



Local Water Supply Plan

Formerly called Water Emergency & Water Conservation Plan

October 2018

(Revised May 2025)

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- Appendix 1: Well records and maintenance summaries
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- Appendix 4: Capital Improvement Plan
- Appendix 5: Emergency Telephone List
- Appendix 6: Cooperative Agreements for Emergency Services
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- Appendix 10: Ordinances or Regulations Related to Water Use
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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)	1977-6403
Ownership	<input checked="" type="checkbox"/> Public or <input type="checkbox"/> Private
Metropolitan Council Area	<input checked="" type="checkbox"/> Yes - Hennepin County
Street Address	5050 Independence Street
City, State, Zip	Maple Plain, MN 55359
Contact Person Name	Robert Schoen
Title	City Administrator
Phone Number	763-479-0516
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, on the next page, 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:

Population data from Minnesota State Demographic Center. 2017 population estimated.

Complete Table 3, on the next page, 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.

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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	1,982	619	45.27	51.50			96.77	96.78		0.0%	0.27	0.54	7/14/2005	62.6	133.8
2006	1,968	620	45.00	32.40			77.40	82.38		6.0%	0.23	0.48	7/18/2006	62.6	114.7
2007	1,961	620	36.06	29.49			65.55	84.81		22.7%	0.23	0.67	7/31/2007	50.4	118.5
2008	1,929	620	30.14	25.78			55.92	73.06		23.5%	0.20	0.53	7/9/2008	42.8	103.8
2009	1,932	620	29.33	24.32			54.91	69.86	1.3	21.4%	0.19	0.43	6/20/2009	41.6	99.1
2010	1,768	620	26.60	23.42			50.56	67.25	0.5	24.8%	0.18	0.32	8/6/2010	41.2	104.2
2011	1,786	620	25.35	23.95			49.31	68.07		27.6%	0.19	0.33	7/30/2011	38.9	104.4
2012	1,788	620	26.19	15.44			41.63	57.60		27.7%	0.16	0.41	1/2/2012	40.1	88.3
2013	1,773	618	18.70	23.09			41.99	66.92	0.2	37.2%	0.18	0.36	8/28/2013	28.9	103.4
2014	1,777	620	22.96	11.22			34.18	50.58		32.4%	0.14	0.34	9/11/2014	35.4	78.0
2015	1,783	636	23.04	7.63			32.77	56.07	2.1	41.6%	0.15	0.37	10/13/2015	35.4	86.2
2016	1,790	637	36.46	10.52	0.2		55.73	57.47	8.5	3.0%	0.16	0.33	4/20/2016	55.8	88.0
2017	1,820	651	35.32	12.36			50.18	55.41	2.5	9.4%	0.15	0.42	7/27/2017	53.2	83.4
Avg. 2012-2017	-	-	27.1	13.4			42.75	57.34	3.33	25.2%	0.16	0.37	-	41.5	87.9

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

See [Glossary](#) for definitions. A list of [Acronyms and Initialisms](#) can be found after the Glossary.

Table 3. Large volume users - Total water delivered in 2017 was 50.18 MG

Customer	Use Category (Residential, Industrial, Commercial, Institutional)	Amount Used (Gallons per Year)	Percent of Total Annual Water Delivered	Implementing Water Conservation Measures? (Yes/No/Unknown)
1. BRYANTWOOD APARTMENTS	RESIDENTIAL	4,400,000	8.8%	UNKNOWN
2. ELECTROCHEMICALS INC	INDUSTRIAL	2,780,000	5.5%	UNKNOWN
3. HAVEN HOMES(NURSING HOME)	RESIDENTIAL/INSTITUTIONAL	2,750,000	5.5%	UNKNOWN
4. MAPLE PLAIN APARTMENTS	RESIDENTIAL	2,000,000	4.0%	UNKNOWN
5. MANCHESTER PLACE APARTMENTS	RESIDENTIAL	1,700,000	3.4%	UNKNOWN
6. PROTO LABS	INDUSTRIAL	1,230,000	2.5%	UNKNOWN
7. MAPLE TERRACE APARTMENTS	RESIDENTIAL	930,000	1.9%	UNKNOWN
8. HERC-U-LIFT	INDUSTRIAL	920,000	1.8%	UNKNOWN
9. AMERICAN CUSTOM ROTOMOLDING	INDUSTRIAL	700,000	1.4%	UNKNOWN
10. WESTSIDE INVESTMENTS	COMMERCIAL MULTI-TENANT BUILDING	650,000	1.3%	UNKNOWN

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 (Name or Well ID)	Year Constructed	Treatment Capacity (GPD)	Treatment Method	Treatment Type	Annual Volume of Residuals	Disposal Process for Residuals	Do You Reclaim Filter Backwash Water?
Water Treatment Plant	2008	1.0 MGD	Gravity Filtration, Chemical addition	Fe/Mn & Radium Removal, Chlorine, Fluoride, Polyphosphate	435,000	Sludge to sanitary sewer	Yes
Well #1 Emergency Use Only	1939	0.65 MGD	Chemical addition	Chlorine and Fluoride	NA	NA	NA
Total	-	1.65 MGD	-	-	435,000	-	-

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)
Water Tower	Elevated storage	1988	Steel	400,000
WTP Clearwell	Ground storage	2008	Concrete	95,000
Total	NA	NA	NA	495,000

Treatment and storage capacity versus demand

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

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

The elevated storage capacity exceeds average day and maximum day demands. Average day demand is approximately 160,000 gallons and the elevated water storage is 400,000 gallons. Firm water supply of approximately 0.90 MGD (with largest well out of service) and treatment capacity exceeds average and maximum day demand.

Projected 2040 water demands are 0.23 MGD average day and 0.60 MGD maximum day demand. Existing water storage exceeds the average day demand and firm water supply exceeds the maximum day demand.

C. Water Sources

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

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 Operations (active, inactive, emergency only, retail/wholesale interconnection))	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Groundwater	Wonewoc Aquifer	Well #1 207090	1939	125 gpm	418 ft 238 casing	Emergency	NO
Groundwater	Wonewoc Aquifer	Well #2 207407	1958	-	435 ft 241 casing	Inactive	-
Groundwater	Mt. Simon Aquifer	Well #3 112238	1978	700 gpm	580 ft 534 casing	Active	YES
Groundwater	Wonewoc Aquifer	Well #4 824078	2018	500 gpm	390 ft 343 casing	Active	YES

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.

NA, no neighboring municipality is close for an emergency interconnection. An emergency interconnection will be pursued if communities grow closer together making a connection feasible.

D. Future Demand Projections – Key Metropolitan Council Benchmark

Water Use Trends

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

Population served has remained relatively flat since 2010 but is expected to increase based on Met. Council population projections. Total per capita water demand is trending downward since 2005 and residential per capita demand is also trending downward. The large increase in residential sales in 2016 is due to new water meters installed in late 2015; greatly improving reporting accuracy and cutting unaccounted for water to 3%. Average day demand has decreased slightly over the last ten years. Maximum day demand has remained relatively flat since 2010 after decreasing from a peak in 2007.

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)
2018	1,830	1,830	100	0.18	0.48
2019	1,850	1,850	100	0.19	0.48
2020	1,870	1,870	100	0.19	0.49
2021	1,892	1,892	100	0.19	0.49
2022	1,914	1,914	100	0.19	0.50
2023	1,936	1,936	100	0.19	0.50
2024	1,958	1,958	100	0.20	0.51
2025	1,980	1,980	100	0.20	0.51
2030	2,090	2,090	100	0.21	0.54
2040	2,320	2,320	100	0.23	0.60

GPCD – Gallons per Capita per Day

MGD – Million Gallons per Day

Projection Method

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

Population growth of approximately 500 persons is projected by Met. Council by 2040. Average total per capita water demand is approximately 90 GPCD based on years from 2012 to 2017; however, 100 gpcd was common before the commercial water usage dropped in recent years. Therefore, future water demands are projected based on 100 gpcd to allow for average commercial water usage. Maximum day demand was calculated based on a 2.6 maximum day ratio. The maximum day ratio has been lower recently (2012-2017 average is 2.35) but was 2.6 in 2012. The City’s maximum day demand projected to be 0.60 MGD in 2040.

E. Resource Sustainability

Monitoring – Key DNR Benchmark

Complete Table 8 by inserting information about source water quality and quantity monitoring efforts. The list should include all production wells, observation wells, and source water intakes or reservoirs. Groundwater level data for DNR’s statewide network of observation wells are available online through the DNR’s Cooperative Groundwater Monitoring (CGM) webpage.

Table 8. Information about source water quality and quantity monitoring

MN Unique Well #	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
Well #1 207090 Well 1 is emergency use only.	<input checked="" type="checkbox"/> production well <input type="checkbox"/> observation well <input type="checkbox"/> source water intake <input type="checkbox"/> source water reservoir	<input checked="" type="checkbox"/> routine MDH sampling <input checked="" type="checkbox"/> routine water utility sampling <input type="checkbox"/> other	<input type="checkbox"/> continuous <input type="checkbox"/> hourly <input type="checkbox"/> daily <input type="checkbox"/> monthly <input type="checkbox"/> quarterly <input checked="" type="checkbox"/> annually	<input type="checkbox"/> SCADA <input checked="" type="checkbox"/> grab sampling <input type="checkbox"/> steel tape <input type="checkbox"/> stream gauge
Well #2 207407 Well 2 is inactive, currently capped.	<input type="checkbox"/> production well <input type="checkbox"/> observation well <input type="checkbox"/> source water intake <input type="checkbox"/> source water reservoir	<input type="checkbox"/> routine MDH sampling <input type="checkbox"/> routine water utility sampling <input type="checkbox"/> other	<input type="checkbox"/> continuous <input type="checkbox"/> hourly <input type="checkbox"/> daily <input type="checkbox"/> monthly <input type="checkbox"/> quarterly <input type="checkbox"/> annually	<input type="checkbox"/> SCADA <input type="checkbox"/> grab sampling <input type="checkbox"/> steel tape <input type="checkbox"/> stream gauge
Well #3 112238	<input checked="" type="checkbox"/> production well <input type="checkbox"/> observation well <input type="checkbox"/> source water intake <input type="checkbox"/> source water reservoir	<input checked="" type="checkbox"/> routine MDH sampling <input checked="" type="checkbox"/> routine water utility sampling <input type="checkbox"/> other	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> hourly <input checked="" type="checkbox"/> daily <input checked="" type="checkbox"/> monthly <input checked="" type="checkbox"/> quarterly <input checked="" type="checkbox"/> annually	<input checked="" type="checkbox"/> SCADA <input checked="" type="checkbox"/> grab sampling <input type="checkbox"/> steel tape <input type="checkbox"/> stream gauge
Well #4 824078	<input checked="" type="checkbox"/> production well <input type="checkbox"/> observation well <input type="checkbox"/> source water intake <input type="checkbox"/> source water reservoir	<input checked="" type="checkbox"/> routine MDH sampling <input checked="" type="checkbox"/> routine water utility sampling <input type="checkbox"/> other	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> hourly <input checked="" type="checkbox"/> daily <input checked="" type="checkbox"/> monthly <input checked="" type="checkbox"/> quarterly <input checked="" type="checkbox"/> annually	<input checked="" type="checkbox"/> SCADA <input checked="" type="checkbox"/> grab sampling <input type="checkbox"/> steel tape <input type="checkbox"/> stream gauge

Water Level Data

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

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

Groundwater hydrographs illustrate the historical record of aquifer water levels measured within a well and can indicate water level trends over time. For each well in your system, provide a hydrograph for the life of the well, or for as many years as water levels have been measured. Include the hydrographs in **Appendix 3**. An example of a hydrograph can be found on the [DNR’s Groundwater Hydrograph webpage](#). Hydrographs for DNR Observation wells can be found in the [CGM](#) discussed above.

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
Well #1 207090	Wonewoc Aquifer	Unknown Well 1 is emergency use only.		10/01/1939: 114 ft
Well #2 207407	Wonewoc Aquifer	Well 2 is inactive, currently capped.		10/01/1959: 125 ft
Well #3 112238	Mt. Simon Aquifer	~ 10 ft	<input type="checkbox"/> Falling <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Rising	04/20/1978: 109 ft 09/18/2017: 101 ft 09/18/2018: 99 ft
Well #4 824078	Wonewoc Aquifer	< 5 ft	<input type="checkbox"/> Falling <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Rising	01/01/2018: 103 ft 09/18/2018: 105 ft

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 potentially be impacted by permitted water withdrawals in the future. You do not need to identify every single water resource in your entire community. The goal is to help you triage the most important water resources and/or the water resources that may be impacted by your water supply system – perhaps during a drought or when the population has grown significantly in ten years. This is emerging science, so do the best you can with available data. For identified resources, 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.

Steps for completing Table 10

1. Identify the potential for natural resource impacts/issues within the community

First, review available information to identify resources that may be impacted by the operation of your water supply system (such as pumping).

Potential Sources of Information:

- County Geologic Atlas
- Local studies

- Metropolitan Council System Statement (for metro communities)
- Metropolitan Council Master Water Supply Plan (for metro communities)

ACTION: Check the resource type(s) that may be impacted in the column “Resource Type”

2. Identify where your water supply system is most likely to impact those resources (and vice versa).

Potential Sources of Information:

- Drinking Water Supply Management Areas
- Geologic Atlas - Sensitivity
- If no WHPA or other information exists, consider rivers, lakes, wetlands and significant within 1.5 miles of wells; and calcareous fens and trout streams within 5 miles of wells

ACTION: Focus the rest of your work in these areas.

3. Within focus areas, identify specific features of value to the community

You know your community best. What resources are important to pay attention to? It may be useful to check in with your community’s planning and zoning staff and others.

Potential Sources of Information:

- Park plans
- Local studies
- Natural resource inventories
- Tourist attractions/recreational areas/valued community resource

ACTION: Identify specific features that the community prioritizes in the “Resource Name” column (for example: North Lake, Long River, Brook Trout Stream, or Green Fen). If, based on a review of available information, no features are likely to be at risk, note “None”.

4. Identify what impact(s) the resource is at risk for

Potential Sources of Information:

- Wellhead Protection Plan
- Water Appropriation Permit
- County Geologic Atlas
- MDH or PCA reports of the area
- Metropolitan Council System Statement (for metro communities)
- Metropolitan Council Master Water Supply Plan (for metro communities)

ACTION: Check the risk type in the column “Risk”. If, based on a review of available information, no risk is identified, note “None anticipated”.

5. Describe how the risk was assessed

Potential Sources of Information:

- Local studies
- Monitoring data (community, WMO, DNR, etc.)
- Aquifer testing
- County Geologic Atlas or other hydrogeologic studies
- Regional or state studies, such as DNR’s report ‘Definitions and Thresholds for Negative Impacts to Surface Waters’
- Well boring logs

ACTION: Identify the method(s) used to identify the risk to the resource in the “Risk Assessed Through” column

6. Describe protection threshold/goals

What is the goal, if any, for protecting these resources? For example, is there 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?

Potential Sources of Information:

- County Comprehensive Water Plans
- Watershed Plans or One Watershed/One Plan
- Groundwater or Aquifer Plans
- Metropolitan Master Plans
- DNR Thresholds study
- Community parks, open space, and natural resource plans

ACTION: Describe resource protection goals in the “Describe Resource Protection Threshold” column or reference an existing plan/document/webpage

7. If a goal/threshold should trigger action, describe the plan that will be implemented.

Identify specific action, mitigation measures or management plan that the water supplier will implement, or refer to a partner’s plan that includes actions to be taken.

Potential Sources of Information:

- County Comprehensive Water Plans
- Watershed Plans or One Watershed/One Plan
- Groundwater or Aquifer Plans
- Metropolitan Master Plans
- Studies such as DNR Thresholds study

ACTION: Describe the mitigation measure or management plan in the “Mitigation Measure or Management Plan” column.

8. Describe work to evaluate these risks going forward.

For example, what is the plan to regularly check in to stay current on plans or new data?

Identify specific action that the water supplier will take to identify the creation of or change to goals/thresholds, or refer to a partner’s plan that includes actions to be taken.

Potential Sources of Information:

- County Comprehensive Water Plans
- Watershed Plans or One Watershed/One Plan
- Groundwater or Aquifer Plans
- Metropolitan Master Plans
- Studies such as DNR Thresholds study

ACTION: Describe what will be done to evaluate risks going forward, including any changes to goals or protection thresholds in the “Describe how Changes to Goals are monitored” column.

Table 10. Natural resource impacts (*List specific resources in Appendix 12)

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
<input checked="" type="checkbox"/> River or stream	Pioneer Sarah Creek	<input checked="" type="checkbox"/> None anticipated <input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat <input type="checkbox"/> Other: _____	<input type="checkbox"/> Geologic atlas or other mapping <input type="checkbox"/> Modeling <input type="checkbox"/> Modeling <input checked="" type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> WRAPS or other watershed report <input checked="" type="checkbox"/> Proximity (<1.5 miles) <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Additional data is needed to establish <input type="checkbox"/> See report: _____ <input type="checkbox"/> No data available <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Newly collected data will be analyzed <input type="checkbox"/> Regular check-in with these partners: _____ <input type="checkbox"/> Other: _____
<input type="checkbox"/> Calcareous fen	N/A	<input checked="" type="checkbox"/> None anticipated <input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat <input type="checkbox"/> Other: _____	<input type="checkbox"/> Geologic atlas or other mapping <input type="checkbox"/> Modeling <input type="checkbox"/> Modeling <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> WRAPS or other watershed Report <input type="checkbox"/> Proximity (<5 miles) <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Additional data is needed to establish <input type="checkbox"/> See report: _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Newly collected data will be analyzed <input type="checkbox"/> Regular check-in with these partners: _____ <input type="checkbox"/> Other: _____
<input type="checkbox"/> Lake	N/A	<input checked="" type="checkbox"/> None anticipated <input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat <input type="checkbox"/> Other: _____	<input type="checkbox"/> Geologic atlas or other mapping <input type="checkbox"/> Modeling <input type="checkbox"/> Modeling <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> WRAPS or other watershed report <input checked="" type="checkbox"/> Proximity (<1.5 miles) <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Additional data is needed to establish <input type="checkbox"/> See report: _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Newly collected data will be analyzed <input type="checkbox"/> Regular check-in with these partners: _____ <input type="checkbox"/> Other: _____

Local Water Supply Plan – Maple Plain

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
<input checked="" type="checkbox"/> Wetland	Multiple; 27-0393-00W & 27-0394-00W	<input checked="" type="checkbox"/> None anticipated <input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat <input type="checkbox"/> Other: _____	<input type="checkbox"/> Geologic atlas or other mapping <input type="checkbox"/> Modeling <input type="checkbox"/> Modeling <input checked="" type="checkbox"/> Monitoring <input checked="" type="checkbox"/> Aquifer testing <input type="checkbox"/> WRAPS or other watershed report <input type="checkbox"/> Proximity (<1.5 miles) <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Additional data is needed to establish <input type="checkbox"/> See report: _____ <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Newly collected data will be analyzed <input type="checkbox"/> Regular check-in with these partners: _____ <input type="checkbox"/> Other: _____
<input type="checkbox"/> Trout stream	N/A	<input type="checkbox"/> None anticipated <input type="checkbox"/> Flow/water level decline <input type="checkbox"/> Degrading water quality trends <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat <input type="checkbox"/> Other: _____	<input type="checkbox"/> Geologic atlas or other mapping <input type="checkbox"/> Modeling <input type="checkbox"/> Monitoring <input type="checkbox"/> Aquifer testing <input type="checkbox"/> WRAPS or other watershed report <input type="checkbox"/> Proximity (< 5 miles) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Additional data is needed to establish <input type="checkbox"/> See report: _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Change groundwater pumping <input type="checkbox"/> Increase conservation <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Newly collected data will be analyzed <input type="checkbox"/> Regular check-in with these partners: _____ <input type="checkbox"/> Other: _____
<input checked="" type="checkbox"/> Aquifer	Wonewoc & Jordan Aquifers	<input type="checkbox"/> None anticipated <input checked="" type="checkbox"/> Flow/water level decline <input checked="" type="checkbox"/> Degrading water quality trends <input type="checkbox"/> Impacts on endangered, threatened, or special concern species habitat <input type="checkbox"/> Other: _____	<input type="checkbox"/> Geologic atlas or other mapping <input checked="" type="checkbox"/> Modeling <input checked="" type="checkbox"/> Monitoring <input checked="" type="checkbox"/> Aquifer testing <input type="checkbox"/> Proximity (obwell < 5 miles) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Additional data is needed to establish <input type="checkbox"/> See report: _____ <input checked="" type="checkbox"/> Other: Potentiometric heads are not to be reduced more than 50% of available head.	<input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Change groundwater pumping <input checked="" type="checkbox"/> Increase conservation <input type="checkbox"/> Other: _____	<input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Newly collected data will be analyzed <input type="checkbox"/> Work with these partners: Hennepin County, local watersheds, and neighboring communities.

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	<input type="checkbox"/> In Process <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Not Applicable	September 26, 2013	Ongoing requirements
SWP	<input type="checkbox"/> In Process <input type="checkbox"/> Completed <input checked="" type="checkbox"/> Not Applicable	NA	NA

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	<input type="checkbox"/> No action planned - adequate <input checked="" type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition	2019 -	Seal Well 2 Routine well maintenance
Water Storage Facilities	<input checked="" type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition	-	
Water Treatment Facilities	<input checked="" type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition	-	
Distribution Systems (Pipes, valves, etc.)	<input type="checkbox"/> No action planned - adequate <input checked="" type="checkbox"/> Repair/replacement <input checked="" type="checkbox"/> Expansion/addition	2018 2021 2024 As Needed	Pipe replacement program (every 3 years) and preventative maintenance. Expansion of water system as development occurs.
Other:	<input type="checkbox"/> No action planned - adequate <input type="checkbox"/> Repair/replacement <input type="checkbox"/> Expansion/addition	NA	NA

Proposed Future Water Sources

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

Table 13. Proposed future installations/sources

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

Water Source Alternatives - Key Metropolitan Council Benchmark

Do you anticipate the need for alternative water sources in the next 10 years? Yes No

For metro communities, will you need alternative water sources by the year 2040? Yes 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
<input type="checkbox"/> Groundwater	NA					
<input type="checkbox"/> Surface Water	NA					
<input type="checkbox"/> Reclaimed stormwater	NA					
<input type="checkbox"/> Reclaimed wastewater	NA					
<input type="checkbox"/> Interconnection to another supplier	NA					

PART 2. EMERGENCY PREPAREDNESS PROCEDURES

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

A. 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. MDH recommends that Emergency Response Plans are updated annually.

Do you have an Emergency Response Plan? Yes No

Have you updated the Emergency Response Plan in the last year? Yes No

When did you last update your Emergency Response Plan? 2015

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

Table 15. Emergency Response Plan contact information

Emergency Response Plan Role	Contact Person	Contact Phone Number	Contact Email
Emergency Response Lead	GARY KROELLS	763-479-0503 612-328-1905	GKROELLS@WESTHENNEPIN.COM
Alternate Emergency Response Lead	BOBBY SCHOEN	763-479-0516 763-527-4634	BSCHOEN@MAPLEPLAIN.COM

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**. An [Emergency Contact List template](#) is available at the [MnDNR Water Supply Plans webpage](#).

