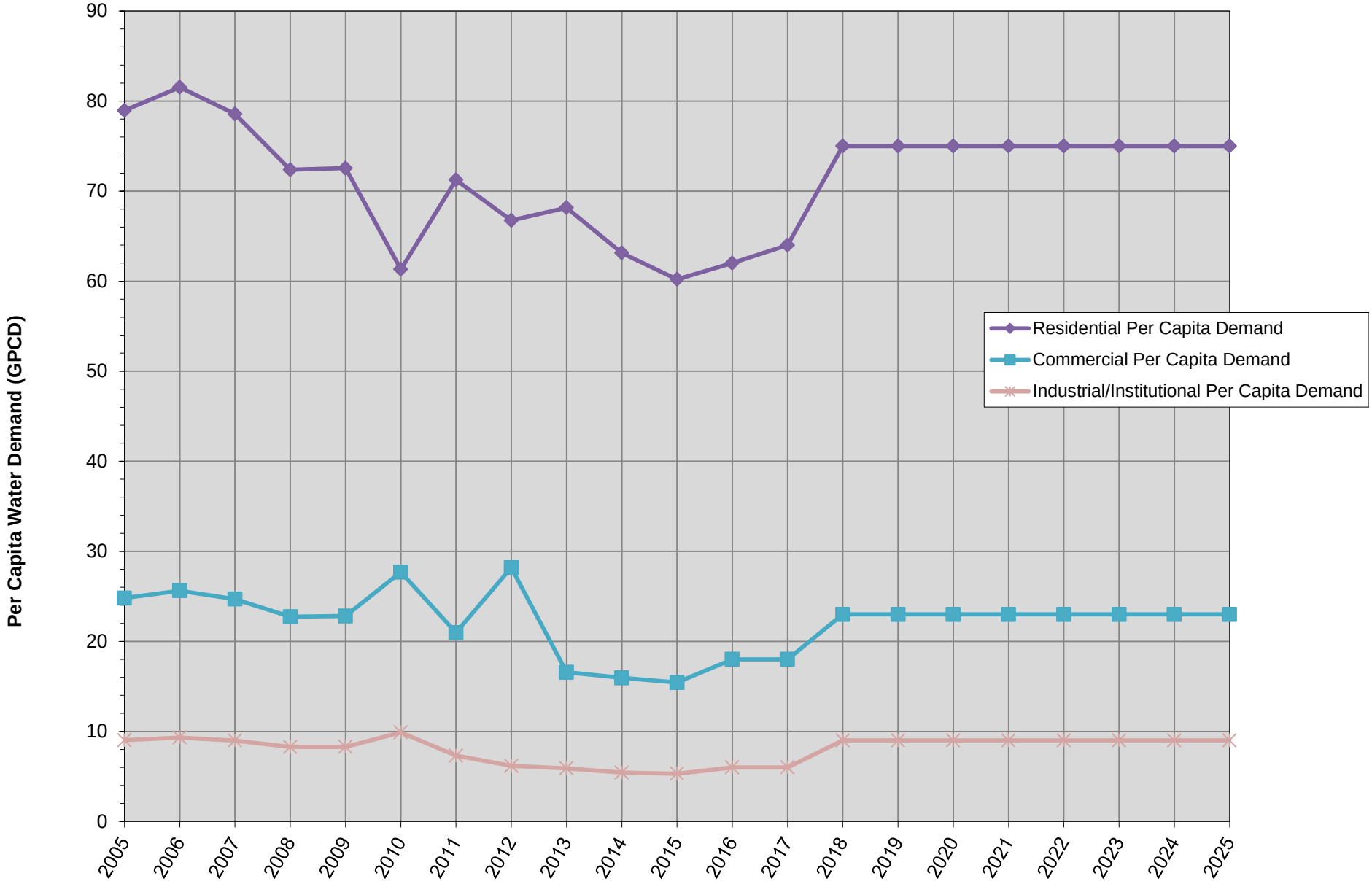
§401.100 MUNICIPAL WATER SYSTEM; RESTRICTED USE. The City expressly reserves the right whenever it may deem it necessary for securing adequate fire protection or for the proper and necessary husbanding of the water supply for domestic use or other necessary or desirable purposes, owing to drought, shortage of water supply or other cause, to prohibit for such length of time as it may deem proper, the use of water for sprinkling purposes or otherwise than for the most necessary and essential domestic purposes. (Ref. §1201.090, Code 1966)

§401.110 MUNICIPAL WATER SYSTEM; DAMAGE CLAIM EXEMPTION. The City reserves the right at any time to shut off the water in the main pipe for the purpose of repairing the same, making connections of extensions thereto or for the purpose of cleaning the same. No claim shall be made against the City by reason of the breaking of any service pipe or service cock or for any damages arising from shutting off water for repairing, laying or relaying mains, hydrants or other connections. (Ref. §201.100, Code 1966)