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
NA			

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
NA				

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

Obtaining bottled water at local retail stores for delivery to Maple Plain Fire Department.
 Contact Hennepin County Emergency Management for additional resources and National Guard if needed.
 Call MN Duty Officer for assistance in obtaining potable water trucks.

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 (GPD)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	100,000	30,000
Commercial	2	30,000	8,500
Irrigation	6	1,500	1,500
Water Supplier Services	2	18,500	10,000
TOTAL	-	150,000	50,000

GPD – Gallons per Day

Tip: Calculating Emergency Demand Reduction Potential

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

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

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

Emergency Triggers	Short-term Actions	Long-term Actions
<input checked="" type="checkbox"/> Contamination <input checked="" type="checkbox"/> Loss of production <input checked="" type="checkbox"/> Infrastructure failure <input checked="" type="checkbox"/> Executive order by Governor <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Supply augmentation through Emergency Well 1 <input checked="" type="checkbox"/> 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. <input type="checkbox"/> Water allocation through____ <input type="checkbox"/> Meet with large water users to discuss their contingency plan.	<input checked="" type="checkbox"/> Supply augmentation through Emergency Well 1 <input checked="" type="checkbox"/> 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. <input type="checkbox"/> Water allocation through____ <input checked="" type="checkbox"/> 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
<input checked="" type="checkbox"/> Short-term demand reduction declared (< 1 year)	<input checked="" type="checkbox"/> Website <input checked="" type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input type="checkbox"/> Press release (TV, radio, newspaper), <input type="checkbox"/> Meeting with large water users (> 10% of total city use) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Daily <input checked="" type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	
<input checked="" type="checkbox"/> Long-term Ongoing demand reduction declared	<input checked="" type="checkbox"/> Website <input checked="" type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input checked="" type="checkbox"/> Press release (TV, radio, newspaper), <input checked="" type="checkbox"/> Meeting with large water users (> 10% of total city use) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Daily <input checked="" type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	Lake Minnetonka Regional Emergency Operations Plan Communities
<input checked="" type="checkbox"/> Governor’s critical water deficiency declared	<input checked="" type="checkbox"/> Website <input checked="" type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input checked="" type="checkbox"/> Press release (TV, radio, newspaper), <input checked="" type="checkbox"/> Meeting with large water users (> 10% of total city use) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Daily <input checked="" type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	Lake Minnetonka Regional Emergency Operations Plan Communities

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**. City Code 53.05 & 53.03.

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

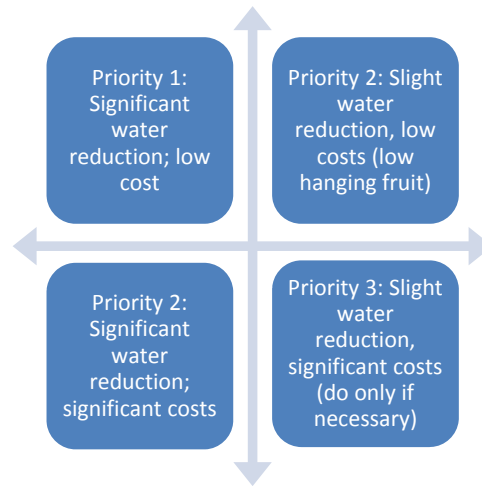
If yes, cite the regulatory authority reference: City Code 33.05

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

City Code 33.05 gives power to Mayor and City Emergency Management Director to establish local emergency; which can be used to restrict water usage as needed. Local emergency is in effect for 3 days, longer if approved by City Council in that time.

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 used 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 Tiered, water conservation rate in place.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water supply system improvements (e.g. leak repairs, valve replacements, etc.) Ongoing preventative maintenance and immediate repair of leaks.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Educational efforts City includes watering and conservation tips in City Newsletter, 2017 CCR, website. City conservation website: www.mapleplain.com/departments/PublicWorks/water-conservation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
New water conservation ordinances	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Rebate or retrofitting Program (e.g. for toilet, faucets, appliances, showerheads, dish washers, washing machines, irrigation systems, rain barrels, water softeners, etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Enforcement	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Describe other: City installed new water meters which improved water reporting and accuracy	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

Total per capita water demand is decreasing; from nearly 120 gpcd in 2007 to approx.90 gpcd in 2016. New residential water meters were installed which greatly improved accuracy. Unaccounted for water in 2016 was approximately 3 percent.

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	<input type="checkbox"/> Low stream flow conditions <input checked="" type="checkbox"/> Reports of declining wetland and lake levels from other agencies. <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Increase promotion of conservation measures <input type="checkbox"/> Other: _____

Objective	Triggers	Actions
Short-term demand reduction (less than 1 year)	<input checked="" type="checkbox"/> Extremely high seasonal water demand (more than double winter demand) <input checked="" type="checkbox"/> Loss of treatment capacity <input checked="" type="checkbox"/> Lack of water in storage <input checked="" type="checkbox"/> State drought plan <input checked="" type="checkbox"/> Well interference <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Supply augmentation through emergency interconnections <input type="checkbox"/> Water allocation through _____ <input type="checkbox"/> Meet with large water users to discuss user’s contingency plan.
Long-term demand reduction (>1 year)	<input checked="" type="checkbox"/> Per capita demand increasing <input checked="" type="checkbox"/> Total demand increase (higher population or more industry). <input type="checkbox"/> Water level in well(s) below elevation of _____ <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Meet with large water users to discuss user’s contingency plan. <input checked="" type="checkbox"/> Enhanced monitoring and reporting: audits, meters, billing, etc.
Governor’s “Critical Water Deficiency Order” declared	<input checked="" type="checkbox"/> Determined by State	<input checked="" type="checkbox"/> 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.

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 Water 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 five-year average (2012-2017) 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)

City completes leak detection throughout the City every three years.

Water Audits - are designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. The American Water Works Association (AWWA) has a recommended water audit methodology which is presented in [AWWA’s M36 Manual of Water Supply Practices: Water Audits and Loss Control Programs](#). AWWA also provides a free spreadsheet-based water audit tool that water suppliers can use to conduct their own water audits. This free water audit tool can be found on AWWA’s [Water Loss Control webpage](#). Another resource for water audit and water loss control information is [Minnesota Rural Water Association](#).

What is the date of your most recent water audit? 01/2018

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

Leak detection and survey: every year every other year Every 3 years

Year last leak detection survey completed: 2017

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

Unaccounted for water was significant in previous years due to old, inaccurate water meters, but with new water meters installed the unaccounted for water was only 3% in 2016.

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. Drinking Water Revolving Loan Funds are available for purchase of new meters when new plants are built. AWWA also recommends that water suppliers conduct regular water audits to account for unmetered unbilled consumption, metered unbilled consumption and source water and customer metering inaccuracies. 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	554	554	554	As needed	<u>2 / 25</u>
Com/Ind/Instit.	98	98	98	As needed	<u>2 / 25</u>
Public facilities	6	6	6	As needed	<u>2 / 25</u>
Other	-	-	-	-	-
TOTALS	658	658	658	-	-

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.

Multi Family and Apartments are often metered as a whole and not individual units.

Table 24. Water source meters

	Number of Meters	Meter testing schedule	Number of Automated Meter Readers	Average age/meter replacement schedule (years)
Water source (wells)	3	As needed	3	<u>10+</u> / <u>20</u> <u><1</u> / <u>20</u> (Wells 3 and 4)
Treatment plant	4	As needed	4	<u>11</u> / <u>20</u>

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 2012 – 2017 five-year average residential per capita water demand? **40 g/person/day**

Describe the water use trend over that timeframe:

New water meters were installed in 2015, greatly increasing accuracy of reported water sales. With the new residential meters in 2016, the residential per capita demand was approximately 56 gpcd. Since 2005, the residential per capita has always been below 75 gpcd. Even with a 50% increase in historic residential sales, the residential per capita demand would not exceed the goal of 75 gpcd.

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
<input type="checkbox"/> Revise city ordinances/codes to encourage or require water efficient landscaping.	
<input type="checkbox"/> 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	
<input type="checkbox"/> Revise ordinances to limit irrigation. Describe the restricted irrigation plan:	
<input type="checkbox"/> 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.	
<input checked="" type="checkbox"/> Make water system infrastructure improvements. Continue preventative maintenance and replace aging infrastructure.	Ongoing
<input type="checkbox"/> Offer free or reduced cost water use audits for residential customers.	

Strategy to reduce residential per capita demand	Timeframe for completing work
<input checked="" type="checkbox"/> Implement a notification system to inform customers when water availability conditions change.	Ongoing - CodeRed
<input type="checkbox"/> 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.)	
<input type="checkbox"/> 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.)	
<input type="checkbox"/> Identify supplemental Water Resources	
<input checked="" type="checkbox"/> Conduct audience-appropriate water conservation education and outreach.	Ongoing Expand efforts by 2020
<input type="checkbox"/> Describe other plans	

Objective 3: Achieve at least 1.5% annual reduction in non-residential per capita water use (For each of the next ten years, or a 15% total reduction over ten years.) This includes commercial, institutional, industrial and agricultural water users.

Complete Table 26 by checking which strategies you will use 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
<input type="checkbox"/> Conduct a facility water use audit for both indoor and outdoor use, including system components	
<input checked="" type="checkbox"/> Install enhanced meters capable of automated readings to detect spikes in consumption	Ongoing (new meters installed in 2015)
<input type="checkbox"/> 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.)	
<input type="checkbox"/> Install water conservation fixtures and appliances or change processes to conserve water	
<input checked="" type="checkbox"/> Repair leaking system components: Require customer to immediately repair identified leaks and continue City preventative maintenance.	Ongoing
<input type="checkbox"/> Investigate the reuse of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	
<input type="checkbox"/> Reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
<input type="checkbox"/> Train employees how to conserve water	
<input checked="" type="checkbox"/> Implement a notification system to inform non-residential customers when water availability conditions change.	Ongoing - CodeRed
<input type="checkbox"/> Nonpotable 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. Plumbing code 4714.1702, Published October 31, 2016	
<input type="checkbox"/> 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 2005-2017 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.

Total per capita water demand is decreasing; from over 110 gpcd to approx. 90 gpcd in 2015 and 2016. Residential water use has slowly decreased over time and a larger decrease has occurred in commercial per capita water use. New water meters were installed in 2015, greatly increasing accuracy of reported water sales. With the new residential meters in 2016, the residential per capita demand was approximately 56 gpcd.

Objective 5: Reduce Ratio of Maximum day (peak day) to the Average Day Demand to Less Than 2.6

Is the ratio of average 2005-2017 maximum day demand to average 2005-2017 average day demand reported in Table 2 more than 2.6? Yes No

Calculate an average (2005 – 2016) of the ratio of maximum day demand to average day demand: 2.28

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 Demand Reduction Measures

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: NONE

Frequency of billing: Monthly Bimonthly Quarterly Other:

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

Date of last rate change: 1/1/2011

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	<input type="checkbox"/> Monthly billing <input checked="" type="checkbox"/> Increasing block rates (volume tiered rates) <input type="checkbox"/> Seasonal rates <input type="checkbox"/> Time of use rates <input checked="" type="checkbox"/> Water bills reported in gallons <input type="checkbox"/> Individualized goal rates <input type="checkbox"/> Excess use rates <input type="checkbox"/> Drought surcharge <input type="checkbox"/> Use water bill to provide comparisons <input checked="" type="checkbox"/> Service charge not based on water volume	<input type="checkbox"/> Uniform <input type="checkbox"/> Odd/even day watering	<input type="checkbox"/> Service charge based on water volume <input type="checkbox"/> Declining block <input type="checkbox"/> Flat <input type="checkbox"/> Other (describe)
Commercial	<input type="checkbox"/> Monthly billing <input checked="" type="checkbox"/> Increasing block rates (volume tiered rates) <input type="checkbox"/> Seasonal rates <input type="checkbox"/> Time of use rates <input checked="" type="checkbox"/> Water bills reported in gallons <input type="checkbox"/> Individualized goal rates <input type="checkbox"/> Excess use rates <input type="checkbox"/> Drought surcharge <input type="checkbox"/> Use water bill to provide comparisons <input checked="" type="checkbox"/> Service charge not based on water volume	<input type="checkbox"/> Uniform	<input type="checkbox"/> Service charge based on water volume <input type="checkbox"/> Declining block <input type="checkbox"/> Flat <input type="checkbox"/> Other (describe)

*** 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:

NA

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

<input type="checkbox"/>	Participate in the GreenStep Cities Program, including implementation of at least one of the 20 “Best Practices” for water
<input type="checkbox"/>	Prepare a master plan for smart growth (compact urban growth that avoids sprawl)
<input checked="" type="checkbox"/>	Prepare a comprehensive open space plan (areas for parks, green spaces, natural areas) City developed at Walking and Biking Plan in coordination with Active Living Hennepin Cty.
<input checked="" type="checkbox"/>	Adopt a water use restriction ordinance (lawn irrigation, car washing, pools, etc.) City Code 53.05 to allow for water restrictions to be imposed and provision for enforcement.
<input type="checkbox"/>	Adopt an outdoor lawn irrigation ordinance
<input type="checkbox"/>	Adopt a private well ordinance (private wells in a city must comply with water restrictions)
<input checked="" type="checkbox"/>	Implement a stormwater management program
<input type="checkbox"/>	Adopt non-zoning wetlands ordinance (can further protect wetlands beyond state/federal laws-for vernal pools, buffer areas, restrictions on filling or alterations)
<input type="checkbox"/>	Adopt a water offset program (primarily for new development or expansion)
<input type="checkbox"/>	Implement a water conservation outreach program
<input type="checkbox"/>	Hire a water conservation coordinator (part-time)
<input type="checkbox"/>	Implement a rebate program for water efficient appliances, fixtures, or outdoor water management
<input checked="" type="checkbox"/>	Other

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

Per Capita water demand will be tracked on a regular basis to confirm the conservation trend and if needed, strength conservation practices.

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

- a) The DNR 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.

C. 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)?
<input checked="" type="checkbox"/> Rainfall sensors required on landscape irrigation systems MN State Statue 103G.298	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
<input checked="" type="checkbox"/> Water efficient plumbing fixtures required 1992 Federal Energy Policy Act	<input checked="" type="checkbox"/> New development <input checked="" type="checkbox"/> Replacement <input type="checkbox"/> Rebate Programs
<input checked="" type="checkbox"/> Critical/Emergency Water Deficiency ordinance	<input checked="" type="checkbox"/> Only during declared Emergencies
<input checked="" type="checkbox"/> Watering restriction requirements (time of day, allowable days, etc.)	<input type="checkbox"/> Odd/even <input type="checkbox"/> 2 days/week <input checked="" type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Water waste prohibited (for example, having a fine for irrigators spraying on the street)	<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Limitations on turf areas (requiring lots to have 10% - 25% of the space in natural areas)	<input type="checkbox"/> New development <input type="checkbox"/> Shoreland/zoning <input type="checkbox"/> Other
<input type="checkbox"/> Soil preparation requirement s (after construction, requiring topsoil to be applied to promote good root growth)	<input type="checkbox"/> New Development <input type="checkbox"/> Construction Projects <input type="checkbox"/> Other
<input type="checkbox"/> Tree ratios (requiring a certain number of trees per square foot of lawn)	<input type="checkbox"/> New development <input type="checkbox"/> Shoreland/zoning <input type="checkbox"/> Other
<input type="checkbox"/> Permit to fill swimming pool and/or requiring pools to be covered (to prevent evaporation)	<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared Emergencies
<input type="checkbox"/> Ordinances that permit stormwater irrigation, reuse of water, or other alternative water use (Note: be sure to check current plumbing codes for updates)	<input type="checkbox"/> Describe

D. 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
<input type="checkbox"/> Low flush toilets, <input type="checkbox"/> Toilet leak tablets, <input checked="" type="checkbox"/> Low flow showerheads, <input checked="" type="checkbox"/> Faucet aerators;	<input type="checkbox"/> Education about <input checked="" type="checkbox"/> Free distribution of <input type="checkbox"/> Rebate for <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Gas company <input checked="" type="checkbox"/> Electric company <input type="checkbox"/> Watershed organization
<input type="checkbox"/> Water conserving washing machines, <input type="checkbox"/> Dish washers, <input type="checkbox"/> Water softeners;	<input type="checkbox"/> Education about <input type="checkbox"/> Free distribution of <input type="checkbox"/> Rebate for <input type="checkbox"/> Other	<input type="checkbox"/> Gas company <input type="checkbox"/> Electric company <input type="checkbox"/> Watershed organization
<input checked="" type="checkbox"/> Rain gardens, <input checked="" type="checkbox"/> Rain barrels, <input checked="" type="checkbox"/> Native/drought tolerant landscaping, etc.	<input checked="" type="checkbox"/> Education about <input type="checkbox"/> Free distribution of <input type="checkbox"/> Rebate for <input type="checkbox"/> Other	<input type="checkbox"/> Gas company <input type="checkbox"/> Electric company <input checked="" type="checkbox"/> 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.):

City supports partner organizations efforts for retrofitting & rebates.

E. 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 topics are included in the City Newsletter sent with Utility Bills	4	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Consumer Confidence Reports	Water conservation included in 2017 report.	1	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Press releases to traditional local news outlets (e.g., newspapers, radio and TV)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Social media distribution https://www.facebook.com/CityofMaplePlain	Add water conservation information.	-	<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Paid advertisements (e.g., billboards, print media, TV, radio, web sites, etc.)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Presentations to community groups			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Staff training			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Facility tours			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Displays and exhibits			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Marketing rebate programs (e.g., indoor fixtures & appliances and outdoor practices)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Community news letters	Water conservation topics are included in the City Newsletter sent with Utility Bills	4	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Direct mailings (water audit/retrofit kits, showerheads, brochures)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Information kiosk at utility and public buildings	Conservation information or brochures will be made available at City Hall.		<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Public service announcements			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies

Local Water Supply Plan – Maple Plain

Education Methods	General summary of topics	#/Year	Frequency
Cable TV Programs			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Demonstration projects (landscaping or plumbing)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
K-12 education programs (Project Wet, Drinking Water Institute, presentations)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Community events (children’s water festivals, environmental fairs)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Community education classes			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Water week promotions			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Website: https://www.mapleplain.com/departments/PublicWorks/water-conservation	Conservation page with additional links; identify and stop water leaks	24/7	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Targeted efforts (large volume users, users with large increases)			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Notices of ordinances	As needed.	-	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies
Emergency conservation notices	Utilize existing CodeRED system for emergency notifications.	-	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input checked="" type="checkbox"/> Only during declared emergencies
Other:			<input type="checkbox"/> Ongoing <input type="checkbox"/> Seasonal <input type="checkbox"/> Only during declared emergencies

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

The City has been including tips and information in the City newsletter which is sent four times a year with the utility billing. Conservation was added to the 2017 CCR. The City will work to expand conservation education through newsletter, website, brochures at City Hall, and social media.

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
<input checked="" type="checkbox"/> None at this time	NA	NA
<input type="checkbox"/> Comprehensive planning that guides development in vulnerable drinking water supply management areas		
<input type="checkbox"/> Zoning overlay		
<input type="checkbox"/> 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

Go to [Part 1C](#) for information on what to include in appendix

Appendix 2: Water level monitoring plan

Go to [Part 1E](#) for information on what to include in appendix

Appendix 3: Water level graphs for each water supply well

Go to [Part 1E](#) for information on what to include in appendix

Appendix 4: Capital Improvement Plan

Go to [Part 1E](#) for information on what to include in appendix

Appendix 5: Emergency Telephone List

Go to [Part 2C](#) for information on what to include in appendix

Appendix 6: Cooperative Agreements for Emergency Services

Go to [Part 2C](#) for information on what to include in appendix

Appendix 7: Municipal Critical Water Deficiency Ordinance

Go to [Part 2C](#) for information on what to include in appendix

Appendix 8: Graph of Ten Years of Annual Per Capita Water Demand for Each Customer Category

Go to [Objective 4 in Part 3B](#) for information on what to include in appendix

Appendix 9: Water Rate Structure

Go to [Objective 6 in Part 3B](#) for information on what to include in appendix

Appendix 10: Ordinances or Regulations Related to Water Use

Go to [Objective 7 in Part 3B](#) for information on what to include in appendix

Appendix 11: Implementation Checklist

Provide a table that summarizes all the actions that the public water supplier is doing, or proposes to do, with estimated implementation dates.

Appendix 12: Sources of Information for Table 10

Provide links or references to the information used to complete Table 10. If the file size is reasonable, provide source information as attachments to the plan.

APPENDIX 1: WELL RECORDS AND MAINTENANCE SUMMARIES

207090

County Hennepin
 Quad Rockford
 Quad ID 121C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
 Minnesota Statutes Chapter 1031

Entry Date 08/24/1991
 Update
 Received Date 08/18/2014

Well Name	Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed	Lic/Reg. No.		
MAPLE PLAIN 1	118	24	W	24	DCCBCB	community supply	A	418 ft.	418 ft.	11/00/1939	27246		
Elevation	1025 ft.	Elev. Method	7.5 minute topographic map (+/- 5 feet)			Aquifer	Tunnel City-	Depth to Bedrock	234 ft	Open Hole	238 - 418 ft	Static Water Level	114 ft
Field Located By	Minnesota Department of				Locate Method	GPS SA On (averaged)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified	Information from owner				Input Source	Minnesota Department of Health			UTM Easting (X)	448342			
Geological Interpretation	John Mossler				Input Date	04/06/1999			UTM Northing (Y)	498414			
Agency (Interpretation)									Interpretation Method	Cuttings + geophysical log			

Geological Material	Color	Hardness	Depth (ft.)		Thickness	Elevation (ft.)		Stratigraphy	Primary Lithology	Secondary	Minor Lithology
			From	To		From	To				
TOP SOIL	BLACK		0	2	2	1025	1023	Recent deposit-black	soil	organic deposits	
CLAY	YELLOW		2	15	13	1023	1010	clay-yellow	clay		
CLAY	BLUE		15	74	59	1010	951	clay-gray	clay		
CLAY AND SAND	BLUE		74	160	86	951	865	clay+sand-gray	clay	sand	
SAND AND GRAVEL			160	173	13	865	852	sand +larger	sand	gravel	
CLAY	BLUE		173	210	37	852	815	clay-gray	clay		
FINE SAND			210	223	13	815	802	sand	sand		
FINE SAND AND GRAVEL			223	234	11	802	791	sand +larger	sand	gravel	
SHALE	GREEN		234	242	8	791	783	St.Lawrence	siltstone	dolomite	
HARD SANDROCK VARIOUS	VARIED		242	250	8	783	775	Tunnel City Group	sandstone	dolomite	shale
SANDROCK AND SHALE			250	300	50	775	725	Tunnel City Group	sandstone	shale	
SHALE	GREEN		300	311	11	725	714	Tunnel City Group	shale	sandstone	glauconite
SANDROCK VARIOUS	VARIED		311	334	23	714	691	Tunnel City Group	sandstone	dolomite	shale
SHALE			334	338	4	691	687	Tunnel City Group	shale	sandstone	
SANDROCK			338	362	24	687	663	Tunnel City Group	sandstone	siltstone	dolomite
SHALE			362	365	3	663	660	Tunnel City Group	shale	sandstone	
SANDROCK			365	369	4	660	656	Tunnel City Group	sandstone	shale	dolomite
SANDROCK			369	416	47	656	609	Wonewoc Sandstone	sandstone		
SANDROCK W/TRACE OF			416	418	2	609	607	Wonewoc Sandstone	sandstone		

TOTAL CONTROL SYSTEMS, INC.

Invoice

38841 Nyman Drive NE
 P.O. Box 40
 Stanchfield, MN 55080
 320-396-4442 / 320-396-4443 Fax

Date	Invoice #
9/8/2010	5345

Bill To
City of Maple Plain 1620 Maple Avenue P.O. Box 97 Maple Plain, MN 55359

RECEIVED SEP 13 2010

P.O. No.	Terms	Project
Dennis Nelsen	Net 30	

Quantity	Description	Rate	Amount
5	(Kraig 8/12/10) - Well #1 & Tower not functioning or communicating with Water Treatment Plant. Problem most likely due to a lightning strike on 8/10/10. Determined bad components and replaced PLC, AC Input Card, Analog Input card, tower pressure transducer, intrinsic barrier. Programmed controller to function with SCADA system and calibrated new tower pressure transducer. Determined UPS & tower door security switch also bad.	115.00	575.00
3	(Matt 8/13/10) - Installed new UPS in Well #1 PLC Panel, replaced Tower security door switch. Modified Tower Level PLC Scaling to reflect new pressure transducer when tower was near full.	115.00	345.00
1	2088G2S22A1B4 Rosemount 0-100 PSI	1,100.50	1,100.50T
1	1766-L32AWA Allen Bradley	764.42	764.42T
1	1762-IA8 Allen Bradley	156.73	156.73T
1	1762-IF4 Allen Bradley	324.00	324.00T
1	4400-A GRI Door Switch	30.00	30.00T
1	CP1285AVRLCD Cyberpower UPS	128.15	128.15T
156	Mileage	0.70	109.20
	MN State Sales Tax	6.875%	172.14

49400
 #311
 OK Dennis

~~Insurance claim~~

Please remit to: P.O. Box 40
 Thank you.

Total 93,705.14

Invoice



38841 Nyman Drive NE
 P.O. Box 40
 Stanchfield, MN 55080-0040

Date: 1/16/2012
 Invoice No.: 5926

Bill To

 City of Maple Plain
 1620 Maple Avenue
 P.O. Box 97
 Maple Plain, MN 55359

P.O. No.	Terms	Project
Dennis Nelsen	Net 30	

Quantity	Description	Rate	Amount
4	(Kraig 1/3/12) - Well #1 & Tower communication not working. Found fault in Well #1 PLC, cleared fault and loaded program. Verified operation.	120.00	480.00
79	Mileage	0.70	55.30
	MN State Sales Tax	6.875%	0.00

RECEIVED JAN 18 2012

49400
 #311
 Dennis

PLEASE REMIT PAYMENT TO: PO BOX 40. THANK YOU!	Total \$535.30
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207407

County Hennepin
 Quad Rockford
 Quad ID 121C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
 Minnesota Statutes Chapter 1031

Entry Date 08/24/1991
 Update Date 08/18/2014
 Received Date

Well Name MAPLE PLAIN 2	Township 118	Range 24	Dir Section W 24	Subsection CDDDC A	Well Depth 435 ft.	Depth Completed 435 ft.	Date Well Completed 10/01/1959
Elevation 1035	Elev. Method 7.5 minute topographic map (+/- 5 feet)				Drill Method Cable Tool	Drill Fluid	
Address					Use community supply(municipal)	Status Active	
Well 1620 MAPLE AV MAPLE PLAIN MN 55359					Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To		
Contact MAPLE PLAIN MN 55359					Casing Type Single casing Joint		
Stratigraphy Information					Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below 1.5 ft.		
Geological Material	From	To (ft.)	Color	Hardness	Casing Diameter 16 in. To 241 ft. lbs./ft.		
CLAY	0	40					
GRAY CLAY SOME	40	105	GRAY				
HARD CLAY, GRAVEL	105	165	YELLOW	HARD			
SOFT YELLOW CLAY	165	170	YELLOW	SOFT			
HARD CLAY, GRAVEL	170	214		HARD			
DIRTY SANDSTONE	214	226					
DIRTY SANDSTONE	226	228					
SHALE	228	243	GRAY				
GREEN SANDY SHALE	243	250	GREEN				
RED SHALE	250	255	RED				
GREEN SANDY SHALE	255	265	GREEN				
HARD SHALE	265	285		HARD			
GREEN SHALE AND	285	364	GREEN				
GREEN SHALE AND	364	365	GREEN				
WHITE SANDSTONE	365	428	WHITE				
SHALE AND	428	435					
					Open Hole From 241 ft. To 435 ft.		
					Screen? <input type="checkbox"/> Type Make		
					Static Water Level 119 ft. land surface Measure 10/01/1959		
					Pumping Level (below land surface) 187 ft. hrs. Pumping at 400 g.p.m.		
					Wellhead Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified		
					Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No		
					Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name PEERLESS Model Number HP 30 Volt 220 Length of drop pipe ft Capacity g.p. Typ		
					Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
					Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No		
					Miscellaneous First Bedrock Tunnel City Group Aquifer Tunnel City- Last Strat Eau Claire Formation Depth to Bedrock 226 ft Located by Minnesota Department of Health Locate Method GPS SA On (averaged) System UTM - NAD83, Zone 15, Meters X 448245 Y 4984041 Unique Number Verification Information from Input Date 04/06/1999		
					Angled Drill Hole		
					Well Contractor Tri-state Well Co. 27118 BERTTHIAUME,M Licensee Business Lic. or Reg. No. Name of Driller		
Remarks DETONATED 8 SHOTS TOTALING 124 LBS. OF 75 PER CENT GELATINE. GAMMA LOGGED 4-7-1993. MAPLE PLAIN MUNI #2 MP=1.5 PUMPAGE TEST 400 GPM-BEFORE SHOOTING 630 GPM-AFTER SHOOTING							

207407

County Hennepin
 Quad Rockford
 Quad ID 121C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
 Minnesota Statutes Chapter 1031

Entry Date 08/24/1991
 Update
 Received Date 08/18/2014

Well Name	Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed	Lic/Reg. No.		
MAPLE PLAIN 2	118	24	W	24	CDDDCA	community supply	A	435 ft.	435 ft.	10/01/1959	27118		
Elevation	1035 ft.	Elev. Method	7.5 minute topographic map (+/- 5 feet)			Aquifer	Tunnel City-	Depth to Bedrock	226 ft	Open Hole	241 - 435 ft	Static Water Level	125.5 ft
Field Located By	Minnesota Department of				Locate Method	GPS SA On (averaged)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified	Information from owner				Input Source	Minnesota Department of Health			UTM Easting (X)		448245		
Geological Interpretation	John Mossler				Input Date	04/06/1999			UTM Northing (Y)		498404		
Agency (Interpretation)									Interpretation Method		Inferred from geophysical log		

Geological Material	Color	Hardness	Depth (ft.)		Thickness	Elevation (ft.)		Stratigraphy	Primary Lithology	Secondary	Minor Lithology
			From	To		From	To				
CLAY			0	40	40	1035	995	clay	clay		
GRAY CLAY SOME GRAVEL	GRAY		40	105	65	995	930	pebbly sand/silt/clay-	clay	gravel	
HARD CLAY, GRAVEL	YELLOW	HARD	105	165	60	930	870	pebbly sand/silt/clay	clay	gravel	
SOFT YELLOW CLAY	YELLOW	SOFT	165	170	5	870	865	clay-yellow	clay		
HARD CLAY, GRAVEL		HARD	170	214	44	865	821	pebbly sand/silt/clay	clay	gravel	
DIRTY SANDSTONE			214	226	12	821	809	sand+silt	sand	silt	
DIRTY SANDSTONE			226	228	2	809	807	Tunnel City Group	sandstone	shale	dolomite
SHALE	GRAY		228	243	15	807	792	Tunnel City Group	sandstone	shale	dolomite
GREEN SANDY SHALE	GREEN		243	250	7	792	785	Tunnel City Group	sandstone	shale	dolomite
RED SHALE	RED		250	255	5	785	780	Tunnel City Group	shale	dolomite	sandstone
GREEN SANDY SHALE	GREEN		255	265	10	780	770	Tunnel City Group	sandstone	shale	dolomite
HARD SHALE		HARD	265	285	20	770	750	Tunnel City Group	shale	sandstone	dolomite
GREEN SHALE AND	GREEN		285	364	79	750	671	Tunnel City Group	shale	sandstone	dolomite
GREEN SHALE AND	GREEN		364	365	1	671	670	Wonewoc Sandstone	sandstone		
WHITE SANDSTONE	WHITE		365	428	63	670	607	Wonewoc Sandstone	sandstone		
SHALE AND SANDSTONE			428	435	7	607	600	Eau Claire Formation	shale	sandstone	

Invoice

ELECTRICAL INSTALLATION & MAINT. CO
1480 COUNTY ROAD 90
MAPLE PLAIN, MN 55359
(763) 479-3744

Invoice Number: 0010849-IN

Invoice Date: 9/14/2009

RECEIVED SEP 15 2009

Job Number: 6970000

CITY OF MAPLE PLAIN
PO BOX 97
MAPLE PLAIN, MN 55359

Contact: DENNIS

Terms: NET 30

Item Code	Description	UM	Quantity	Price	Amount
	CONTROL WORK ON WELL AT CITY HALL.				
LS	LABOR - SERVICE WORK		4.000	95.000	380.00

49400
#311
OK Dennis

Net Invoice: 380.00

Invoice Total: 380.00

Retention Amount: 0.00



INVOICE

INVOICE NO. 9363

BERGERSON-CASWELL, INC.
WELL DRILLING AND PUMPS
5115 Industrial Street
Maple Plain, MN 55359
763-479-3121

RECEIVED NOV 17 2009

BILL TO

City of Maple Plain
1620 Maple Street
P.O. Box 97
Maple Plain, MN 55359

JOB

City of Maple Plain-#2 Pipelin
1620 Maple Street
P.O. Box 97
Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	11/13/09	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
JOB# 09-T-27061				
RE: Invoice for Well #2 Discharge Piping Modifications.				
	6	HR Labor to Remove, Fabricate & Reinstall the Discharge Pipeline	150.00	900.00*
	1	LS (2) 4" 45 Degree Weld Elbows (2) 4" Weld Slip on Flanges (6'-8') of 4" Steel Sch 40 Pipe (2) 8" Gaskets, (2) 6" Gaskets, (4) 4" Gaskets		
	0	Blind Steel Plates/Blind Flanges for Capping After Preforming Project, Well Pump Would Not Operate as Designed. Additional Labor & Materials Where Needed to Correct the Issue.	350.00	350.00*
	1	LS Labor & Materials need for Reconfiguring Electrical Starting Sequence	1150.00	1,150.00*

49400
#311
OK Dennis

* means item is non-taxable
THANK YOU FOR YOUR BUSINESS!

PAST DUE ACCOUNTS SUBJECT TO 1.500% FINANCE CHARGES PER MONTH PLUS ALL COLLECTION COSTS.

SALE AMOUNT	2,400.00
TOTAL	\$2,400.00

TOTAL CONTROL SYSTEMS, INC.

Invoice

38841 Nyman Drive NE
 P.O. Box 40
 Stanchfield, MN 55080
 320-396-4442 / 320-396-4443 Fax

Date	Invoice #
3/18/2010	5169

Bill To
City of Maple Plain 1620 Maple Avenue P.O. Box 97 Maple Plain, MN 55359

P.O. No.	Terms	Project
Dennis Nelsen	Net 30	

Quantity	Description	Rate	Amount
1	Full & final billing for the Well #2 SCADA project per quote on 1/29/10, includes state sales tax.	2,200.00	2,200.00
	MN State Sales Tax	6.875%	0.00

RECEIVED MAR - 9 2010

49400
 #227
 OK Dennis

Please remit to: P.O. Box 40 Thank you.	Total	\$2,200.00
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INVOICE

INVOICE NO.
11329

BERGERSON-CASWELL, INC. WELL DRILLING AND PUMPS

5115 Industrial Street
Maple Plain, MN 55359
PH: 763-479-3121
FX: 763-479-2183

BILL
TO

City of Maple Plain
1620 Maple Street
P.O. Box 97
Maple Plain, MN 55359

JOB

City of Maple Plain #2
1620 Maple Street
P.O. Box 97
Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	12/31/10	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
JOB# 10-T-28620				
Attn: Dennis				
RE: Run test on well #2. Reset VFD Controls due to power loss. Explained to Dennis what to do in the future. Also programmed safety factor into the system.				
*All applicable State and Federal Taxes have been paid on all Installed Materials for this Installation and are included in the Material Prices.				
	1.5	HR Reset VFD Controls	125.00	187.50*
<p><i>* Service call for VFD on Well #2 This was effected by the electrical surge.</i></p>				

RECEIVED JAN - 5 - 2011

49400
311
OK Dennis

* means item is non-taxable
THANK YOU FOR YOUR BUSINESS!

PAST DUE ACCOUNTS SUBJECT TO 1.500% FINANCE
CHARGES PER MONTH PLUS ALL COLLECTION COSTS.

SALE AMOUNT	187.50
TOTAL	\$187.50

TOTAL CONTROL SYSTEMS, INC.

38841 Nyman Drive NE
P.O. Box 40
Stanchfield, MN 55080
320-396-4442 / 320-396-4443 Fax

Rec'd 4-20-11

Invoice

Date	Invoice #
4/15/2011	5547

Bill To
City of Maple Plain 1620 Maple Avenue P.O. Box 97 Maple Plain, MN 55359

P.O. No.	Terms	Project
Dennis Nelsen	Net 30	

Quantity	Description	Rate	Amount
4.5	(Matt 4/7/11) - Well #2 Radio kept going into failure. Replaced the existing Omni Antenna with a Y4503 Yagi Antenna and raised the antenna higher with piping. Ran new LMR-400 antenna cable with new antenna cable ends. The new antenna fixed the problem and everything was working properly.	115.00	517.50
35	35' feet of LMR-400 Antenna Cable	0.85	29.75T
2	EZ-400-NMH-D Antenna Cable Ends	7.64	15.28T
1	Y4503 Yagi Antenna	124.25	124.25T
1	Misc. 1" piping, duct seal, and silicone.	27.94	27.94T
52	Mileage	0.70	36.40
	MN State Sales Tax	6.875%	13.56

Please remit to: P.O. Box 40
Thank you.

Total \$764.68

*49400
#311
OK Dennis*

INVOICE

INVOICE NO.

21170

BERGERSON-CASWELL, INC. WELL DRILLING AND PUMPS



5115 Industrial Street
Maple Plain, MN 55359
PH: 763-479-3121
FX: 763-479-2183

BILL TO
City of Maple Plain
PO Box 97
Maple Plain, MN 55359

JOB
35112T-Maple Plain-Well #2
1620 Maple Street
PO Box 97
Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	2/4/16	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
Job #35112T				
RE: Invoice for Well Pump#2				
*All applicable State and Federal Taxes have been paid on all Installed Materials for this Installation and are included in the Material Prices.				
	1	LS Remove well pump#2 and weld cap on well to protect while demolition of building takes place	3,000.00	3,000.00
<p>452-49357-</p> <p>500</p>				

THANK YOU FOR YOUR BUSINESS! PAST DUE ACCOUNTS SUBJECT TO 1.5% FINANCE CHARGES PER MONTH PLUS ALL COLLECTION COSTS.	SALE AMOUNT	3,000.00
	TOTAL	\$3,000.00

All payments paid by paper check will be converted to Images and the transaction will be completed as an ACH Transaction, when applicable. Unless Customer notifies Bergerson Caswell not to process Customer's Checks using the Image and ACH Services, those items will be converted to Images and processed using the ACH Services.

112238County Hennepin
Quad Rockford
Quad ID 121CMINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031Entry Date 08/24/1991
Update Date 11/30/2016
Received Date

Well Name MAPLE PLAIN 3	Township 118	Range 24	Dir Section W 24	Subsection CCCACD	Well Depth 580 ft.	Depth Completed 534 ft.	Date Well Completed 04/20/1978
Elevation 1020	Elev. Method Calc from DEM (USGS 7.5 min or equiv.)				Drill Method Cable Tool	Drill Fluid	
Address					Use community supply(municipal)	Status Active	
Contact MAPLE PLAIN MN 55349					Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To		
Well MAPLE PLAIN MN 55359					Casing Type Step down Joint Welded		
Stratigraphy Information					Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Above/Below 2 ft.		
Geological Material	From	To (ft.)	Color	Hardness	Casing Diameter Weight Hole Diameter		
CLAY	0	30			30 in. To	59 ft. lbs./ft.	24 in. To 534 ft.
SANDY CLAY	30	57	BLUE		18 in. To	534 ft. lbs./ft.	18 in. To 580 ft.
CLAY	57	162	BLUE		24 in. To	333 ft. lbs./ft.	
GRAVEL	162	166			Open Hole From 534 ft. To 580 ft.		
CLAY	166	284	BLUE		Screen? <input checked="" type="checkbox"/> Type Make		
HARD-PACKED	284	286		HARD	Static Water Level		
HARD PACKED	286	290		HARD	128 ft.	land surface	Measure 09/27/1994
SAND, SHALE, AND	290	299			Pumping Level (below land surface)		
SHALE STICKY	299	312			220 ft.	hrs. Pumping at	650 g.p.m.
SAND, SHALE, AND	312	335			Wellhead Completion		
SHALEY SANDROCK	335	342			Pitless adapter manufacturer Model		
SHALEY, SANDROCK	342	393			<input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade		
SHALEY, SANDROCK	393	469			<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
EAU CLAIRE-MT.	469	475	GRAY	SOFT	Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified		
EAU CLAIRE-MT.	475	515	GRAY	SOFT	Material	Amount	From To
MT. SIMON	515	580	WHITE	SOFT	neat cement	36 Cubic yards	0 ft. 534 ft.
					neat cement	0	0 ft. 60 ft.
					Nearest Known Source of Contamination		
					feet	Direction	Type
					Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
					Pump <input type="checkbox"/> Not Installed	Date Installed	00/07/1994
					Manufacturer's name JOHNSTON		
					Model Number	TK-61554A	HP 125 Volt 240
					Length of drop pipe	280 ft	Capacity 650 g.p. Typ Turbine
					Abandoned		
					Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
					Variance		
					Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No		
					Miscellaneous		
					First Bedrock	Tunnel City Group	Aquifer Mt.Simon
					Last Strat	Mt.Simon Sandstone	Depth to Bedrock 286 ft
					Located by Minnesota Department of Health		
					Locate Method Digitization (Screen) - Map (1:24,000)		
					System	UTM - NAD83, Zone 15, Meters	X 447667 Y 4984120
					Unique Number Verification	Information from	Input Date 04/06/1999
					Angled Drill Hole		
					Well Contractor		
					Bergerson-Caswell	27058	MANTHIE, D.
					Lic. or Reg. No.		Name of Driller
Remarks							
GAMMA LOGGED 5-13-1993 & 7-14-1993 AFTER GRAVEL PACK REMOVED.							
IN 1994 SCREEN WAS PULLED AND THE WELL WAS DEEPENED.							
M.G.S. NO. 3619. CUTTING FROM 450-570 FT.							
MAPLE PLAIN MUNI #3 MP=2.25							
WELL GRAVEL PACKED HAS 70 FT. OF SCREEN AND 60 FT. OF LEADER PIPE.							

112238

County Hennepin
 Quad Rockford
 Quad ID 121C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
 Minnesota Statutes Chapter 1031

Entry Date 08/24/1991
 Update
 Received Date 11/30/2016

Well Name	Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed	Lic/Reg. No.		
MAPLE PLAIN 3	118	24	W	24	CCCACD	community supply	A	580 ft.	534 ft.	04/20/1978	27058		
Elevation	1020 ft.	Elev. Method	Calc from DEM (USGS 7.5 min or equiv.)			Aquifer	Mt.Simon	Depth to Bedrock	286 ft	Open Hole	534 - 580 ft	Static Water Level	128 ft
Field Located By	Minnesota Department of				Locate Method	Digitization (Screen) - Map (1:24,000)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified	Information from owner				Input Source	Minnesota Department of Health			UTM Easting (X)		447667		
Geological Interpretation	John Mossler				Input Date	04/06/1999			UTM Northing (Y)		498412		
Agency (Interpretation)									Interpretation Method		Cuttings + geophysical log		

Geological Material	Color	Hardness	Depth (ft.)		Thickness	Elevation (ft.)		Stratigraphy	Primary Lithology	Secondary	Minor Lithology
			From	To		From	To				
CLAY			0	30	30	1020	990	clay	clay		
SANDY CLAY	BLUE		30	57	27	990	963	clay+sand-gray	clay	sand	
CLAY	BLUE		57	162	105	963	858	clay-gray	clay		
GRAVEL			162	166	4	858	854	gravel (+larger)	gravel		
CLAY	BLUE		166	284	118	854	736	clay-gray	clay		
HARD-PACKED GRAVEL		HARD	284	286	2	736	734	gravel (+larger)	gravel		
HARD PACKED GRAVEL		HARD	286	290	4	734	730	Tunnel City Group	sandstone	shale	dolomite
SAND, SHALE, AND LIME			290	299	9	730	721	Tunnel City Group	sandstone	shale	dolomite
SHALE STICKY			299	312	13	721	708	Tunnel City Group	shale	sandstone	
SAND, SHALE, AND LIME			312	335	23	708	685	Tunnel City Group	sandstone	shale	dolomite
SHALEY SANDROCK			335	342	7	685	678	Tunnel City Group	sandstone	shale	
SHALEY, SANDROCK			342	393	51	678	627	Wonewoc Sandstone	sandstone		
SHALEY, SANDROCK			393	469	76	627	551	Eau Claire Formation	shale	sandstone	
EAU CLAIRE-MT. SIMON	GRAY	SOFT	469	475	6	551	545	Eau Claire Formation	shale	sandstone	
EAU CLAIRE-MT. SIMON	GRAY	SOFT	475	515	40	545	505	Mt.Simon Sandstone	sandstone	shale	
MT. SIMON	WHITE	SOFT	515	580	65	505	440	Mt.Simon Sandstone	sandstone		



PO Box 702
Buffalo, MN 55313

RECEIVED SEP - 1 2009

Invoice	
Date	Invoice #
8/31/09	2222

Bill To
City of Maple Plain PO Box 97 Maple Plain, MN 55359

Jobsite Address
City shop well house

P.O. #	Terms

Date	Description	Amount
8/27/09	Inspected drain line w/ sewer camera <i>Well #3</i>	

*49400
#311
OK Dennis*

Total	\$ 175.00
Payments/Credits	\$ 0.00
Balance Due	\$ 175.00





INVOICE

INVOICE NO.

16790

BERGERSON-CASWELL, INC.