APPENDIX 8

GRAPH SHOWING ANNUAL PER CAPITA WATER DEMAND FOR EACH CUSTOMER CATEGORY DURING THE LAST TEN YEARS

CITY OF WHITE BEAR LAKE
PER CAPITA WATER DEMAND



12/19/2016

APPENDIX 9

WATER RATE STRUCTURE

being spread over in the City, and at an interest rate equal to interest rates then being charged for such assessments. (Ref. §1201.010, Code 1966; Ord. Nos. 446, 11/14/67; 497, 7/14/70; 520, 10/13/71; 589 ,9/7/76; 591, 11/9/76: 614, 6/13/78; 638, 3/4/80)

§401.020 MUNICIPAL WATER SYSTEM; METERS. The City will furnish water to consumers only through a water meter of the kind especially designated by the City Council. A suitable place, safe from frost and other damage, and of easy access for examination and reading, must be provided.

The City shall provide 5/8" meters at its expense for installation by the customer with such installation costs being at the customer's expense. All meters will be equipped with an outside reading device. This device will allow the City to record customer water usage without entering the premises. Installation of the standard outside reading device will be at the City's expense for material and labor. Customers requiring special reading devices will be responsible for the cost difference between their reading devices and the standard outside reading device. All outside reading device installation will be at the City's expense. The City shall provide meters larger than 5/8" with the costs of the meter and its installation being the customer's expense. All customers are required to have outside meter reading capabilities. All meters shall be under the control and supervision of the City and shall be sealed by the proper City employees. No persons other than City employees in charge of said work shall break said seals. (Ref. Ord. 980, 5/9/00)

Consumers must keep their service pipes, attachments and meters in order, and must protect them from frost. In case of the breakage or stoppage of any meter, the consumer shall immediately notify the City and any repairs necessary shall be made at the expense of the City. In cases where the meters are so placed as to render them difficult of access to the officers of the City, or are exposed to danger from frost, the water shall be shut off from such premises until the obstruction is removed or the danger is avoided. (Ref. §1201.020, Code 1966; Ord. No.681, 12/11/84; 980, 5/9/00)

§401.030 MUNICIPAL WATER SYSTEM; METER READING. The reading of water meters is necessary to accurately determine water usage and charges. Reads shall be taken from outside reading devices. If a water meter cannot be read from the outside upon the City's attempt to install the outside reading device, a 10,000 cubic feet water consumption will be included on their statement with no adjustment authorized until an outside reading device is installed. A statement will be prepared based on estimated usage and no adjustment will be made until the next quarterly billing. (Ref. Ord. No. 498, 7/14/70; 980, 5/9/00)

§401.040 MUNICIPAL WATER SYSTEM; WATER USE RATES

Subd. 1. Water Use Rates: All water supplied to consumers, both within and outside the corporate limits of the City of White Bear Lake that is measured by meter shall be sold at the following rates:

1. Residential:
   0 – 799 cubic feet: Minimum fee of $9.00 per meter per quarter effective March 1, 2016 for residential accounts
   0 – 799 cubic feet: Minimum fee of $9.75 per meter per quarter effective February 1, 2017
   800 and greater cubic feet: $1.05 per 100 cubic feet effective March 1, 2016

as measured during winter quarter reading period
800 and greater cubic feet: $1.15 per 100 cubic feet effective February 1, 2017 as measured during winter quarter reading period
Non winter quarter billing periods recorded consumption that is higher than the winter quarter reading period: $1.30 per 100 cubic feet effective March 1, 2016
Non winter quarter billing periods recorded consumption that is higher than the winter quarter reading period: $1.40 per 100 cubic feet effective February 1, 2017

2. Commercial:
0 – 799 cubic feet: Minimum fee of $9.00 per meter per quarter effective March 1, 2016
0 – 799 cubic feet: Minimum of $9.75 per meter per quarter effective February 1, 2017
800 – 2,699 cubic feet: $1.05 per 100 cubic feet effective March 1, 2016
800 – 2,699 cubic feet: $1.10 per 100 cubic feet effective February 1, 2017
2,700 – 74,999 cubic feet: $1.10 per 100 cubic feet effective March 1, 2016
2,700 – 74,499 cubic feet: $1.15 per 100 cubic feet effective February 1, 2017
75,000 and greater cubic feet: $1.20 per 100 cubic feet effective March 1, 2016
75,000 and greater cubic feet: $1.30 per 100 cubic feet effective February 1, 2017
Non winter quarter billing periods recorded consumption that is higher than winter quarter reading period: $1.30 per 100 cubic feet effective March 1, 2016
Non winter quarter billing periods recorded consumption that is higher than winter quarter reading period: $1.40 per 100 cubic feet effective February 1, 2017