WELL DRILLING AND PUMPS

5115 Industrial Street
 Maple Plain, MN 55359
 PH: 763-479-3121
 FX: 763-479-2183

BILL TO City of Maple Plain
 1620 Maple Street
 P.O. Box 97
 Maple Plain, MN 55359

JOB 32246T-Maple Plain Well-#3
 1620 Maple Street
 P.O. Box 97
 Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	10/30/13	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
Job #32246T				
RE: Rebuild packing assembly on well #3.				
*All applicable State and Federal Taxes have been paid on all Installed Materials for this Installation and are included in the Material Prices.				
	1	LS Materials for rebuilding packing gland assembly	350.00	350.00*
	2	HR Labor T. Feltman	120.00	240.00*
	16	HR Labor E. Dvorak, E. Ferguson	190.00	3,040.00*
		49400		
		# 400		
		Bunt		

* means item is non-taxable
 THANK YOU FOR YOUR BUSINESS!

PAST DUE ACCOUNTS SUBJECT TO 1.5% FINANCE
 CHARGES PER MONTH PLUS ALL COLLECTION COSTS.

SALE AMOUNT	3,630.00
TOTAL	\$3,630.00

All payments paid by paper check will be converted to Images and the transaction will be completed as an ACH Transaction, when applicable. Unless Customer notifies Bergerson Caswell not to process Customer's Checks using the Image and ACH Services, those items will be converted to Images and processed using the ACH Services.



INVOICE

INVOICE NO.

18847

BERGERSON-CASWELL, INC. WELL DRILLING AND PUMPS

5115 Industrial Street
Maple Plain, MN 55359
PH: 763-479-3121
FX: 763-479-2183

BILL TO
City of Maple Plain
1620 Maple Street
P.O. Box 97
Maple Plain, MN 55359

JOB
33658T-Maple Plain Well-#3
1620 Maple Street
P.O. Box 97
Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	11/11/14	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
Job #33658T				
RE: WELL PUMP #3 VIBRATIONS.				
*All applicable State and Federal Taxes have been paid on all Installed Materials for this Installation and are included in the Material Prices.				
This pump is operating within the motors critical frequency and is showing signs of harmonic vibrations. During startup the pump ramps up to 55 hz to achieve set point as it slows down the performance improves because we are operating further from the harmonic frequency that is vibrating the installation.				
	2	HR Labor Eric F	85.00	170.00
	1	HR Labor Terry F	85.00	85.00

THANK YOU FOR YOUR BUSINESS!

PAST DUE ACCOUNTS SUBJECT TO 1.5% FINANCE
CHARGES PER MONTH PLUS ALL COLLECTION COSTS.

SALE AMOUNT

255.00

TOTAL**\$255.00**

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INVOICE

INVOICE NO.

22397

BERGERSON CASWELL, INC.
TESTING AND PUMPS
 Industrial Street
 Maple Plain, MN 55359
 TEL: 763-479-3121
 FAX: 763-479-2183

City of Maple Plain
 PO Box 97
 Maple Plain, MN 55359

JOB

36187T-Maple Plain-#3 Test
 PO Box 97
 Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	9/30/16	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
Job #36187T				
RE: Invoice for performance testing on pump#3 for City of Maple Plain.				
NOTES				
The pump is performing as designed. The testing results are similar to that of the last 2 years. The water levels were higher, but it is most likely due to the lesser amount of pumping hours this past year.				
	2	HR Labor for performance testing	150.00	300.00
<i>601-49400-311</i>				

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THANK YOU FOR YOUR BUSINESS!

Past due accounts subject to 1.5% finance charge per month plus collection costs

SALE AMOUNT	300.00
TOTAL	\$300.00

Payments paid by paper check will be converted to Images and the transaction will be completed as an ACH Transaction, when applicable. Unless Customer notifies Bergerson Caswell not to process Customer's Checks using the Image and ACH Services, all items will be converted to Images and processed using the ACH Services.

TURBINE PUMP (MOTOR, PUMP, PERFORMANCE RECORD)

(AS INSTALLED)

(AS TESTED)

DATE: September 14, 2015

Customer/Owner: City of Maple Plain Well/Pump 3
 Address/Location: _____
 Persons on Job Site: Matt

MOTOR INFO:

230/460

Frame Horsepower 50 Stand Still Volts _____ Running Volt: 477/478/479
 326TP Manufacturer US R.P.M. 1780 Full Load Amps 57 S.F.Amps _____

BOWL DESIGN: G.P.M. 600 T.D.H. 265 Megger Reading _____
 Drive AMP _____

PERFORMANCE TEST: Static Water Level 108 Well Diameter 24" to 355' Well Depth 404'
 38.1

Test #1: HZ 52.6 AMPS 38.1/38.1/38.3 G.P.M. 400 Water Level 134.6 P.S.I. 10 T.D.H. 157
 48.8

Test #2: HZ 52.6 AMPS 34.5/35.5/35.4 G.P.M. 220 Water Level 130 P.S.I. 20 T.D.H. 176
 36.4

Test #3: HZ 54.9 AMPS 34.6/36.1/35.7 G.P.M. 100-85 Water Level 128 P.S.I. 40 T.D.H. 220

T.D.H. = Pumping Water Level in Feet + (P.S.I. reading x 2.31) + Friction Loss In Column + Fittings
 Example: Information Given: 1000 G.P.M., 150' Water Level, 50 P.S.I., 3.5' Friction Loss
 Therefore: 150' + (50# x 2.31 or 115.5') + 3.5' = 269' T.G.H.

OR

The pump is producing 1000 G.P.M. at 269' T.D.H.

Does Well Pump Sand? Yes / No If So, How Much? _____
 Test #1 _____ " in Gallon Jar
 Test #2 _____ " in Gallon Jar
 Test #3 _____ " in Gallon Jar

Closed Valve Test: P.S.I. Reading _____ Water Level _____

Vibration Record: Vibration in Mills: A 1.6-2.0 90° from Discharge
 B 1.2-1.6 In Line with Discharge
 C 0.8-1.0 90° from Discharge
 D 0.7 In Line with Discharge

Tested By: Eric F.

Problems/Comments: Allen Bradley Power flex/ Unique well # 112238 / 16279 hours

Customer/Owner Comment: _____

INVOICE

INVOICE NO.

23969

601-49400-311

BERGerson-CASWELL, INC.
WELL DRILLING AND PUMPS
 5115 Industrial Street
 Maple Plain, MN 55359
 PH: 763-479-3121
 FX: 763-479-2183



BILL TO

City of Maple Plain
 PO Box 97
 Maple Plain, MN 55359

JOB

36876T-Maple Plain-Well #3
 PO Box 97
 Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	7/17/17	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
Job# 36876T				
RE: INVOICE FOR EMERGENCY REPAIRS AND SERVICES TO WELL PUMP #3				
*All applicable State and Federal Taxes have been paid on all Installed Materials for this Installation and are included in the Material Prices.				
	1	LS Remove pump installation & shaft clamps to hold pump	1,850.00	1,850.00
	1	LS Reinstall Temporary Submersible pump installation and modify controls	2,150.00	2,150.00
	55	HR Shop Labor to recondition the installation and all components	85.00	4,675.00
	8	EA Furnish 8" x 10' T&C drop pipe	480.00	3,840.00
	1	EA Furnish 8" x 5' T&C drop pipe	280.00	280.00
	1	EA Furnish 8" x 10' TOE tail pipe	420.00	420.00
	3	EA 1.25" SS Shaft couplings	40.00	120.00
	27	EA 1.25" x 1.375" Shaft wear sleeves	70.00	1,890.00
	16	EA Spider bearing assemblies	105.00	1,680.00
	1	LS Replace Head/Base shaft as needed in length	650.00	650.00
	4	EA 1.25" x 120" 416 SS Line Shaftf	220.00	880.00
	27	EA F & I line shaft bearings	25.00	675.00
	1	LS Recondition discharge-head, replace bearing, grease fitting, packing, studs/nuts.	450.00	450.00
	4	EA Machine impeller and casting, install wear ring	400.00	1,600.00

SALE AMOUNT	
TOTAL	

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INVOICE

INVOICE NO.

23969

BERGERSON-CASWELL, INC. WELL DRILLING AND PUMPS

5115 Industrial Street
Maple Plain, MN 55359
PH: 763-479-3121
FX: 763-479-2183



BILL TO

City of Maple Plain
PO Box 97
Maple Plain, MN 55359

JOB

36876T-Maple Plain-Well #3
PO Box 97
Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	7/17/17	2

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
	1	LS Replace complete set of bowl bearings	650.00	650.00
	1	LS Recondition 50 Hp VHS Motor	2,355.00	2,355.00
	270	FT Epoxy coat all column pipe sections inside and out	19.00	5,130.00
	1	LS Remove temporary submersible pump	2,150.00	2,150.00
	1	LS Reinstall reconditioned pump	2,150.00	2,150.00
	1	LS Start up and test the installation Balance, etc.	1,575.00	1,575.00
	1	LS Nova Spec to rebalance the installation	1,200.00	1,200.00

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THANK YOU FOR YOUR BUSINESS!

Past due accounts subject to 1.5% finance charge per month plus collection costs

SALE AMOUNT

36,370.00

TOTAL

\$36,370.00

payments paid by paper check will be converted to Images and the transaction will be completed as an ACH Transaction, when applicable. Unless Customer notifies Bergerson Caswell not to process Customer's Checks using the Image and ACH Services, all items will be converted to Images and processed using the ACH Services.



Bergerson - Caswell Inc.

5115 Industrial Street
Maple Plain, MN 55359

July 15, 2017

CITY OF MAPLE PLAIN

Attn: Mr. Matt Morris
1620 Maple Avenue
Maple Plain, MN 55359

RE: INVOICE FOR EMERGENCY REPAIRS AND SERVICES TO WELL PUMP #3

Dear Mr. Morris;

Bergerson-Caswell Inc appreciates the opportunity to assist you with your well and pump needs. As requested we have completed the maintenance project and services at well #3. This pump broke a line shaft coupling and continued to run when water wasn't being pumped resulting in numerous broken components. We removed the pump and installed a temporary pump so the City would be minimally impacted.

PROJECT COST Well #3: Pump installed 270' on 8"x 1.25", 700gpm @ 220'TDH

1) Remove pump installation & shaft clamps to hold pump	\$ 1,850.00
2) Reinstall Temporary Submersible pump installation and modify controls	\$ 2,150.00
3) Shop Labor to recondition the installation and all components, 55 hrs @ \$85.00/hr	\$ 4,675.00
4) Furnish 8 each 8"x 10' T & C drop pipe @ 480.00/ea	\$ 3,840.00
5) Furnish 1 each 8"x 5' T & C drop pipe @ \$280.00/ea	\$ 280.00
6) Furnish 1 each 8"x 10' TOE tail pipe @ \$420/ea	\$ 420.00
7) Replace 3 each 1.25" SS shaft couplings @ \$40.00/each	\$ 120.00
8) Replace 27each 1.25"x 1.375" Shaft wear sleeves @ \$70.00/each	\$ 1,890.00
9) Replace 16 each spider bearing assemblies @ \$105.00	\$ 1,680.00
10) Replace Head/Base shaft as needed in length	\$ 650.00
11) Replace (4) each 1.25"x 120" 416 SS line shafts @ \$220.00/ea	\$ 880.00
12) F & I 27 each Line shaft bearings @ 25.00/ea	\$ 675.00
13) Recondition discharge-head, replace bearing, grease fitting, packing, studs/nuts	\$ 450.00
14) Recondition pump bowl assembly Gould 11-CLC-4 stage (700gpm @ 220'TDH)	
Machine impeller and casting and install wear ring 4 each @ 400.00/ea	\$ 1,600.00
Replace complete set of bowl bearings	\$ 650.00
15) Recondition 50 Hp VHS motor	\$ 2,355.00
16) Epoxy Coat all column pipe sections inside and out 270' @ 19.00/ft	\$ 5,130.00
17) Remove temporary submersible pump	\$ 2,150.00
18) Reinstall reconditioned pump	\$ 2,150.00
19) Start up and test the installation Balance, etc..	\$ 1,575.00
20) Nova Spec to Rebalance the installation	\$ 1,200.00

TOTAL PROJECT INVOICE AMOUNT

\$ 36,370.00

If you have any questions, require other information or would like to perform the above quoted project, please do not hesitate to contact us at (763) 479-3121.

Sincerely;

BERGERSON=CASWELL INC.

Tim Berquam
Project Manager/Geologist

MACHINERY HEALTH REPORT



novaspect

BERGERSON CASWELL INC.
MAPLE PLAIN, MN
DATE: JUNE 16, 2017

***BALANCE REPORT
MAPLE PLAIN WELL #3***

PREPARED BY:
Brian Esberner
RELIABILITY SPECIALIST



Brian E Esberner
Reliability Specialist, Vibration Analyst
Novaspect Inc. | 2885 Water Tower Place | Chanhassen | MN | 55317 | USA
| M 612-581-8516
besberner@novaspect.com

June 16, 2017

ATTN: Tim Berquam

Summary

Fan balancing was conducted on: #3 Well Pump

It was found that the drive had trouble maintaining a constant speed which is crucial when performing a rotor balance. The pump operates at full speed for roughly 30 minutes when started and then backs down to its normal running speed (52 Hz). The motor was first balanced at full load and when it backed down to its normal running speed the vibration amplitudes increased. Following this the rotor was balanced at normal running speed. During the start-up process the motor operates just out of spec and when the start-up process is complete it operates within balance spec. I was told the piping is being altered in the near future and recommend following up with this once installed.

Balance Details

Shaft Number: 1

Units: Mil Peak- Peak

Speed: 1584.2 RPM

Measurement Point	Initial Amplitude	Final Amplitude
Inboard Horizontal	8.1 Mills	1.1 Mills
Inboard Vertical	7.7 Mills	.48 Mills
Outboard Horizontal	6.3 Mills	.42 Mills
Outboard Vertical	6.1 Mills	.33 Mills

Novaspect is committed to providing World Class Predictive Maintenance technologies and ensuring customer satisfaction. If you have any questions concerning any of the information contained in this report please feel free to contact me at 612-581-8516. I would like to thank you again for allowing Nvaspect to assist you in your Reliability Based Maintenance efforts.

Sincerely,

Brian Esberner
Reliability Specialist

Novaspect, Inc. Schaumburg, IL Chanhassen, MN Mandan, ND Appleton, WI Highland, IN
(847) 956-8020 (847) 885-8200 fax

TURBINE PUMP (MOTOR, PUMP, PERFORMANCE RECORD)

(AS TESTED)

DATE: June 6, 2017

GENERAL INFO:

Customer/Owner: City of Maple Plain Well/Pump 3
 Address/Location: In Pump house next to WTP
 Persons on Job Site: Matt & Harry

MOTOR INFO:

Horsepower 50 Stand Still Volts 480-480-482 Running Volt: 480-479-480
 Manufacturer US R.P.M. 1780 Full Load Amps 57 S.F.Amps 62.7

BOWL DESIGN: G.P.M. 700 T.D.H. 220 Megger Reading 1000 +

PERFORMANCE TEST: Static Water Level 140 Well Diameter 18" --> 530' Well Depth 538'

Test #1: HZ <u>56.4</u> AMPS <u>39/40/39</u>	G.P.M. <u>500</u>	Water Level <u>155'</u>	P.S.I. <u>10</u>	T.D.H. <u>178'</u>
Test #2: HZ <u>60</u> AMPS <u>53.3/52.5/52.5</u>	G.P.M. <u>760</u>	Water Level <u>163</u>	P.S.I. <u>12</u>	T.D.H. <u>190'</u>
Test #3: HZ <u>56</u> AMPS <u>40-41-40</u>	G.P.M. <u>525</u>	Water Level <u>171</u>	P.S.I. <u>8</u>	T.D.H. <u>189'</u>

T.D.H. = Pumping Water Level in Feet + (P.S.I. reading x 2.31) + Friction Loss In Column + Fittings
 Example: Information Given: 1000 G.P.M., 150' Water Level, 50 P.S.I., 3.5' Friction Loss
 Therefore: $150' + (50 \times 2.31 \text{ or } 115.5') + 3.5' = 269' \text{ T.G.H.}$

OR

The pump is producing 1000 G.P.M. at 269' T.D.H.

Does Well Pump Sand?	Yes	If So, How Much?	Test #1	<u>1/4</u>	" in Gallon Ja Scale
			Test #2	<u>1/8"</u>	" in Gallon Jar
			Test #3	<u></u>	" in Gallon Jar

Closed Valve Test: P.S.I. Reading Water Level

Vibration Record:	Vibration in Mils:	A	<u>5.1</u>	90* from Discharge	4.1
		B	<u>3.5</u>	In Line with Discharge	3.8
		C	<u>1.7</u>	90* from Discharge	2.9
		D	<u>1.8</u>	In Line with Discharge	2.6

Tested By: Eugene D, Mike T, & Eric F

Problems/Comments: This pump is vibrating a little more than we would like to see so we will perform additional balancing to the
The WTP software controls the speed of the pump and the speed fluctuates more than most installation while operating under normal conditions
The software is trying to match the flow rate leaving the plant with the flow rate entering the plant, so at start up it runs hard to fill reservoir then

Customer/Owner Comment: This was the first inspection after the WTP was installed and the pump was modified. This pump had failed due
the lack of or limited pressure from the pre-lube. And was installed for almost ten years, but currently was an emergency due to the new well
drilled when this failure occurred

INVOICE

INVOICE NO.

24991

BERGERSON CASWELL, INC.
PUMPING AND PUMPS
 Industrial Street
 Maple Plain, MN 55359
 PH: 763-479-3121
 FX: 763-479-2183

601-49400-311

City of Maple Plain
 PO Box 97
 Maple Plain, MN 55359

JOB 37715T-City of Maple Plain #3
 PO Box 97
 Maple Plain, MN 55359

CUSTOMER	PURCHASE ORDER NO.	BILL THRU	TERMS	INVOICE DATE	PAGE
MAPLE PL			Net 30	1/18/18	1

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
Job#37715T				
RE: Invoice for testing of the High Service Pumps#1,#2,.				
NOTE				
Tested Well pump #3 after piping modifications were complete. We worked on reducing the vibrations of this pump but with out installing a rubber isolating spool the vibration may return. In our opinion if an isolation spool was added to this installation it would improve the performance & life expectancy of all components in the system. We can provide a complete quote, but as an estimate the material needed for this modification should be around \$1,200.00 and \$1,400.00				
	3	HR Service Labor	165.00	495.00

Like us on Facebook - visit our website www.bergersoncaswell.com

THANK YOU FOR YOUR BUSINESS!

past due accounts subject to 1.5% finance charge per month plus collection costs

SALE AMOUNT	495.00
TOTAL	\$495.00

All payments paid by paper check will be converted to Images and the transaction will be completed as an ACH Transaction, when applicable. Unless Customer notifies Bergerson Caswell not to process Customer's Checks using the Image and ACH Services, those items will be converted to Images and processed using the ACH Services.

824078

County Hennepin
 Quad Rockford
 Quad ID 121C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
 Minnesota Statutes Chapter 1031

Entry Date 03/13/2017
 Update Date 03/16/2017
 Received Date

Well Name MAPLE PLAIN 4	Township 118	Range 24	Dir Section W 24	Subsection CCCADB	Well Depth 391 ft.	Depth Completed 391 ft.	Date Well Completed
Elevation 1021	Elev. Method LiDAR 1m DEM (MNDNR)				Drill Method Dual Rotary	Drill Fluid	
Address					Use community supply(municipal)	Status	
Stratigraphy Information					Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/>	From	To
Geological Material					Casing Type Joint		
From To (ft.) Color Hardness					Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/>	Above/Below	
LOAM/CLAY 0 5 BLK/YEL SOFT					Open Hole From _____ ft. To _____ ft.		
CLAY 5 15 YELLOW MEDIUM					Screen? <input type="checkbox"/>	Type	Make
CLAY W/FINE GRAVEL 15 270 GRAY MEDIUM					Static Water Level		
MED SAND 270 280 GRAY MEDIUM					Pumping Level (below land surface)		
FINE GRAVEL WITH 280 285 VARIED SOFT					Wellhead Completion		
MED SAND 285 295 GRAY MEDIUM					Pitless adapter manufacturer _____ Model _____		
FINE SAND W/GRAVEL 295 300 GRAY MEDIUM					<input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade		
COARSE GRAVEL & 300 305 VARIED MEDIUM					<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
SAND/COARSE 305 314 VARIED MEDIUM					Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Specified		
COARSE GRAVEL 314 315 VARIED MEDIUM					Nearest Known Source of Contamination		
CEMENTED 315 325 GRN/TAN MEDIUM					feet _____ Direction _____ Type _____		
CEMENTED SHALE & 325 330 GRN/TAN MEDIUM					Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No		
CEMENTED SHALE & 330 335 VARIED MEDIUM					Pump <input type="checkbox"/> Not Installed _____ Date Installed _____		
SHALE AND 335 340 GRN/TAN MEDIUM					Manufacturer's name _____		
SHALE 340 343 GREEN MEDIUM					Model Number _____ HP _____ Volt _____		
SHALE 343 345 GRN/BLK MEDIUM					Length of drop pipe _____ ft Capacity _____ g.p. Typ _____		
SANDSTONE 345 350 TAN MEDIUM					Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
SANDSTONE 350 365 GRAY MEDIUM					Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No		
SANDSTONE 365 370 GRAY MED-HRD					Miscellaneous		
SANDSTONE 370 385 GRAY MEDIUM					First Bedrock Tunnel City Group Aquifer		
SHALE AND 385 390 GRN/TAN MEDIUM					Last Strat Wonewoc Sandstone Depth to Bedrock 315 ft		
SHALE 390 391 GREEN MEDIUM					Located by Minnesota Geological Survey		
Remarks					Locate Method Digitization (Screen) - Map (1:12,000)		
GAMMA AND MULTI TOOL LOGGED 3-13-2017. M.G.S. NO. 5661. LOGGED FOR COUNTY ATLAS.					System UTM - NAD83, Zone 15, Meters X 447694 Y 4984156		
0-315 QUUU, 315-343 CTCG, 342-391 CWOC.					Unique Number Verification Information from Input Date 03/13/2017		
					Angled Drill Hole		
					Well Contractor		
					Mark J Traut Wells, Inc. 1404		
					Licensee Business Lic. or Reg. No. Name of Driller		
Minnesota Well Index Report				824078	Printed on 02/16/2018 HE-01205-15		

824078

County Hennepin
 Quad Rockford
 Quad ID 121C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
 Minnesota Statutes Chapter 1031

Entry Date 03/13/2017
 Update
 Received Date 03/16/2017

Well Name	Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed	Lic/Reg. No.		
MAPLE PLAIN 4	118	24	W	24	CCCADB	community supply		391 ft.	391 ft.		1404		
Elevation	1021 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)			Aquifer		Depth to Bedrock	315 ft	Open Hole	- ft	Static Water Level	ft
Field Located By	Minnesota Geological Survey			Locate Method	Digitization (Screen) - Map (1:12,000)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -					
Unique No. Verified	Information from owner			Input Source	Minnesota Geological Survey			UTM Easting (X)	447694				
Geological Interpretation	Andrew Retzler			Input Date	03/13/2017			UTM Northing (Y)	498415				
Agency (Interpretation)							Interpretation Method	Cuttings + geophysical log					

Geological Material	Color	Hardness	Depth (ft.)		Thickness	Elevation (ft.)		Stratigraphy	Primary Lithology	Secondary	Minor Lithology
			From	To		From	To				
LOAM/CLAY	BLK/YEL	SOFT	0	5	5	1021	1016	clay	loam	clay	
CLAY	YELLOW	MEDIUM	5	15	10	1016	1006	clay-yellow	clay		
CLAY W/FINE GRAVEL	GRAY	MEDIUM	15	270	255	1006	751	pebbly sand/silt/clay-	clay	gravel	
MED SAND	GRAY	MEDIUM	270	280	10	751	741	sand-gray	sand		
FINE GRAVEL WITH SAND	VARIED	SOFT	280	285	5	741	736	sand +larger	gravel	sand	
MED SAND	GRAY	MEDIUM	285	295	10	736	726	sand-gray	sand		
FINE SAND W/GRAVEL	GRAY	MEDIUM	295	300	5	726	721	sand +larger-gray	sand	gravel	
COARSE GRAVEL &	VARIED	MEDIUM	300	305	5	721	716	gravel (+larger)	gravel	cobble	
SAND/COARSE GRAVEL	VARIED	MEDIUM	305	314	9	716	707	sand +larger	sand	gravel	
COARSE GRAVEL	VARIED	MEDIUM	314	315	1	707	706	gravel (+larger)	gravel		
CEMENTED	GRN/TAN	MEDIUM	315	325	10	706	696	Tunnel City Group	sandstone	shale	dolomite
CEMENTED SHALE &	GRN/TAN	MEDIUM	325	330	5	696	691	Tunnel City Group	sandstone	shale	dolomite
CEMENTED SHALE &	VARIED	MEDIUM	330	335	5	691	686	Tunnel City Group	sandstone	shale	dolomite
SHALE AND SANDSTONE	GRN/TAN	MEDIUM	335	340	5	686	681	Tunnel City Group	sandstone	shale	dolomite
SHALE	GREEN	MEDIUM	340	343	3	681	678	Tunnel City Group	shale	sandstone	
SHALE	GRN/BLK	MEDIUM	343	345	2	678	676	Wonewoc Sandstone	sandstone		
SANDSTONE	TAN	MEDIUM	345	350	5	676	671	Wonewoc Sandstone	sandstone		
SANDSTONE	GRAY	MEDIUM	350	365	15	671	656	Wonewoc Sandstone	sandstone		
SANDSTONE	GRAY	MED-HRD	365	370	5	656	651	Wonewoc Sandstone	sandstone		
SANDSTONE	GRAY	MEDIUM	370	385	15	651	636	Wonewoc Sandstone	sandstone		
SHALE AND SANDSTONE	GRN/TAN	MEDIUM	385	390	5	636	631	Wonewoc Sandstone	sandstone		
SHALE	GREEN	MEDIUM	390	391	1	631	630	Wonewoc Sandstone	sandstone		

APPENDIX 2: WATER LEVEL MONITORING PLAN

CITY OF MAPLE PLAIN
WATER LEVEL MONITORING PLAN

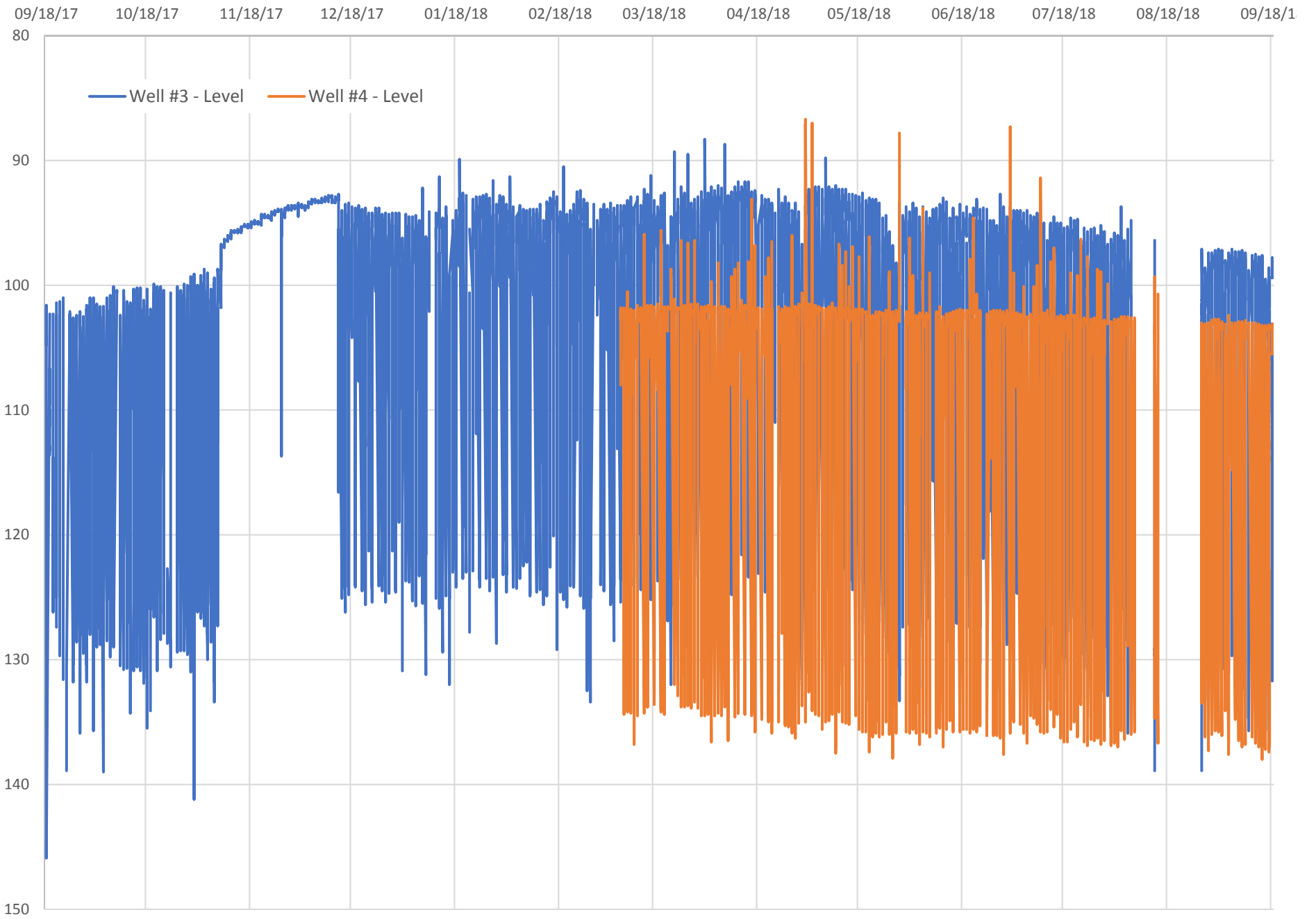
The City of Maple Plain uses real time SCADA monitoring of production well water level. Water level data is available for the two active City production wells and is saved multiple times daily with SCADA data. Well 3 is in the Mt. Simon aquifer and Well #4 is in the Wonewoc Aquifer.

Well #3 - 112238

Well #4 - 824078

APPENDIX 3: WATER LEVEL GRAPHS FOR EACH WATER SUPPLY WELL

City of Maple Plain - Groundwater Level Data



APPENDIX 4: CAPITAL IMPROVEMENT PLAN

**Maple Plain Capital Improvement Plan
Draft Schedule for Projects & Funds - December 12, 2017**

Given:

1. Based on 2017 Planning Project Costs.
2. A feasibility study at a later date.
3. Reconstruction is shown every three years. The time frame/projects can be adjusted review.
4. Sewer Projects that are in county roads are not listed at this time but can be added in future updates after more discussion with the City Council and Staff on timing.

Year	Type	Street	From	To	Estimated Total	Sanitary Sewer Fund	Water Main Fund	Storm Sewer Fund	Street Fund
2018	Reconstruction	Howard (1)	Drake	Main	\$1,097,200	\$159,600	\$172,900	\$152,900	\$611,800
2018	Reconstruction	Independence	Howard	Baker Park Rd	\$962,300	\$128,400	\$139,100	\$123,000	\$571,800
					\$2,059,500	\$288,000	\$312,000	\$275,900	\$1,183,600
2021	Reconstruct	Main	Pioneer	Budd	\$1,866,500	\$273,600	\$205,400	\$227,700	\$1,159,800
2021	Reconstruct	Maple	TH12	Main	\$304,800	\$39,600	\$42,900		\$222,300
					\$2,171,300	\$313,200	\$248,300	\$227,700	\$1,382,100
2024	Reconstruction	Drake	Howard	Baker Park Rd	\$907,500	\$132,000	\$143,000	\$126,500	\$506,000
2024	Reconstruction	Perkins	Independence	Drake	\$664,400	\$44,000	\$114,400	\$101,200	\$404,800
2024	Reconstruction	Gladview	Culdesac	Drake	\$188,700	\$12,500	\$32,500	\$28,700	\$115,000
2024	Reconstruction	Bradford	Culdesac	Perkins	\$339,700	\$22,500	\$58,500	\$51,700	\$207,000
					\$2,100,300	\$211,000	\$348,400	\$308,100	\$1,232,800
2027	Reconstruction	Bryant	Pioneer	Budd	\$1,639,400	\$241,200	\$261,300	\$231,200	\$905,700
2027	Reconstruction	Bryant	Wyman	Pioneer	\$220,200	\$32,400	\$35,100	\$31,000	\$121,700
					\$1,859,600	\$273,600	\$296,400	\$262,200	\$1,027,400
2030	Reconstruction	Main	Halgren	Spring	\$867,700		\$148,200	\$131,100	\$588,400
2030	Reconstruction	Pioneer	Main	Bryant	\$222,400	\$38,400		\$36,800	\$147,200
2030	Reconstruction	Spring	Main	Bryant	\$168,400	\$36,000			\$132,400
2030	Reconstruction	Wyman	Bryant	Joyce	\$604,000	\$40,000	\$104,000	\$92,000	\$368,000
2030	Reconstruction	Pioneer	TH12	Main	\$230,000			\$44,900	\$185,100
2030	Reconstruction	Independence	TH 12	Budd	\$392,200	\$60,000	\$65,000		\$267,200
2030	Reconstruction	Delano	TH12	Main	\$352,400	\$48,000	\$52,000	\$46,000	\$206,400
					\$2,837,100	\$222,400	\$369,200	\$350,800	\$1,894,700

APPENDIX 5: EMERGENCY TELEPHONE LIST

Appendix 5
City of Maple Plain
Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	Gary Kroells- West Hennepin Public Safety Director	763-479-0503	612-328-1905
Alternate Emergency Response Lead	Robert Schoen- City Administrator	763-479-0516	763-257-4634
Water Operator	Harry Stricklen	763-479-0525	612-490-5828
Alternate Water Operator	Matt Morris	763-479-0525	612-490-5827
Public Communications	Robert Schoen	763-479-0516	763-257-4634

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 Director	Eric Waage	612-596-0252	612 596-0254
National Guard	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
Mayor/Board Chair	Julie Maas-Kusske	763-479-6010	763-350-2921
Fire Chief	Justin McCoy	763-479-0520	763-238-6375
Sheriff	Richard Stanek	612-543-0442	763-525-6126 (Emergency Phone)
Police Chief	Gary Kroells	763-479-0503	612-328-1905
Ambulance	North Memorial	612-588-0508	
Hospital			
Doctor or Medical Facility			

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer	Robert Dehler, Program Manager	651-201-3710	
MDH	Drinking Water Protection	651-201-4700	651-201-5000 (General) or 1-888-345-0823
State Testing Laboratory	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
MPCA	MN Pollution Control Agency	651-296-6300	1-800-657-3864 (24 hrs) or 1-800-422-0798
DNR Area Hydrologist	Jason Spiegel	651-259-5822	
County Water Planner			

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Xcel Energy	1-800-641-4400	1-800-895-1999
Gas Company	Centerpoint Energy	612-372-4900	
Telephone Company	Frontier	1-800-921-8104	
Gopher State One Call	Utility Locations	800-252-1166	651-454-0002
Highway Department	MnDOT- 24 Hr. Line	651-582-1550	

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System			
Emergency Water Connection			
Materials	City of Independence	763-479-0530	
	City of Long Lake	763-476-2855	

Technical/Contracted Services/Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800-367-6792	
Well Driller/Repair	Bergeson Caswell	612-369-3652	
Pump Repair	Nelson Electric	320-296-1084	
Electrician	R.C. Electric	763-479-2582	
Plumber	Jesse Toutges	952-913-5856	
Backhoe	Widmer Construcion	612-581-1686	
Chemical Feed	Vessco	952-941-2678	
Meter Repair			
Generator	Interstate Power	612-328-2660	
Valves			
Pipe & Fittings	Core and Main	952-937-9666	
Water Storage			
Laboratory	Engel Water Testing Inc.	952-955-1800	
Engineering firm	Stantec	651-775-5098	651-604-4829

Communications	Name	Work Telephone	Alternate Telephone
News Paper	Laker Pioneer	952-442-4414	
Radio Station			
School Superintendent	Karen Orcutt	952-449-8305	
Property & Casualty Insurance			

Critical Water Users	Name	Work Telephone	Alternate Telephone
Hospital - Critical Use:			
Nursing Home - Critical Use:	Haven Homes	763 479-1993	
	Garrett Bothun Emergency Manager/Administrator	763 479-1993	612 750-7559
	Scott Gosewisch Building Supervisor	763 479-1933	612 242-3900
Public Shelter - Critical Use:			

APPENDIX 6: COOPERATIVE AGREEMENTS FOR EMERGENCY SERVICES

No written cooperative agreements exist for potential emergency water services.

APPENDIX 7: MUNICIPAL CRITICAL WATER DEFICIENCY ORDINANCE

ORDINANCE NO. 333

CITY OF MAPLE PLAIN

AN ORDINANCE AMENDING MAPLE PLAIN CITY CODE CHAPTER 9

THE CITY COUNCIL OF THE CITY OF MAPLE PLAIN DOES ORDAIN:

SECTION 1. AMENDMENT. The Maple Plain City Code Chapter 9, Article 2 is hereby amended as set forth below to add the underlined language and delete the ~~strike through~~ language as follows:

Sec. 9-19. Use confined to premises.

No person shall permit water from the City water supply system to be used without prior approval of the City. No more than one residence shall be connected to any stop box without the expressed consent of the City.

Sec. 9-20. Discontinuance of service for Code violations.

Service may be discontinued if at any time:

- (1) The owner or occupant of the premises served, or any person working on any pipes or equipment thereon which are connected with the City water supply system, has intentionally violated any of the requirements of this Code relative to the water supply system or connections therewith;
- (2) The owner or occupant of the premises served threatens to violate, or cause to be violated, any of the provisions of this Code;
- (3) Any charge for water, service, meter, meter parts, or any other financial obligations imposed on the present or former owner or occupant of the premises served by the provisions of this Code is unpaid. All charges shall be billed quarterly and a utilities statement or statements shall be mailed to each present or former owner or occupant of the premises served. Any charge for water, service, meter, meter parts, or any other financial obligations imposed on the present or former owner or occupant of the premises served by the provisions of this code shall be delinquent if unpaid within forty-five (45) days after the date listed on the bill. Payments received by mail postmarked on or before the forty-fifth day shall be deemed paid within said period. A penalty of 10% thereof shall be added to, and become part of, all delinquent utility bills. If service is suspended or discontinued due to delinquency, it shall not be restored until a reconnection charge has been paid for each utility reconnected in addition to amounts owed for service and penalties. In the event that delinquent charges are specially assed under Section 9-35, an additional sum of 10% shall be computed on the delinquent amount of charges and penalties and \$150.00 shall be added, and become part of, the amount so assessed to cover administrative costs of making the assessments; and/or
- (4) There is fraud or misrepresentation by the owner or occupant in connection with an application for service.

Sec. 9-21. Deficiency of water; shutting off water.

~~The City shall not be liable for any deficiency or failure in the supply of water to consumers, whether occasioned by shutting the water off for the purpose of making repairs or connections, or from any other cause whatever. In case of fire, or alarm of fire, the water may be shut off to ensure a supply for firefighting or in making repairs or constructing new works, or in an emergency, the water may be shut off at any time as long as necessary for completion of the project or until the cessation of the emergency.~~

Sec. 9-2221. Fire hydrant connections.

Sec. 9-23. Restricted hours for sprinkling.

~~Whenever the City Council shall by resolution determine that a shortage of water supply threatens the City, it may by resolution limit the times and hours during which water may be used from the City water supply system for lawn and garden sprinkling, irrigation, car washing, air conditioning, or other uses specified herein; penalties for violations of these provisions can be found within the resolution. A copy of the resolution shall thereupon be mailed to each water customer. Two days after the mailing of the resolution any water customer who shall cause or permit water to be used in violation of the provisions of the resolution shall be charged the amount identified in the resolution; continued violation is hereby prohibited and shall be cause for discontinuance of water service.~~

Sec. 9-2422. Permits for service connections.

- (a) No connection or service tapping shall be made with a City water main without a permit therefor which shall be issued by the City upon application by a master plumber.
- (b) No permit herein required shall be granted unless application therefor is made in writing and signed by the owner or the owner's agent duly authorized to do the work. The application must state clearly the kind of service for which the connection is intended, the size and kind of pipe to be used, the street and number, which side of the street, if on a corner, on which street to be tapped, with a diagram of the property to be supplied, showing the streets, the boundary, the block on which it is situated, with the distance from the nearest corner, the full name and address of the owner, the purpose for which the water is to be used, and what plumbing work in the premises, if any, has been done by an unlicensed plumber; and the application shall show all other particulars necessary to the full understanding of the subject. No permit shall authorize anything not stated in the application. For any misrepresentation in the application the permit may be suspended; and if the misrepresentation appears to be willful, the permit will be revoked.
- (c) Permits shall describe the location and size of each connection, and size must not be departed from in any degree.
- (d) ~~No permit herein required shall be granted for connection of a well to a City water main.~~

Sec. 9-2523. Tapping and connection fees and charges.

Sec. 9-2624. Excavation permits required.

Sec. 9-2725. Placement and operation of required equipment.

Sec. 9-2826. Water meters.

Sec. 9-2927. Damaging meters prohibited.

Sec. 9-3028. Cost of installation borne by consumer.

Sec. 9-3129. Access to buildings.

Sec. 9-3230. Rates and charges for water usage.

Sec. 9-3331. Multifamily dwellings.

Sec. 9-3432. Senior citizen rate considerations.

Senior citizens, age 65 years or over, living in a single-family residence and using less than 8,000 gallons of water per quarter may file for a credit which would exempt them from the water rate service charge. The quarterly water treatment charge is not included in this exemption. Application for credit must be made at the beginning of each year.

Sec. 9-3533. Connections beyond City boundaries.

In any and all cases where water mains of the City have been or shall be extended to or constructed in any road, street, alley, or public highway adjacent to or outside the corporate limits of the City, the City Council only is authorized to issue permits to the owners or occupants of properties adjacent to, or accessible to, the water mains to tap and make proper water service pipe connections with the water mains of the City in conformity with and subject to all the terms, conditions, and provisions of the codes of the City relating to the tapping of the City water mains and making water service pipe connections therewith, and to furnish and supply water from the water works system of the City to the owners and occupants of properties adjacent or accessible to the water mains of the City through and by means of water meters duly installed. Water meters shall be installed at the sole cost of the consumer for all bulk water connections. Water service rendered to the persons shall be subject to all provisions of this Code, and persons accepting the service shall thereby agree to be bound and obligated by this Code.

Sec. 9-3634. Consent to regulations.

Sec. 9-3735. Assessment of unpaid charges.

Sec. 9-3836. Construction, maintenance, and repair.

The cost of construction of all water lines from the main to the building is the sole responsibility of the property owner. The property owner is also responsible for all repairs to water lines between the ~~property line~~ curb stop and building. Repairs between the ~~property line~~ curb stop and the water main are the responsibility of the City. The property owner is responsible for routine maintenance of the water and sewer lines from the City water mains to the building. Maintenance includes, but is not limited to, keeping the lines clear from freeze-ups and the removal of debris and roots.

Sec. 9-37. Critical water deficiency.

- (a) Upon the declaration of a critical water deficiency by the governor, the City shall immediately post notice of the emergency declaration at the usual meeting place of the city council, or the official city bulletin board. The city shall provide notification to the public as quickly as possible or through established water supply plans emergency response plans or procedures.
- (b) The City Clerk or any designee may designate city employees or law enforcement personnel to enforce the water conservation measures.
- (c) When a critical water deficiency is declared by the governor, no person shall make, cause, use, or permit the use of water received from the City water supply system for residential, commercial, industrial, governmental, or any other purpose in any manner contrary to any provision in this section.

Sec. 9-38. Deficiency of water; Mandatory emergency water conservation measures.

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

Sec. 9-39. Deficiency of water; Variances.

The City Clerk or their designee may grant variances to the use of the City water supply system where strict application of this section would result in serious hardship to a customer. A variance may be granted only for reasons involving health or safety. An applicant may appeal the denial of a variance within five (5) days of the decision by submitting a written appeal to the City Clerk. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final.

Sec. 9-40. Deficiency of water; Violations.

- (a) Violations shall be determined and cited by the City Clerk and/or any designees. A violator may appeal the citation within five (5) days of its issuance by submitting a written appeal to the City. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final. Violators may be granted an administrative waiver if evidence is provided that equipment failure was the cause of the violation. A letter from a qualified vendor or equipment invoice will be required to show proof of equipment failure.
- (b) Upon discovery of a first violation, the violator shall be issued, either personally or by mail, a warning letter that sets forth the violation and describes the remedy and fines for future violations.
- (c) Upon subsequent violations, the violator shall be issued, either personally or by mail, a citation that sets forth the violation and describes the remedy. Fines shall be added to the monthly water bill of the owner or current occupant of the premises where the violation

occurred. The imposition of any fine shall in no way limit the right of the City to pursue any other legal remedies available to it.

Sec. 9-41. Deficiency of water; shutting off water.

The City shall not be liable for any deficiency or failure in the supply of water to consumers, whether occasioned by shutting the water off for the purpose of making repairs or connections, or from any other cause whatever. In case of fire, or alarm of fire, the water may be shut off to ensure a supply for firefighting or in making repairs or constructing new works, or in an emergency, the water may be shut off at any time as long as necessary for completion of the project or until the cessation of the emergency.

Secs. 9-3942—9-64. Reserved.

SECTION 2. AMENDMENT. The Maple Plain City Code Chapter 9, Article 3 is hereby amended as set forth below to add the underlined language and delete the ~~strikethrough~~ language as follows:

Sec. 9-74. Rates and charges.