3. That sale to other municipal districts shall be sold at a rate of $1.15 per cubic feet during the winter quarter billing period effective March 1, 2016. $1.25 per 100 cubic feet during the winter quarter billing period effective February 1, 2017. Non winter quarter billing periods recorded consumption that is higher than winter quarter reading period: $1.30 per cubic feet effective March 1, 2016. Non winter quarter billing periods recorded consumption that is higher than winter quarter reading period: $1.40 per 100 cubic feet effective February 1, 2017

4. Rates shall be effective for water billings processed after March 1, 2016 and February 1, 2017

(Ref. §1201.030, Code 1966; Ord Nos. 454, 2/13/68; 588, 9/7/76; 625, 1/9/79; 661, 5/17/82; 670, 1/10/84; 681, 12/11/84; 713, 3/12/86; 740, 4/14/87; 917,1/10/95; 3/1/07; 1071; 7/27/10; 8/24/11, 2/3/16)

§401.050 MUNICIPAL WATER SYSTEM; PAYMENTS. The City Clerk shall compute the amount due to the City for water charges and for sewer charges and render a statement thereof quarterly. All amounts due as shown on the statement shall be payable at the Municipal Building on or before the fifth (5th) day of the month following the month the statement is presented. A penalty of ten (10) percent shall be added to all accounts that are not paid in full by said due date. This ten (10) percent penalty shall be computed on the unpaid balance

APPENDIX 10

ADOPTED OR PROPOSED REGULATIONS TO REDUCE DEMAND OR IMPROVE WATER EFFICIENCY

§401.120 MUNICIPAL WATER SYSTEM: CONSERVATION

Subd. 1. Purpose. To conserve groundwater resources and prevent the wasteful and harmful effects of irrigation during the mid-day hours and during times when it is improvident to irrigate due to excessive moisture.

Subd. 2. Irrigation Restriction. No person shall irrigate using the public water supply between the hours of 10:00 a.m. and 5:00 p.m. on any day from May 1 through September 30. This water restriction applies to all property within the City.

Subd. 3. Excessive Moisture Detection. All new commercial, industrial, and institutional automatic irrigation systems must install rain sensors using best available technology on their control systems at the time of installation. Existing commercial, industrial and institutional applications must install rain sensors on their irrigation system no later than August 1, 2007.

Subd. 4. Penalty. Failure to comply with this ordinance shall be subject to the following penalties:

1st violation: Written warning
2nd violation: As provided in the most current resolution of the City Council establishing administrative fines (Ref. Ord. No. 1033; 3/28/06)

Amended 3/28/06

APPENDIX 11

IMPLEMENTATION CHECKLIST

APPENDIX 11

IMPLEMENTATION CHECKLIST

Activity or Action Item	Timeframe
Monitor source water quality at all production wells.	Ongoing
Monitor water level in source water aquifers.	Ongoing
Monitor any potential natural resource impacts.	Ongoing

Actions to reduce residential per capita demand	
Offer free or reduced cost water use audits for residential customers.	Ongoing
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.)	Ongoing
Conduct audience-appropriate water conservation education and outreach.	Ongoing
Provide rebates or incentives for installing water efficient appliances or fixtures indoors (e.g., low flow toilets, high efficiency dish washers and washing machines, showerhead and faucet aerators, water softeners, etc.)	Ongoing

Actions to reduce total water demand	
Install enhanced meters capable of automated readings to detect spikes in consumption.	2018-2019
Implement a water conservation outreach program.	Ongoing
Perform Water Audit to track water usage and loss.	Ongoing
Investigate the use of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	Ongoing

Activity or Action Item	Timeframe
Capital Improvements on the water supply system	
Inspect each drinking water supply well on a 5 year cycle. Repair pumps and motors as needed.	Ongoing
Inspect the interior coating on each water storage facility on a 5 year cycle.	Ongoing
Exterior painting of the 1 MG reservoir.	2018
Water Treatment Plant – Filter Bay trough inspection.	2017
Water Treatment Plant – Filter Bay painting.	2017
Water Treatment Plant – Lime Silo painting.	2019
Water Treatment Plant – Lagoon modifications.	2018
Water Treatment Plant – roof repairs.	2019
Water Distribution System – repair of watermain breaks, repair and replacement of non-functioning valves and hydrants.	Ongoing
Upgrades to the SCADA system.	2017
Customer water meter replacement program city-wide.	2018-2019