- (a) (1) For sewer service and the availability thereof, any person connecting premises to the public sewer agrees to pay the rates and charges established therefor, from time to time by Council resolution. In addition to all other charges, each permit to connect shall be accompanied by a special connection fee equal to the lateral unit assessment per the fee schedule for the sewers in the abutting street or rights-of-way plus a plant unit assessment in the amount specified in the fee schedule for each residential dwelling unit, or equivalent, to be connected after the date of this Code. All the special connection fees shall be paid into the sewer fund of the City to offset repairs and upgrades made to the sanitary sewer system by the City.
- (2) In respect to property which shall be connected with the City sewer system for the discharge and disposal of any waste unusual in either character or amount, then, in addition to all applicable charges hereunder, the City Council reserves the right to impose the supplemental sewage rate change as the City Council shall determine is reasonable and warranted on the basis of all relevant factors.
- (3) The City Council may, by its resolution, provide that any charge for sewer connection, as provided by subsection (a)(1) of this section, be transmitted to the County Auditor to be payable in not more than 15 annual installments of principal plus ten percent annual interest on the unpaid balance from year to year, and to provide further that all connection charges and interest collected by the County Treasurer therefrom shall be paid over to the City Clerk in the same manner as other City taxes.
- (4) Any application for a connection permit shall state whether the subject premises has paid an assessment and, if so, the amount so assessed and the legal description of the premises as originally assessed.
- (5) The charges established pursuant to this Code shall be a lien on the real estate benefitted thereby and against which same is established, and shall be of equal rank with the liens or taxes levied under the general laws of the state, and shall become due

and payable as fixed by the resolution establishing the charges. The charges may also at the option of the City be enforced against the owner, lessee, or occupant of the property benefitted by the connection service, or availability of service, or against all of them in a civil action without the waiver of other remedies.

- (6) a. Rates during the year for single-family residential users of the sewage system are based on the amount of water used during the first quarter of the year, ~~or the quarter to be billed, whichever is less.~~ If the single-family residential customer establishes residence during the year, the sewer base shall be established by first quarter records from their previous place of residence. If there are no records available from the previous place of residence, then the first quarter sewer base shall be determined by multiplying the number of occupants of the residence by 6,000 gallons/occupant. That base shall remain in effect until the first quarter records are established by actual first quarter of the year usage.
- b. The City shall inspect all single-family residential sewer and surface water drainage systems to ensure they are properly hooked up so as not to contribute to the infiltration of the sewer system. The City shall notice any property owner/occupant whose system is not properly hooked up and shall give the property owner/occupant a reasonable amount of time to correct the system depending on the corrections needed. Determination of the time necessary to correct a defective system shall be made by the ~~Public Works Director~~ City Administrator. In the event a property owner fails to correct the infiltration problem within the time period specified by the City, or if a property owner fails to respond to the notice from the City, a charge per the fee schedule, per quarter, shall be added to the property sewer charge commencing the next quarter following the determination of noncompliance. This charge shall be in addition to the base rate established for single-family residential users.
- (b) Statements for sewer rental charges for the preceding quarterly period shall be mailed to each customer at the dates as prescribed by the City Council. The statements shall be due and payable to the Administrator on or before the 15th of the month following the date of the bill.
- (c) Any amounts due hereunder for sewage charges may be collected in an action brought for that purpose in the name of the City; or the Administrator may certify to the County Auditor the amounts due for sewer charges, including penalty, together with the legal description of the premises served, and the County Auditor shall thereupon enter the amount with the tax levy on the premises collectible with the taxes for the next ensuing year.
- ~~(d) Any homeowner who is delinquent on said homeowner's sewer or water bill shall lose the benefit of the first quarter calculation described in subsection (a)(6) of this section. The rate for any homeowner who loses the first quarter of the year status shall be based upon actual water usage.~~
- ~~(e) The Council shall determine annually, by resolution, those accounts that will revert from the first quarter of the year status to a status of actual use. Council action shall come only after notification to delinquent homeowners of the proposed action with an opportunity for homeowners to be heard by the Council. The Council may determine that a hardship exists in certain cases and permit homeowners with delinquent sewer and water bills to maintain~~

~~the favorable treatment under subsection (a)(6) of this section. The proposed resolution, and notice to the homeowner, will set out the last date for payment before the homeowner loses the favorable rate status described in subsection (a)(6) of this section.~~

SECTION 3. AMENDMENT. The Maple Plain City Code Chapter 9, Article 5 is hereby amended as set forth below to add the underlined language and delete the ~~strikethrough~~ language as follows:

Sec. 9-134. Stormwater utility fee and classifications.

- (a) The City hereby establishes a ~~monthly~~ quarterly stormwater utility fee, as set forth in the fee schedule. Determination of fee is based on the City's approved zoning designation per property. Legal, nonconforming property shall be charged based on that property's use at the time of the adoption of this Code. Development of an undeveloped, or vacant, parcel or change in property use shall comply with the appropriate stormwater utility fee charge.
- (b) Other uses not listed in the fee schedule shall be classified by the City Engineer by assigning them to the most similar class from the standpoint of probable hydrologic response.

Sec. 9-135. Billing.

- (a) The stormwater utility fee shall be billed quarterly to each parcel in accordance with the fee schedule ~~most current approved resolution~~. All rates and charges will be reviewed annually and adjusted as needed by the City Council.
- (b) The total billable acreage for any real property with a wetland shall be reduced by the net wetland acreage on the property. A property owner may appeal the wetland determination, but must, at said owner's own expense, provide a wetland delineation and present that information to the City Engineer and City Council for consideration. If accepted by the City, the total acreage of delineated wetland shall be used for any adjustment.

SECTION 4. AMENDMENT. The Maple Plain City Code Chapter 9, Article 6 is hereby amended as set forth below to add the underlined language and delete the ~~strikethrough~~ language as follows:

Sec. 9-161. Responsibility for administration.

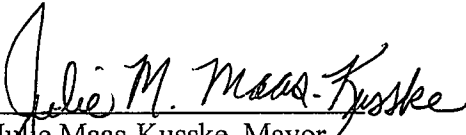
The ~~City Council~~ City Administrator shall administer, implement, and enforce the provisions of this article. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the director of the authorized enforcement agency to persons or entities acting in the beneficial interest of or in the employ of the agency.

Sec. 9-170. Enforcement.

- (a) Whenever the ~~City Council~~ City Administrator finds that a person has violated a prohibition or failed to meet a requirement of this article, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. The notice may require, without limitation:
- (1) The performance of monitoring, analysis, and reporting;
 - (2) The elimination of illicit connections, illicit discharges, or pet waste;
 - (3) That violating discharges, practices, or operations shall cease and desist;
 - (4) The installation of proper salt storage facilities and implementation of proper salt handling procedures;
 - (5) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
 - (6) Payment of a fine to cover administrative and remediation costs; and
 - (7) The implementation of source control or treatment BMPs.
- (b) If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which the remediation or restoration must be completed. The notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

SECTION 5. EFFECTIVE DATE. This Ordinance shall be in full force and effect from and after its passage and publications as required by law.

Adopted by the City Council of the City of Maple Plain this 24th day of February, 2025.


Julie Maas-Kusske, Mayor

ATTEST:


Jacob Kolander, City Administrator

Published in the Pioneer Laker on March, 2025.



(Ordinance Summary)

ORDINANCE NO. 333

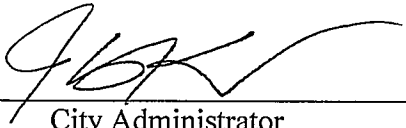
CITY OF MAPLE PLAIN

AN ORDINANCE AMENDING MAPLE PLAIN CITY CODE CHAPTER 9

The above-referenced Ordinance amends Maple Plain City Code Chapter 9 providing requirements for delinquent billing, connection of a well to a City water main, property owner responsibility for the cost of water meter installation for bulk water connections, critical water deficiency procedures, sanitary sewer rates and charges, and amending the stormwater utility fee procedure. This summary is adopted pursuant to Minn. Stat. § 412.191, Subd. 4.

A printed copy of the entire Ordinance is available for inspection and copying at the Maple Plain City Hall located at 5050 Independence St., Maple Plain, Minnesota, 55359.

Dated: February 24, 2025

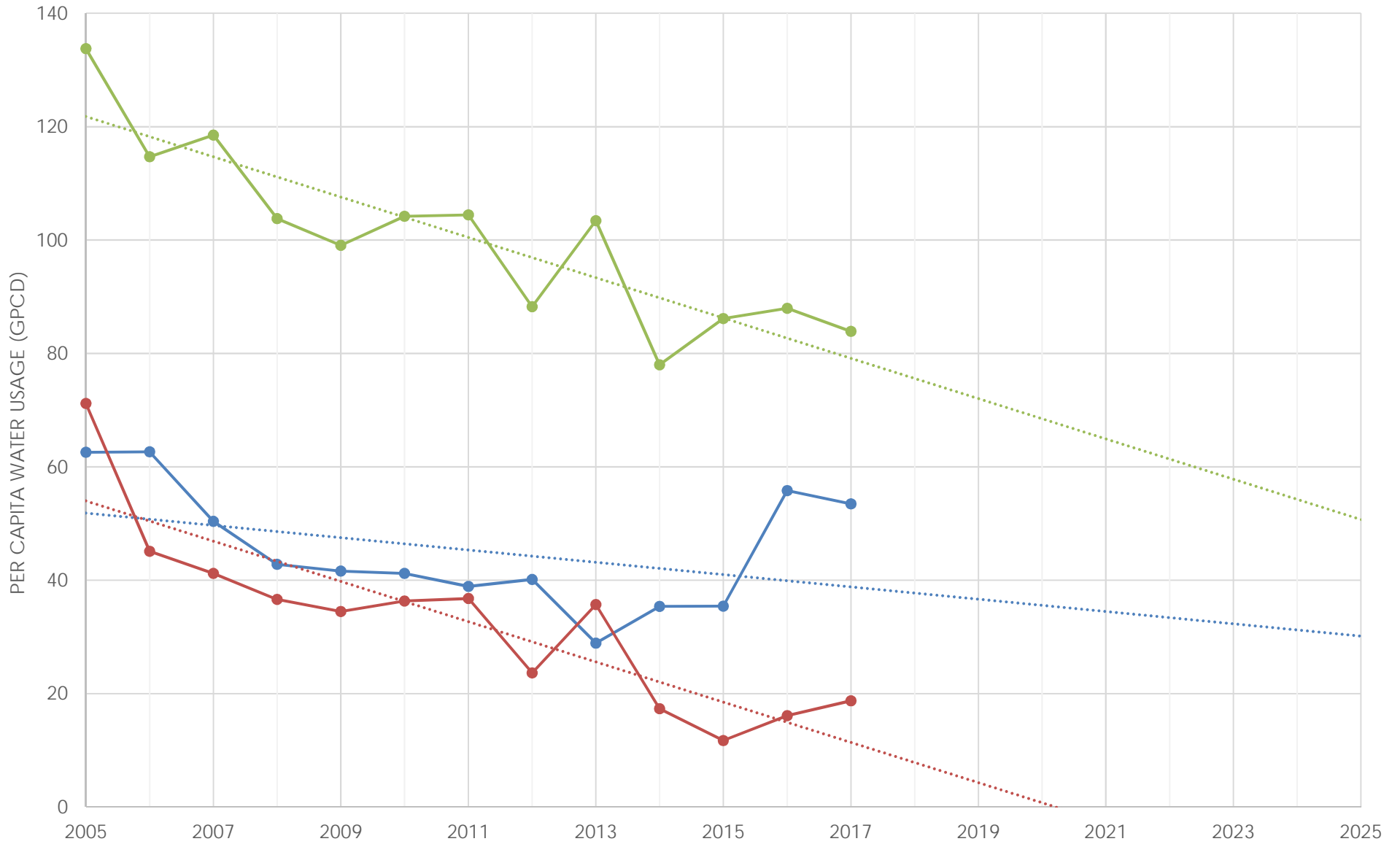


City Administrator



**APPENDIX 8: GRAPH SHOWING ANNUAL PER CAPITA WATER DEMAND
FOR EACH CUSTOMER CATEGORY DURING THE LAST TEN-YEARS**

CITY OF MAPLE PLAIN PER CAPITA WATER USAGE



APPENDIX 9: WATER RATE STRUCTURE



Residential Utility Rates

Utility Bills are sent quarterly in January, April, July, and October

Fixed Fees (per quarter)

State Water Testing Fee	\$3.81
Water Treatment Plant Charge	\$25.00
Water Fixed Fee	\$13.22
Sewer Fixed Fee (Base charge)	\$100.54
Storm Water Utility Fee	\$12.46 per lot

Water Volume

Tier 1	0 to 6,000 gallons	\$9.44 per 1,000 gallons
Tier 2	6,001 to 12,000 gallons	\$9.91 per 1,000 gallons
Tier 3	12,001 to 24,000 gallons	\$10.38 per 1,000 gallons
Tier 4	24,001 gallons and above	\$11.43 per 1,000 gallons

Sewer Volume

Tier 1	1 to 6,000 gallons	\$0.00 (Sewer Fixed Fee Only)
Tier 2	6,001 and above	\$8.29 per 1,000 gallons



Commercial Utility Rates

Utility Bills are sent quarterly in January, April, July, and October

Fixed Fees (per quarter)

State Water Testing Fee	\$3.81	
Water Treatment Plant Charge	\$30.00 (\$25.00 per unit for multi-family)	
Water Fixed Fee	\$13.22 (\$13.22 per unit for multi-family)	
Sewer Fixed Fee (Base charge)	\$100.54	
Storm Water Utility Fee	Dependent on property zoning and billable acres:	
	Undeveloped or vacant land	\$56.62 per billable acre
	Church/Institutional	\$56.62 per billable acre
	Multi-Family Residential	\$75.49 per billable acre
	Mixed Use (Commercial/Retail)	\$113.23 per billable acre
	Industrial	\$113.23 per billable acre
	Office Park	\$113.23 per billable acre

Water Volume

Tier 1	0 to 6,000 gallons	\$9.44 per 1,000 gallons
Tier 2	6,001 to 12,000 gallons	\$9.91 per 1,000 gallons
Tier 3	12,001 to 24,000 gallons	\$10.38 per 1,000 gallons
Tier 4	24,001 gallons and above	\$11.43 per 1,000 gallons

Sewer Volume

Tier 1	1 to 6,000 gallons	\$0.00 (Sewer Fixed Fee Only)
Tier 2	6,001 and above	\$8.29 per 1,000 gallons

**APPENDIX 10: ADOPTED OR PROPOSED REGULATIONS TO REDUCE
DEMAND OR IMPROVE WATER EFFICIENCY**

CHAPTER 53: CITY WATER

Section

- 53.01 Use confined to premises
- 53.02 Discontinuance of service for code violations
- 53.03 Deficiency of water and shutting off water
- 53.04 Fire hydrant connections
- 53.05 Restricted hours for sprinkling
- 53.06 Permits for service connections
- 53.07 Tapping and connection fees and charges
- 53.08 Excavation permits required
- 53.09 Placement and operation of required equipment
- 53.10 Water meters
- 53.11 Damaging meters prohibited
- 53.12 Cost of installation borne by consumer
- 53.13 Access to buildings
- 53.14 Rates and charges for water usage
- 53.15 Multi-family dwellings
- 53.16 Senior citizen rate considerations
- 53.17 Connections beyond city boundaries
- 53.18 Consent to regulations
- 53.19 Assessment of unpaid charges
- 53.20 Construction, maintenance, and repair

§ 53.01 USE CONFINED TO PREMISES.

No person shall permit water from the city water supply system to be used without prior approval of the city. No more than 1 residence shall be connected to any stop box without the expressed consent of the city.

(Prior Code, § 47.01) Penalty, see § 10.99

§ 53.02 DISCONTINUANCE OF SERVICE FOR CODE VIOLATIONS.

(A) Service may be discontinued if at any time:

(1) The owner or occupant of the premises served, or any person working on any pipes or equipment thereon which are connected with the city water supply system, has intentionally violated any of the requirements of the code of the city relative to the water supply system or connections therewith;

Maple Plain - Public Works

(2) The owner or occupant of the premises served threatens to violate, or cause to be violated, any of the provisions of this code;

(3) Any charge for water, service, meter, meter parts, or any other financial obligations imposed on the present or former owner or occupant of the premises served, by the provisions of this code is unpaid; and/or

(4) Fraud or misrepresentation by the owner or occupant in connection with an application for service.

(B) Water shall not be turned off from any service pipe between the hours of 9:00 a.m. on Friday and 9:00 a.m. on the following Monday.
(Prior Code, § 47.02)

§ 53.03 DEFICIENCY OF WATER AND SHUTTING OFF WATER.

The city shall not be liable for any deficiency or failure in the supply of water to consumers, whether occasioned by shutting the water off for the purpose of making repairs or connections, or from any other cause whatever. In case of fire, or alarm of fire, the water may be shut off to ensure a supply for firefighting or in making repairs or constructing new works, or in an emergency, the water may be shut off at any time as long as necessary for completion of the project or until the cessation of the emergency.

(Prior Code, § 47.03)

§ 53.04 FIRE HYDRANT CONNECTIONS.

It shall be unlawful for any person, except when authorized by the City Administrator/Clerk or except members of the City Fire, Street, and Water Departments when performing their official duties, to open or interfere with any of the hydrants or gates of the city water supply system. The permit shall be granted by the City Administrator/Clerk only upon application in writing, subject to the regulations as may be prescribed by the City Council, upon payment of a deposit fee of \$5. Any person withdrawing water from a fire hydrant or gate of the city water supply except for extinguishment of a fire or other city purposes shall be obligated to pay the city \$1,00 per thousand gallons of water used. No person shall be granted a permit to withdraw water from a hydrant or gate without meter for a period in excess of 20 days. Upon return of any equipment furnished by the city and deduction of charges computed on the per diem basis, any balance of the deposit shall be returned to the depositor. In case of withdrawal of water from a hydrant or gate without permit, the above charge shall be in addition to other penalties provided for violation of this code.

(Prior Code, § 47.04) Penalty, see § 10.99

§ 53.05 RESTRICTED HOURS FOR SPRINKLING.

Whenever the City Council shall by resolution determine that a shortage of water supply threatens the city, it may by resolution limit the times and hours during which water may be used from the city water supply system for lawn and garden sprinkling, irrigation, car washing, air conditioning, or other uses specified herein; a copy of the resolution shall thereupon be mailed to each water customer. Two days after the mailing of the resolution any water customer who shall cause or permit water to be used in violation of the provisions of the resolution shall be charged \$25 for each day of the violation, which charge shall be added to his or her next water bill; continued violation is hereby prohibited and shall be cause for discontinuance of water service.

(Prior Code, § 47.05)

§ 53.06 PERMITS FOR SERVICE CONNECTIONS.

(A) No connection or service tapping shall be made with a city water main without a permit therefor which shall be issued by the city upon application by a master plumber.

(B) No permit herein required shall be granted unless application therefor be made in writing and signed by the owner or his or her agent duly authorized to do the work. The application must state clearly the kind of service for which the connection is intended, the size and kind of pipe to be used, the street and number, which side of the street, if on a corner, on which street to be tapped, with a diagram of the property to be supplied, showing the streets, the boundary, the block on which it is situated, with the distance from the nearest corner, the full name and address of the owner, the purpose for which the water is to be used, and what plumbing work in the premises, if any, has been done by an unlicensed plumber; and the application shall show all other particulars necessary to the full understanding of the subject. No permit shall authorize anything not stated in the application. For any misrepresentation in the application the permit may be suspended; and if the misrepresentation appears to be willful, the permit will be revoked.

(C) Permits shall describe the location and size of each connection, and size must not be departed from in any degree.

(Prior Code, § 47.06) Penalty, see § 10.99

§ 53.07 TAPPING AND CONNECTION FEES AND CHARGES.

(A) Fees for permitting the tapping of a water main shall be paid per connection for each unit in the amounts listed in the following schedule. There shall also be an additional \$50 access charge for commercial and industrial units. Before any permit is issued, there shall also be paid any other sums required under this section.

(B) No permit shall be issued to tap or connect with any water main of the city either directly or indirectly from any lot or tract or land unless the City Administrator/Clerk shall have certified:

(1) That the lot or tract of land to be served by the connection or tap has been assessed for the cost of construction of the water main with which the connection is made;

(2) If no assessment has been levied for the construction cost, that proceedings for levying the assessment have been or will be commenced in the course; or

(3) If no assessment has been levied, and no assessment proceedings will be completed in due course, but a sum equal to the portion of cost of constructing the water main which would be assessable against the lot or tract has been paid to the city.

(C) If no certificate can be issued by the City Administrator/Clerk, no permit to tap or connect to any water main shall be issued unless the applicant shall pay an additional connection fee which shall be equal to the portion of the cost of construction of the main which would be assessable against the lot or tract to be served by the tapping or connection. The assessable cost is to be determined by the City Administrator/Clerk upon the same basis as any assessment previously levied against other property for that main. Any sum received by the city under this division (C) shall be paid into a special suspense account until it shall be determined by the City Council whether the property served by the connection under the permit will be assessable for any other water main; if it shall be determined that no other main shall be so assessable, then the fee shall be credited to the fund for the water main to which the connection was made, but if the tract or lot served by the connection is subsequently assessed for another water main, the sum shall be transferred to the fund for the main and credited against the amount assessable against the tract or lot.

(Prior Code, § 47.07)

§ 53.08 EXCAVATION PERMITS REQUIRED.

No person shall excavate in a public street to service a water main, make connection therewith, or for any purpose which will expose a water main, unless given a permit to do so by the city in accordance with the requirements of this code.

(Prior Code, § 47.08) Penalty, see § 10.99

§ 53.09 PLACEMENT AND OPERATION OF REQUIRED EQUIPMENT.

(A) *Corporation cocks and laying of service pipes.* The corporation cocks inserted in the distributing pipe must be of the size specified in the permit order. Every service pipe must be laid sufficiently waving to allow of not less than 1 foot of extra length, and in the manner as to prevent rupture by settlement. The service pipe must be placed not less than 8 feet below the surface and in all cases so arranged as to prevent rupture from freezing.

(B) *Stop boxes.* Service pipes must extend from the main to the inside of the building; or if not taken into a building then to a hydrant or other fixtures which it is intended to supply. A stop-cock accessible from the surface through a sleeve without digging in all cases must be placed outside in a box at the property line, and a shutoff or other stopcock with waste, of the size and strength required, shall

be placed close to the inside wall of the building, well protected from freezing. All stop boxes at the property line must be set in front of the building intended to be supplied, not to exceed 2 feet from the line of the building or part thereof. All stop boxes and cocks must conform to the specifications of the City of Maple Plain therefor.

(C) *Pipe sizes.* The minimum pipe size shall be 3/4 inch, I.D. All others shall be as approved by the City Engineer.

(D) *Time for insertion.* If from any cause the plumber laying the service pipe should fail to have the corporation cock inserted at the time specified in his or her application, notice must be given the city fixing another day on which he or she wishes the corporation cock to be inserted. The notice must be given at least 2 days previous to the excavation for laying of the service pipe, and the corporation cock must be inserted before 5:00 p.m. except in special cases, and then the work shall be done only upon a written order from the city.

(E) *Turning on water.* No person shall turn on any water supply at the stop box without a permit from the City Administrator/Clerk and no permit will be issued unless the house number, as given by the Building Inspector, is prominently displayed, and no permit shall be given anyone but a master plumber. The city reserves the right to turn off any water supply if the number is not displayed after a written notice has been sent to the owner as appearing on its books.

(F) *Supply from 1 corporation cock.* No more than 1 house or building shall be supplied from 1 corporation cock, except by special permission of the City Administrator/Clerk. Whenever 2 or more parties are supplied from 1 pipe, connecting with the distribution main, each building or part of building must have a separate stop box at the property line.

(G) *Repair of leaks.* In case of failure upon the part of any consumer or owner to repair any leak occurring upon her or his or her service pipe within 24 hours after verbal or written notice has been given upon the premises, the water will be shut off from the same and will not be turned on until the sum of \$5 has been paid. When the waste of water is great, or when damage is likely to result from the leak, the water will be turned off if the repair is not proceeded with immediately upon the giving of the notice.

(H) *Old corporation cocks.* When new buildings are erected on the sites of old ones, and it is desired to increase or change the old water service, no connection with the mains shall be given until all the old corporation cocks shall have been removed and the main plugged. If any contractor, worker, or employee upon the building shall cause or allow any service pipe to be hammered together at the ends to stop the flow of water, or save the expense in removing the pipe from the main, the owner of the building, the worker and contractor shall, upon conviction thereof, be fined not less than \$50 nor more than \$100 and shall remove the service pipe from the main; if he or she shall fail to do so on 24-hours notice, he or she shall be obligated to pay the city the cost incurred by it for the removal.

(I) *Meter setting devices.* Meter setting devices for 5/8 inch, 3/4 inch, and 1 inch meters shall be of copper pipe including the house side valve, provided that if copper cannot be obtained the meter setting device may be of another non-corrodible metal approved by the City Engineer.

(J) *Excavations for tapping water mains.* Excavations made for the purpose of making a tap from any city water main shall be at least 2 and ½ feet wide by 4 feet long inside the property line, the 4 feet to be measured from a point 6 inches beyond the side of the main opposite to that which is to be tapped and from the point toward the building with which the water connection is to be made. The excavations shall extend to the depth of at least 12 inches lower than the bottom of the water main. Ample clear space shall be allowed around the main in all cases to insert the tapping machine. All excavations for tapping shall be safely curbed to the satisfaction of the city.

(K) *Water meter setting.* All water meters hereinafter installed shall be in accordance with the following rules.

(1) The bottom of the meter shall not be less than 4 inches, or more than 12 inches from the top of the finished basement floor line; and the meter shall not be set more than 12 inches measured horizontally from the inside line of the basement wall.

(2) The service pipe from the city water main to the meter, where the same enters the building, shall be brought through the basement floor in a vertical position, so that a connection may be made thereto with an ell to which may be attached the stop and waste, and meter, or the pipe may be brought through the basement floor, in a vertical position and bent above the floor at a right angle; and the stop and waste, and meter attached in such a manner that the meter shall stand in a proper, vertical position. In no case shall there be more than 12 inches of pipe exposed between the point of the entrance through the basement floor and the stop and waste, and the stop and waste shall be connected directly to the meter.

(3) All meter installations shall have a stop and waste on the street side of the meter, which stop and waste shall, in every case, connect directly to the tail piece furnished with the meter.

(4) The water pipe connecting with the city water main shall not be run under any basement wall, before being connected to the water meter.

(L) *Size of connections.* Connections with the main for ordinary domestic supply shall be ¾ of an inch or 1 inch, except with permission of the City Administrator/Clerk.
(Prior Code, § 47.09) Penalty, see § 10.99

§ 53.10 WATER METERS.

(A) Except for extinguishment of fires, or when authorized by special permit from the City Administrator/Clerk and for temporary purposes only, no person shall use water from the water supply system of the city, or permit water to be drawn therefrom, except the same be metered by passing through a meter supplied or approved by the city. No person not authorized by the City Administrator/Clerk shall connect, disconnect, take apart, or in any manner change, or cause to be changed, or interfere with any such meter or the action thereof.

(B) The City Council shall from time to time fix the charge to be made to customers for new, replacement, water meters in original connection installations and payment for some shall be made in advance before delivery for installation. The cost of the replacement water meters shall be fixed from time to time by Council resolution.

(C) Whenever any meter shall become obstructed or out of order, the city shall cause it to be repaired. The cost of the repairs to be paid out of the water fund unless the meter had been damaged by freezing or willful neglect by someone outside of the city employ. On request of any customer, the city will test the meter. There shall be a \$10 service fee for the test unless error in the meter is found. All water meters obtained from the city shall remain the property of the city and may be replaced at any time by the city if found to be worn or defective beyond repair. The replacement shall be paid for from the water fund.

(Prior Code, § 47.10) Penalty, see § 10.99

§ 53.11 DAMAGING METERS PROHIBITED.

No person shall damage or knowingly or negligently permit damage to be done to a water meter on his or her premises or elsewhere. Any person damaging any such meter or knowingly or negligently permitting the same to be damaged shall pay all costs of making the required repairs to the meter upon demand therefor by the city.

(Prior Code, § 47.11) Penalty, see § 10.99

§ 53.12 COST OF INSTALLATION BORNE BY CONSUMER.

The cost of original installation of all plumbing between the stop box and the meter, as well as all repairs to the same, shall be borne entirely by the consumer. The plumbing shall at all reasonable times be subject to inspection by the city. Any repairs found to be necessary by the representatives shall be made promptly or the city will discontinue service.

(Prior Code, § 47.12)

§ 53.13 ACCESS TO BUILDINGS.

City officials and employees shall have free access at reasonable hours of the day to all parts of every building and premises connected with the city water supply system for reading of meters and inspections.

(Prior Code, § 47.13)

§ 53.15 MULTI-FAMILY DWELLINGS.

Water rates and charges for all multi-family residential buildings, such as apartment buildings, with only 1 water meter shall be based on the total consumption of the building divided by the number of units to determine the consumption per unit. Multi-family customers are billed according to the Residential Conservation Tier Rate.

Example: 30 Unit Complex 300,000 Gallons Consumed
 $300,000/30 = 10,000$ Gallons Per Unit

First 6,000 Gallons x 0-6,000 Rate Charge

Remaining 4,000 Gallons x 6,001 - 12,000 Rate Charge

(Ord. 238, passed 12-14-2009)

§ 53.16 SENIOR CITIZEN RATE CONSIDERATIONS.

Senior citizens, age 65 or over, living in a single-family residence and using less than 8,000 gallons of water per quarter may file for a credit which would exempt them from the water rate service charge. The quarterly water treatment charge is not included in this exemption.

(Prior Code, § 47.15) (Ord. 208, passed 5-22-2006; Am. Ord. 219, passed 12-10-2007; Am. Ord. 238, passed 12-14-2009)

[Text continues on page 51]

§ 53.17 CONNECTIONS BEYOND CITY BOUNDARIES.

In any and all cases where water mains of the city have been or shall be extended to or constructed in any road, street, alley, or public highway adjacent to or outside the corporate limits of the city, the City Council only is authorized to issue permits to the owners or occupants of properties adjacent to, or accessible to, the water mains to tap and make proper water service pipe connections with the water mains to tap and make proper water service pipe connections with the water mains of the city in conformity with and subject to all the terms, conditions, and provisions of the codes of the city relating to the tapping of the city water mains and making water service pipe connections therewith, and to furnish and supply water from the water works system of the city to the owners and occupants of properties adjacent or accessible to the water mains of the city through and by means of water meters duly installed. Water service rendered to the persons shall be subject to all provisions of this code, and persons accepting the service shall thereby agree to be bound and obligated by the code. (Prior Code, § 47.16) (Am. Ord. 238, passed 12-14-2009)

§ 53.18 CONSENT TO REGULATIONS.

Every person applying for water service from the city systems, and every use of water or owner of property for which the application is made, shall be deemed by the application to consent to all the rules, regulations, and rates contained in the codes of the city and to all modifications thereof and all new rules, regulations, or rates duly adopted. (Prior Code, § 47.17) (Am. Ord. 238, passed 12-14-2009)

§ 53.19 ASSESSMENT OF UNPAID CHARGES.

The city is hereby given the power to assess and levy in the same manner as other taxes, any unpaid water accounts against the property upon which the account has accrued, and the same shall become a lien against the property. A \$150 penalty shall be added to any unpaid water account that is assessed and collected with taxes. The City Council is authorized to waive the penalty amount in cases of hardship. (Prior Code, § 47.18) (Am. Ord. 193, passed 11-10-2003; Am. Ord. 238, passed 12-14-2009)

§ 53.20 CONSTRUCTION, MAINTENANCE, AND REPAIR.

The cost of construction of all water lines from the main to the building is the sole responsibility of the property owner. The property owner is also responsible for all repairs to water lines between the property line and building. Repairs between the property line and the water main are the responsibility of the city. The property owner is responsible for routine maintenance of the water and sewer lines from the city water mains to the building. Maintenance includes, but is not limited to, keeping the lines clear from freeze-ups and the removal of debris and roots. (Ord. 225, passed 8-25-2008; Am. Ord. 238, passed 12-14-2009)

APPENDIX 11: IMPLEMENTATION CHECKLIST

Appendix 11. Implementation Checklist

Water Supply Plan Section	Page	Water Supply Plan Action	Implementation Status/Date
Part 1E Appendix 2	10	Well level monitoring plan for daily level reading as detailed in Appendix 2	Ongoing
Part 3B, Obj. 1	27	Conduct regular water audits to monitor water pumpage and sales to identify potential water loss.	Ongoing
Part 3B, Obj. 2	28	Make water system infrastructure improvements. Continue preventative maintenance. Identify and repair leaks immediately.	Ongoing
Part 3B, Obj. 2	29	City will expand available conservation educational materials	Ongoing, Expand by 2020
Part 3B, Obj. 2 Part 3B, Obj. 3	29 30	Utilize City website, email list, newsletter and CodeRed for general and emergency notifications.	Ongoing
Part 3B, Obj. 3	29	Use enhanced water meters to detect and report spikes in water use.	Ongoing
Part 3B, Obj. 3	29	Repair leaking system components: Require customer to immediately repair identified leaks and continue City preventative maintenance.	Ongoing
Part 3B, Obj. 4	30	Existing per capita water demand trends are trending downward. Continue to monitor per capita demand.	Ongoing
Part 3B, Obj. 5	30	Monitor the maximum day demand to average day demand ratio.	Ongoing
Part 3B, Obj. 6	31	City of Maple Plain water rate structure promotes conservation.	Ongoing
Part 3B, Obj. 7	33	City has a Walking and Biking Plan for parks and trails within the City.	Ongoing
Part 3B, Obj. 7	33	City code 53.05 allows for water restrictions to be imposed and provision for enforcement.	Ongoing
Part 3C	34	Water efficient plumbing fixtures and irrigation rainfall sensors required by existing Federal Law and State Statute, respectively.	Ongoing
Part 3C	34	Critical/Emergency Water Deficiency ordinance in place (Code 53.03).	Ongoing
Part 3D	35	City supports rebate programs from partner organizations.	Ongoing
Part 3E	36-37	City currently provides conservation information in the City newsletter, billing inserts, notifications as needed and through City website.	Ongoing
Part 3E	37	The City will work to expand conservation education through newsletter, website, brochures at City Hall, and social media.	Ongoing, Expand by 2020

APPENDIX 12: NATURAL RESOURCES DOCUMENTATION

2015 SYSTEM STATEMENT

City of Maple Plain

System Statement Issue Date: September 17, 2015



METROPOLITAN
C O U N C I L

WATER RESOURCE REQUIREMENTS/ WASTEWATER SYSTEM STATEMENT

City of Maple Plain

The *2040 Water Resources Policy Plan* includes policies and strategies to achieve the following goal:

To protect, conserve, and utilize the region's groundwater and surface water in ways that protect public health, support economical growth and development, maintain habitat and ecosystem health, and provide for recreational opportunities, which are essential to our region's quality of life.

The Policy Plan takes an integrated approach to water supply, water quality, and wastewater issues. This approach moves beyond managing wastewater and stormwater only to meet regulatory requirements by viewing wastewater and stormwater as resources, with the goal of protecting the quantity and quality of water our region needs now and for future generations.

The Policy Plan includes policies and strategies to:

- Maximize regional benefits from regional investments in the areas of wastewater, water supply and surface water.
- Pursue reuse of wastewater and stormwater to offset demands on groundwater supplies.
- Promote greater collaboration, financial support, and technical support in working with partners to address wastewater, water quality, water quantity and water supply issues.
- Implement environmental stewardship in operating the regional wastewater system by reusing wastewater, reducing energy use and air pollutant emissions, and reducing, reusing, and recycling solid waste.

Key Concepts in the 2040 Water Resources Policy Plan

Adopted by the Metropolitan Council in May 2015, the *2040 Water Resources Policy Plan* is the metropolitan system plan for metropolitan wastewater services with which local comprehensive plans must conform. The Policy Plan incorporates the following changes:

- Centers on and around an integrated approach to water supply, wastewater, and surface water planning.
- Promotes the investigation of the issues and challenges in furthering our work in water conservation, wastewater and stormwater reuse, and low impact development practices in order to promote a more sustainable region.
- Promotes the concept of sustainable water resources where, through collaboration and cooperation, the region will take steps to manage its water resources in a sustainable way aimed at:
 - Providing an adequate water supply for the region
 - Promoting and implementing best management practices that protect the quality and quantity of our resources
 - Providing efficient and cost effective wastewater services to the region
 - Efficiently addressing nonpoint and point sources pollution issues and solutions, and,
 - Assessing and monitoring lakes, rivers, and streams so that we can adequately manage, protect, and restore our valued resources.
- Continues the Council's position that communities that permit the construction and operation of subsurface sewage treatment systems and other private wastewater treatment systems are

responsible for ensuring that these systems are installed, maintained, managed and regulated consistent with Minnesota Rules Chapter 7080-7083.

- Includes requirements in Appendix C for comprehensive sewer plans, local water plans, and local water supply plans.
- Establishes inflow and infiltration goals for all communities served by the regional wastewater system and requires all communities to include their inflow and infiltration mitigation programs in their comprehensive sewer plan.
- Works with the State to attempt to (1) make funds available for inflow and infiltration mitigation, and (2) promote statutes, rules, and regulations to encourage I/I mitigation.

Maple Plain should consult the complete Policy Plan in preparing its local comprehensive plan. In addition, Maple Plain should consult *Thrive MSP 2040* and the *Local Planning Handbook* for specific information needed in its comprehensive plan.

System Plan Considerations Affecting Your Community

Metropolitan Sewer Service

Under state law (Minn. Stat. 473.513) local governments are required to submit both a wastewater plan element to their comprehensive plan as well as a comprehensive sewer plan describing service needs from the Council. Specific requirements for the sewer element of your comprehensive plan can be found in the Water Resources section of the *Local Planning Handbook*.

Forecasts

The forecasts of population, households, employment, and wastewater flows for Maple Plain as contained in the adopted *2040 Water Resources Policy Plan* can be found at: <http://www.metrocouncil.org/Wastewater-Water/Planning/2040-Water-Resources-Policy-Plan.aspx> and on your Community Page in the *Local Planning Handbook*. These forecasts are for sewered development. The sewered housing forecasts were estimated using SAC data, annual city reports, current trends, existing and future local wastewater service areas and other information relating to your community. The wastewater flows are based on historical wastewater flow data, future projected wastewater generation rates, and the projected sewered population and employment data.

The Council will use these growth and wastewater flow forecasts to plan future interceptor and treatment works improvements needed to serve your community. The Council will not design future interceptor improvements or treatment facilities to handle peak hourly flows in excess of the allowable rate for your community. Maple Plain, through its comprehensive planning process, must decide the location and staging of development, and then plan and design its local wastewater collection system to serve this development. The Council will use its judgment as to where to assign growth within your community to determine regional system capacity adequacy. If Maple Plain wishes to identify specific areas within the community to concentrate its growth, it should do so within its Comprehensive Sewer Plan.

You should also note that urban development at overall densities that are substantially lower than those identified for your community in the Community Designation Section of this Systems Statement will also be analyzed by the Council for their potential adverse effects on the cost of providing metropolitan sewer service.

Description of the Metropolitan Disposal System Serving Your Community

Figure 1 shows the location of the Metropolitan Disposal System (MDS) serving your community. Wastewater flow from Maple Plain is treated at the Blue Lake WWTP.

Description of the Regional Inflow/Infiltration (I/I) Program

The *2040 Water Resources Policy Plan* states that the Council will establish I/I goals for all communities discharging wastewater to the MDS. Communities that have excessive I/I in their sanitary sewer systems will be required to eliminate excessive I/I. The Council will continue the implementation of its on-going I/I reduction program. Communities identified through the program as needing to eliminate excessive I/I will be required to submit a work plan that details work activities to identify and eliminate sources of I/I. The Council can limit increases in service within those communities having excess I/I that do not demonstrate progress in reducing their excess I/I. The Council will meet with the community and discuss this alternative before it is implemented.

It is required that those communities that have been identified as contributors of excessive I/I, and that have not already addressed private property sources, do so as part of their I/I program. Significant work has been accomplished on the public infrastructure portion of the wastewater system. The Council will pursue making funds available through the State for I/I mitigation, and promote statutes, rules and regulations to encourage I/I mitigation.

Management of Subsurface Sewage Treatment Systems (SSTS) and Private Systems

The Metropolitan Land Planning Act requires the sewer element of the local comprehensive plan to describe the standards and conditions under which the installation of subsurface sewage treatment systems and other private wastewater treatment systems will be permitted and to the extent practicable, the areas not suitable for public or private systems.

The appropriate density for development with subsurface sewage treatment systems depends on the suitability of the soils to treat wastewater and whether space is available for a primary and back up drainfield. It is the Council's position that all municipalities and counties allowing subsurface sewage treatment systems should incorporate current MPCA regulations (Minn. Rules Chapter 7080-7083) as part of a program for managing subsurface sewage treatment systems in the sewer element of their local comprehensive plan and implement the standards in issuing permits.

Maple Plain should adopt a management program consistent with state rules. An overview of Maple Plain's management program must be included in the community's local comprehensive plan update. If adequate information on the management program is not included; the comprehensive plan will be found incomplete for review until the required information is provided to the Council. Specific requirements for the local comprehensive plan can be found in the [Local Planning Handbook](#).

Small private treatment plants are located throughout the Metropolitan Area serving such developments as individual industries, mobile home parks, and other urban type uses. The Council's position is that such private wastewater treatment plants should be permitted only if they are in areas not programmed for metropolitan sewer service in the future and they are provided for in a community's comprehensive plan that the Council has approved. Furthermore, the community is responsible for permitting all community or cluster wastewater treatment systems consistent with Minnesota Rules Chapter 7080-7083 and MPCA standards. The Council will not provide financial support to assist communities if these systems fail.

Maple Plain should include in the sewer element of its local comprehensive plan the conditions under which private treatment plants or municipal treatments would be allowed, and include appropriate management techniques sufficiently detailed to ensure that the facilities conform to permit conditions. Maple Plain is responsible for ensuring that permit conditions for private treatment plants are met and financial resources to manage these facilities are available.

Surface Water Management

In 1995, Minnesota Statutes Section 473.859, subd. 2 was amended to make the local water plan (often referred to as local surface water management plans) required by section 103B.235 a part of the land use plan of the local comprehensive plan. Minnesota Rules Chapter 8410, updated in July of 2015, includes the requirements for local water management plans. The main change that you need to be aware of is that all communities in the metropolitan area must update their local water plan between January 1, 2017 and December 31, 2018. This means that Maple Plain must update its local water plan as part of the comprehensive plan update. The community's updated local water plan should be submitted to the Council for its review concurrent with the review by the Watershed Management Organization(s) within whose watershed(s) the community is located. **Failure to have an updated local water plan will result in the comprehensive plan being found incomplete for review until the required plan is provided to the Council.**

Local water plans must meet the requirements for local water plans in Minnesota Statutes, section 103B.235 and Minnesota Rules Chapter 8410. In general, local surface water plans need to include a summary of the priorities and problems in the community; structural, nonstructural and programmatic actions to take to address the priorities and problems; and clearly identified funding mechanisms to fix the problems.

More detailed guidance for the local water plans can be found in Appendix C of the Council's *2040 Water Resources Policy Plan* and in the Council's current *Local Planning Handbook*.

In addition, the Council has also updated its priority lake list that was first developed in the 1980s as part of the *Water Resources Policy Plan* update. Figure 2 shows the priority lakes for Maple Plain. The Council uses the priority lake list to focus its limited resources. The list is also used in the environmental review process. Where a proposed development may impact a priority lake, the project proposer must complete a nutrient budget analysis for the lake as part of the environmental review process.

Also included on Figure 2 is the watershed organization(s) that Maple Plain is part of and a list of impaired waters in the community for use in development of your local water plans.

Other Plan Considerations

Water Supply

Local comprehensive plans also address water supply (Minn. Stat., Sec. 473.859). For communities in the metropolitan area with municipal water supply systems, this local comprehensive plan requirement is met by completing the local water supply plan template, which was jointly developed by the Metropolitan Council and the Minnesota Department of Natural Resource (DNR).

FOR COMMUNITIES WHO OWN/OPERATE A PUBLIC WATER SUPPLY SYSTEM:

Because your community owns/operates a municipal community public water supply system (PWS), the local water supply plan must be updated as part of the local comprehensive plan (Minn. Stat., Sec. 103G.291).

The updated local water supply plan should include information about your community along with information about any neighboring communities served by your system.

You should update your local water supply plan upon notification by DNR. Local water supply plan due dates will be staggered between January 1, 2017 and December 31, 2018. Your updated local water supply plan should be submitted to the DNR. DNR will share the plan with the Council, and it will be

reviewed concurrently by both agencies. This schedule allows the local water supply plans to be completed and included in the local comprehensive plan.

Failure to have an updated local water plan will result in the comprehensive plan being found incomplete for review until the required plan is provided to the Council.

The water supply plan template fulfills multiple statutory obligations including:

- Minn. Stat., Sec. 103G.291 to complete a water supply plan including demand reduction
- Minn. Stat., Sec. 473.859 to address water supply in local comprehensive plans
- Minn. Administrative Rules 4720.5280 to address contingency planning for water supply interruption

The plan must be officially adopted by your community, and if applicable the utility board, as part of the local comprehensive plan.

At a minimum, the updated local water supply plan must use the joint DNR and Metropolitan Council template and include water demand projections that are consistent with the community's population forecast provided in the introductory section of this system statement. Potential water supply issues should be acknowledged, monitoring and conservation programs should be developed, and approaches to resolve any issues should be identified.

Guidance and information for water supply planning can be found in the Appendix C of the *2040 Water Resources Policy Plan*, the *Local Planning Handbook*, and the Council's *Master Water Supply Plan*.

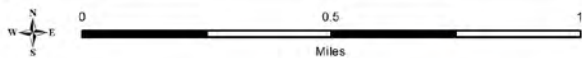
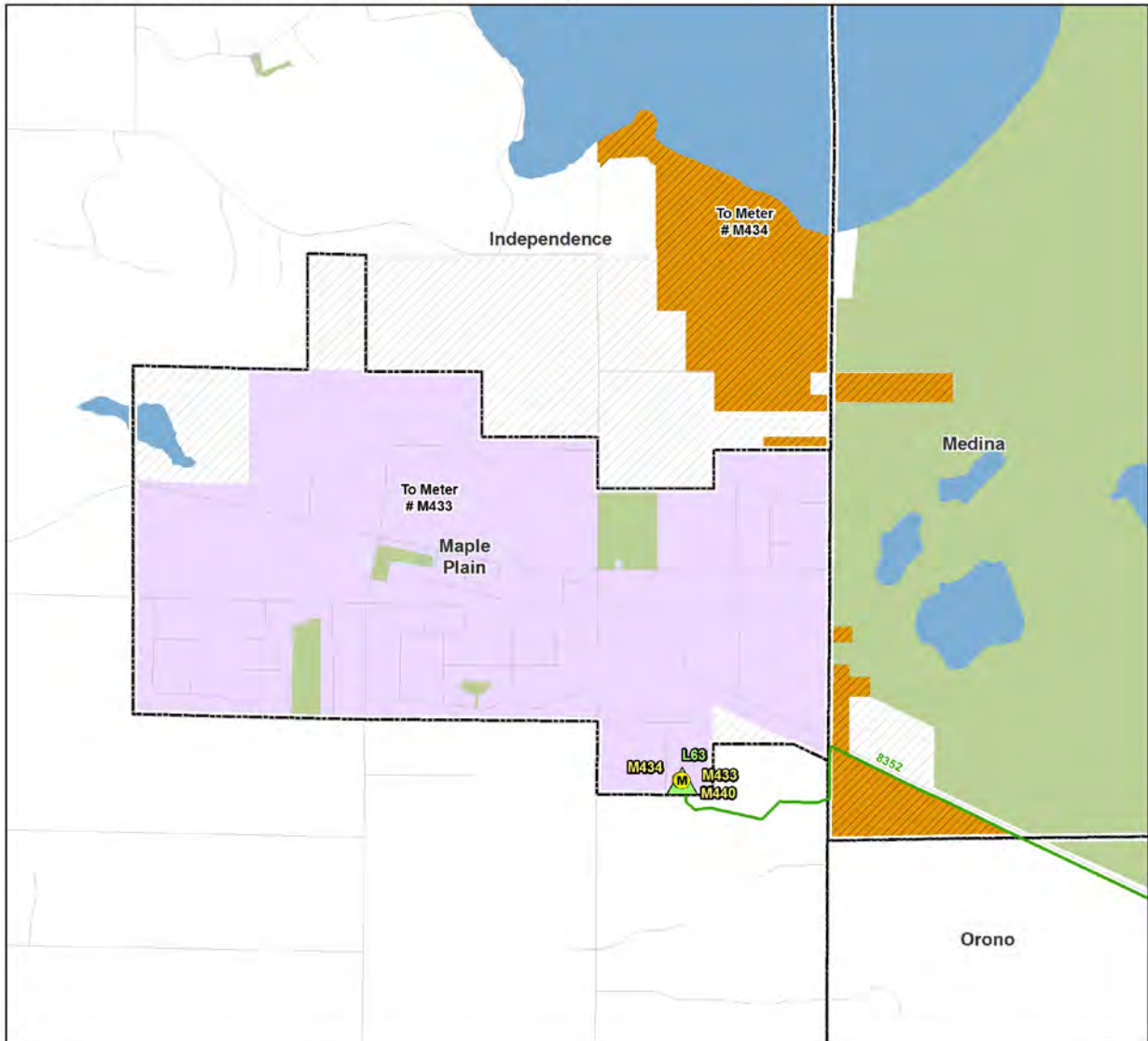
The Council's *Master Water Supply Plan* provides communities in the region with planning assistance for water supply in a way that:

- Recognizes local control and responsibility for owning, maintaining and operating water systems
- Is developed in cooperation and consultation with municipal water suppliers, regional stakeholders and state agencies
- Protects critical habitat and water resources over the long term
- Meets regional needs for a reliable, secure water supply
- Highlights the benefits of integrated planning for stormwater, wastewater and water supply
- Emphasizes and supports conservation and inter-jurisdictional cooperation
- Provides clear guidance by identifying key challenges/issues/considerations in the region and available approaches without dictating solutions

Figures 3-5 illustrate some water supply considerations that the community may consider as they develop their local water supply plans, such as: aquifer water levels, groundwater and surface water interactions, areas where aquifer tests or monitoring may be needed to reduce uncertainty, regulatory and management areas, and emergency interconnections.

Figure 1. MCES Sanitary Sewer Meter Service Areas

City of Maple Plain, Hennepin County

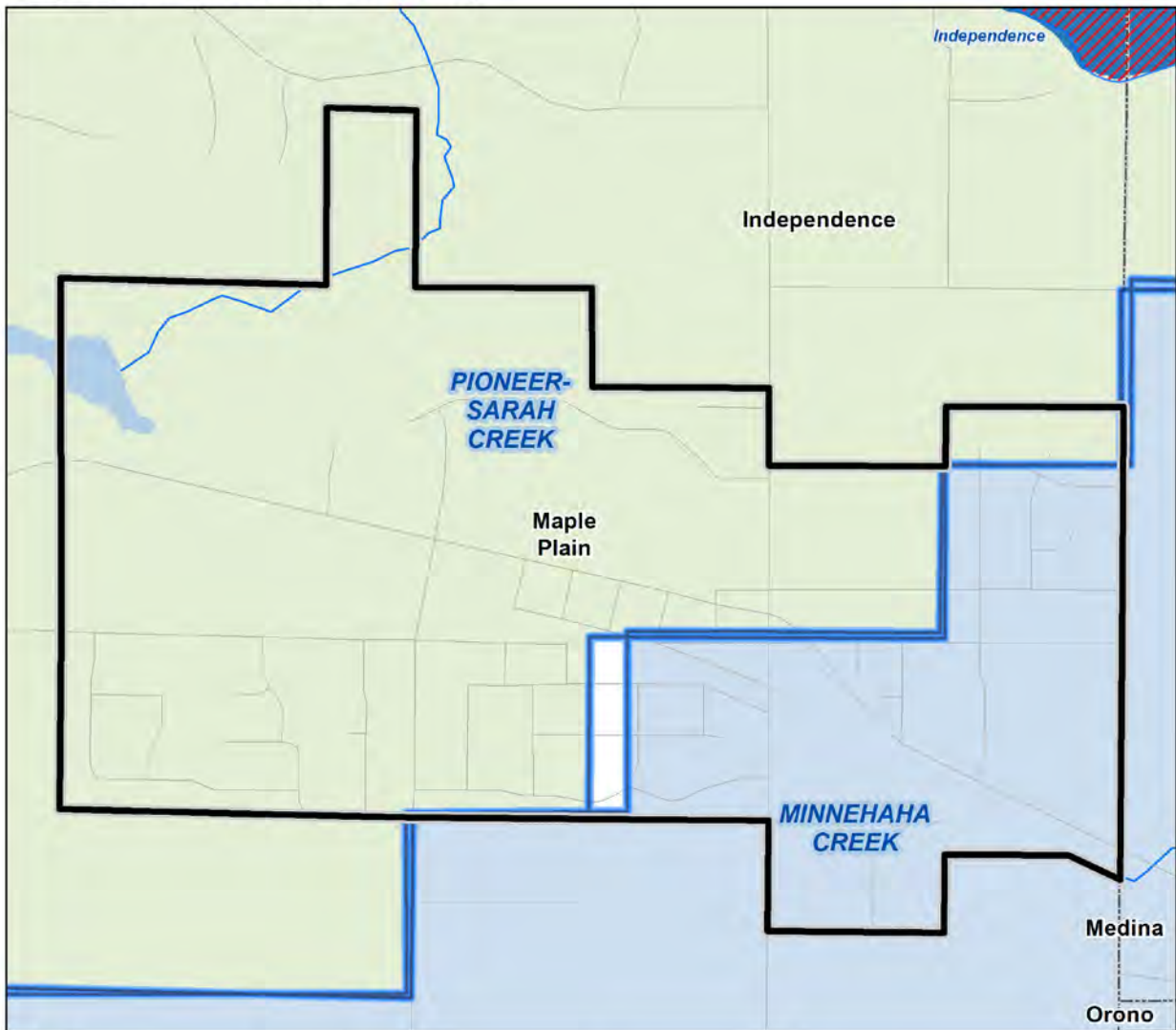


1/5/2015

- | | | |
|-----------------------------|---------------------|----------------------------------|
| Interceptors by Type | — Outfall | Meters |
| — Gravity | — Low Head Crossing | Lift Stations |
| — Forcemain | — Bypass | MCES Wastewater Treatment Plants |
| — Siphon | | |
-
- | | |
|--|------------------|
| Interceptor Meter Service Areas | |
| To Meter # 100 | Areas Not Served |
-
- | | | |
|--|------------------------------|--------------------------------|
| Areas of Unmetered Flow into the Community | County Boundaries | Park, Recreational or Preserve |
| Rural Center WWTP Service Areas | City and Township Boundaries | Golf Course |
| 2040 MUSA | Lakes and Rivers | NCompass Street Centerlines |

Figure 2. Surface Water Resources

Maple Plain, Hennepin County














- | | |
|--|---|
|  Watershed Management Organization Boundaries |  Impaired Lakes (2014 Draft MPCA 303(d) List) |
| Watershed Management Organization Type |  Impaired Rivers & Streams (2014 Draft MPCA 303(d) List) |
|  County |  2014 Priority Lakes |
|  Watershed District |  County Boundaries |
|  Watershed Management Organization |  City and Township Boundaries |
| |  Other Lakes and Major Rivers |
| |  Other Streams |
| |  NCompass Street Centerlines |

Figure 3. Surface water features and interaction with the regional groundwater system, and state-protected surface water features

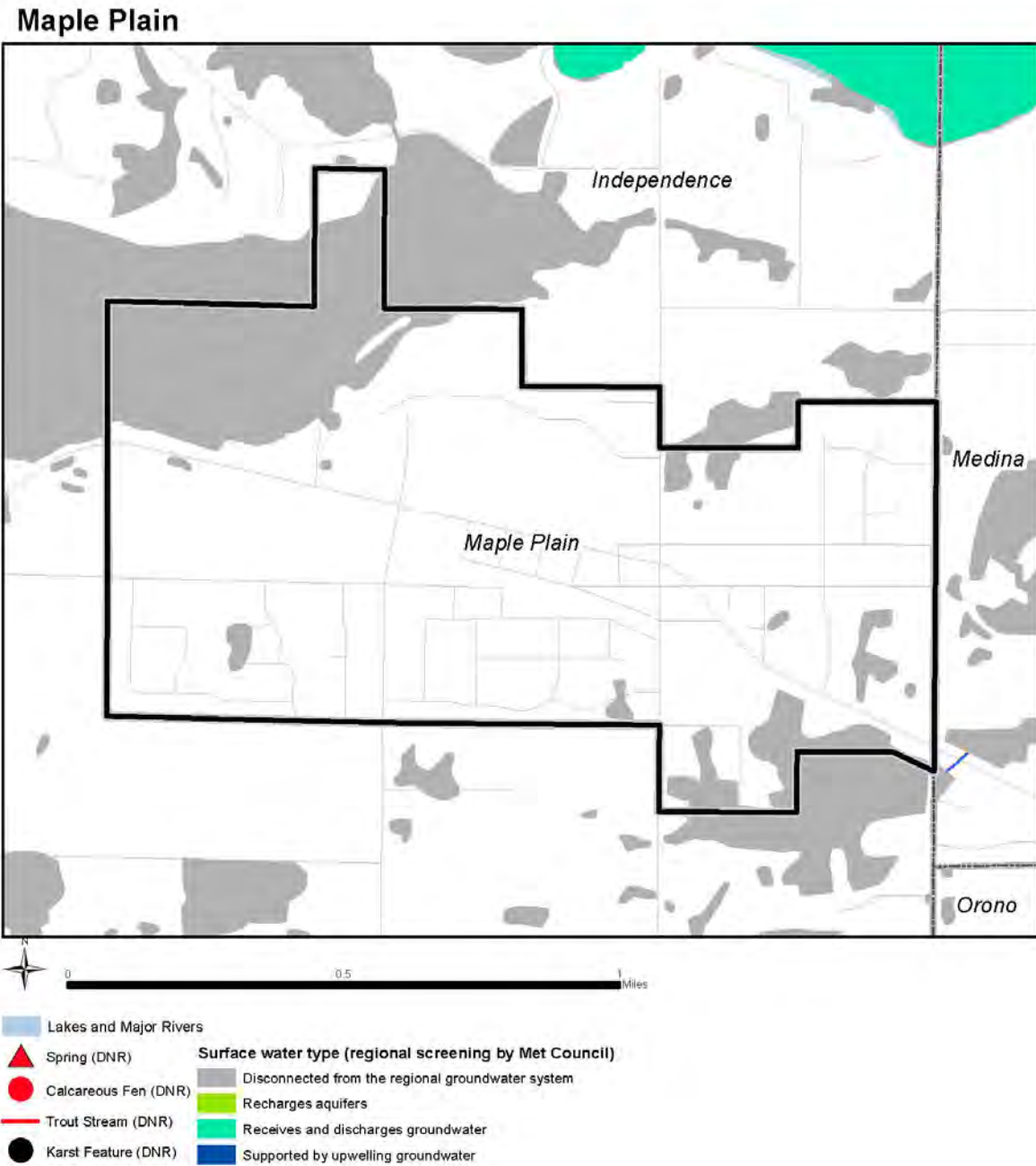


Figure 4. Availability of MN Department of Natural Resources groundwater level and MN Department of Health aquifer test data

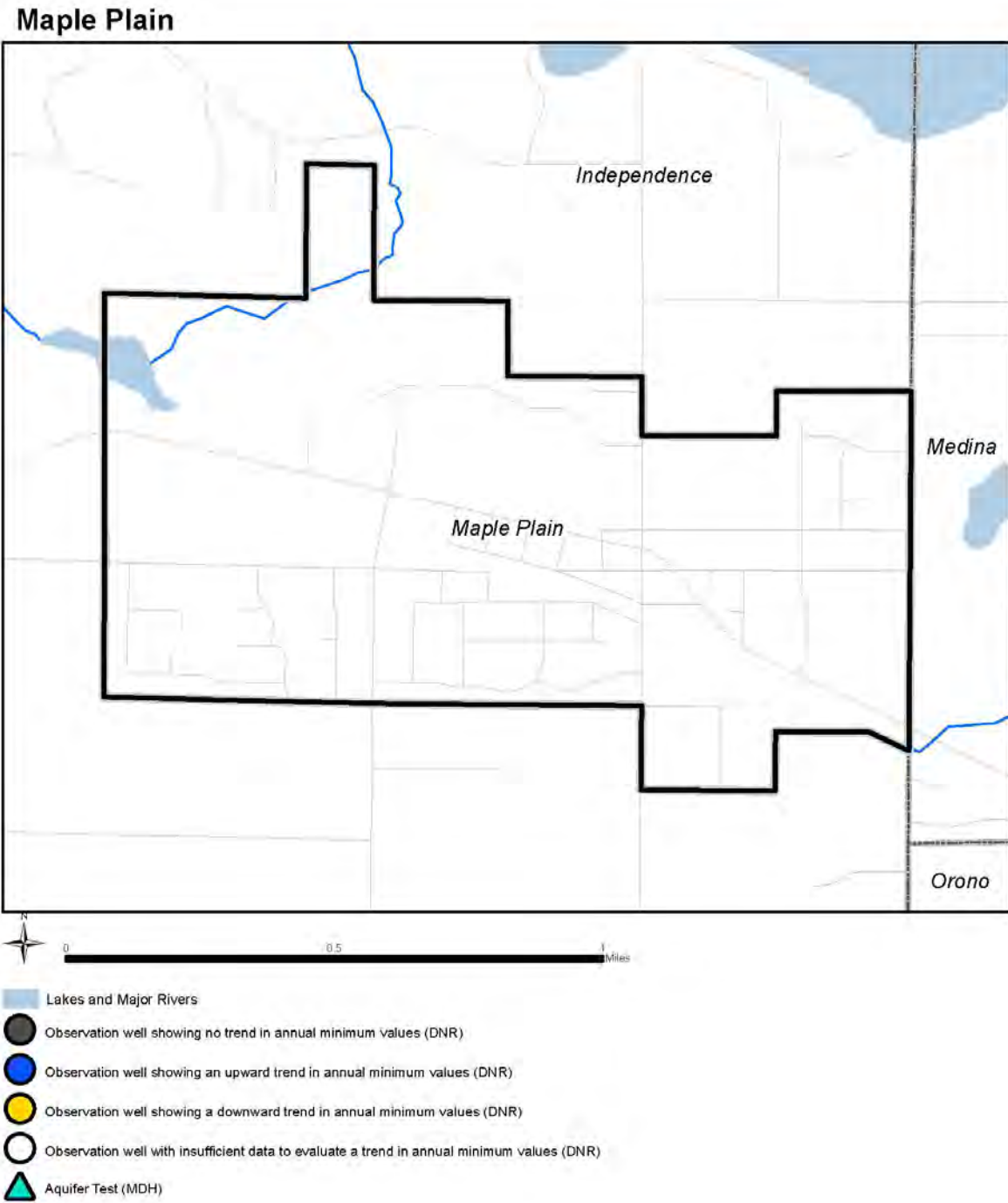
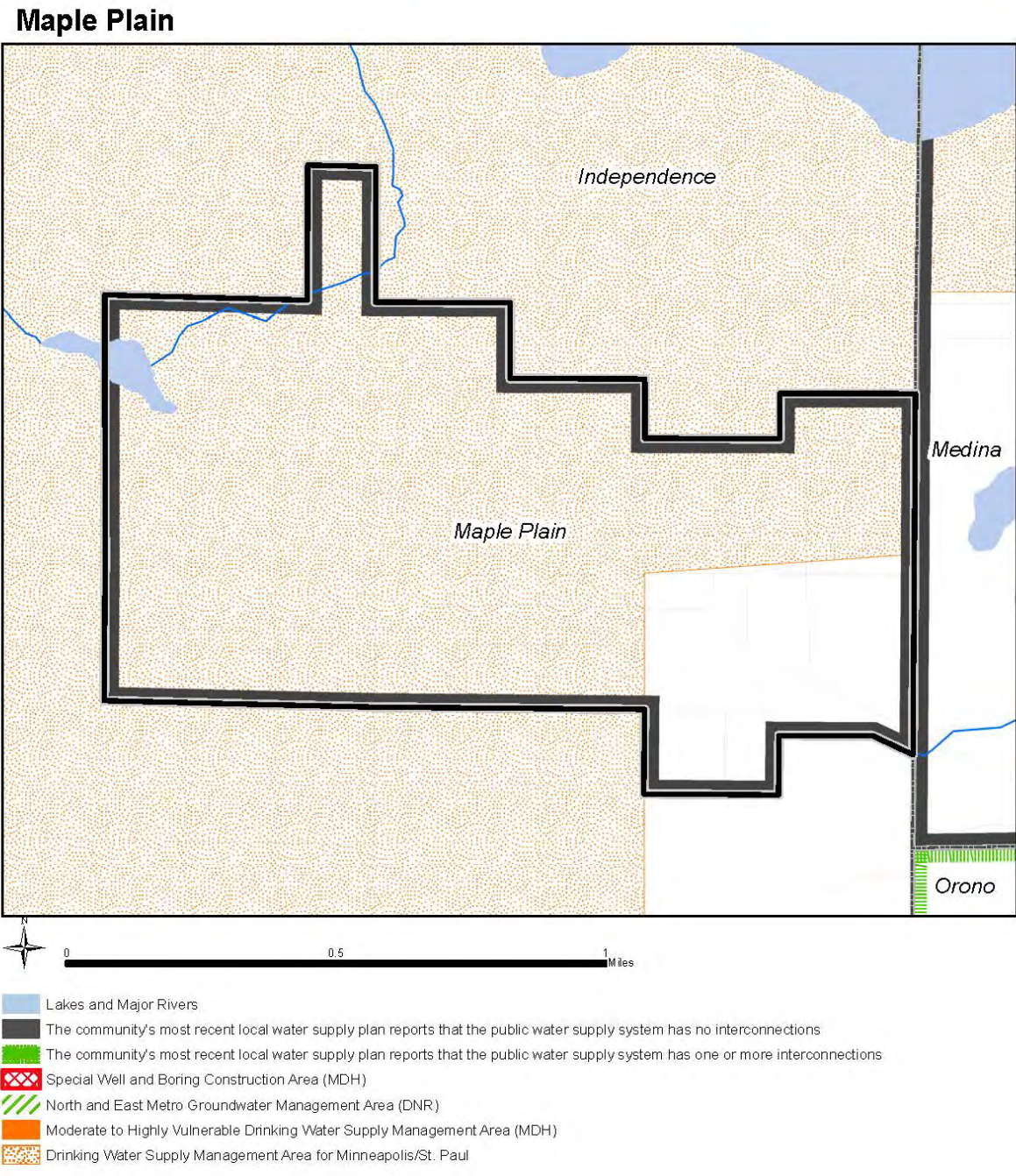


Figure 5. Municipal public water supply system interconnections and regulatory management areas



MASTER WATER SUPPLY PLAN

The Twin Cities Metropolitan Area Master Water Supply Plan provides a framework for sustainable long-term water supply planning at the local and regional level. The plan provides communities in the region with planning assistance for water supply in a way that:

- Recognizes local control and responsibility for owning, maintaining and operating water supply systems
- Is developed in cooperation and consultation with municipal water suppliers, regional stakeholders and state agencies
- Protects critical habitat and water resources over the long term
- Meets regional needs for a reliable, secure water supply
- Highlights the benefits of integrated planning for stormwater, wastewater and water supply
- Emphasizes and supports conservation and interjurisdictional cooperation, and
- Provides clear guidance by identifying key challenges/issues/ considerations in the region and available approaches (without dictating (use prescribing) solutions).

The plan provides guidance so that communities can take the most proactive, cost effective approach to long term planning and permitting to ensure plentiful, safe, and affordable water that supports the prosperity and livability of the region for future generations.

2015 Master Water Supply Plan

DOWNLOAD PDF

[Complete 2015 Master Water Supply Plan](#) (134 pages, 152 MB PDF)

Appendix 1: Water Supply Profiles

- [All Water Supply Profiles](#) (752 pages, 17 MB PDF)
- [Communities](#) (649 pages, 15 MB PDF)
- [Sub-regions](#) (16 pages, 338 KB PDF)
- [Counties](#) (21 pages, 380 KB PDF)
- [Watersheds](#) (64 pages, 1.4 MB PDF)

[Appendix 2: Water Demand Projections](#) (7 pages, 405KB PDF)

[Appendix 3: 2040 Groundwater Model Projections](#) (10 pages, 523KB PDF)

[Appendix 4: Groundwater Optimization Modeling](#) (19 pages, 993KB PDF)

[Appendix 5: Community Highlights](#) (5 pages, 177KB PDF)

Maple Plain Water Supply Profile

Overview of water system and use in the community

The community owns and operates their own water supply system.

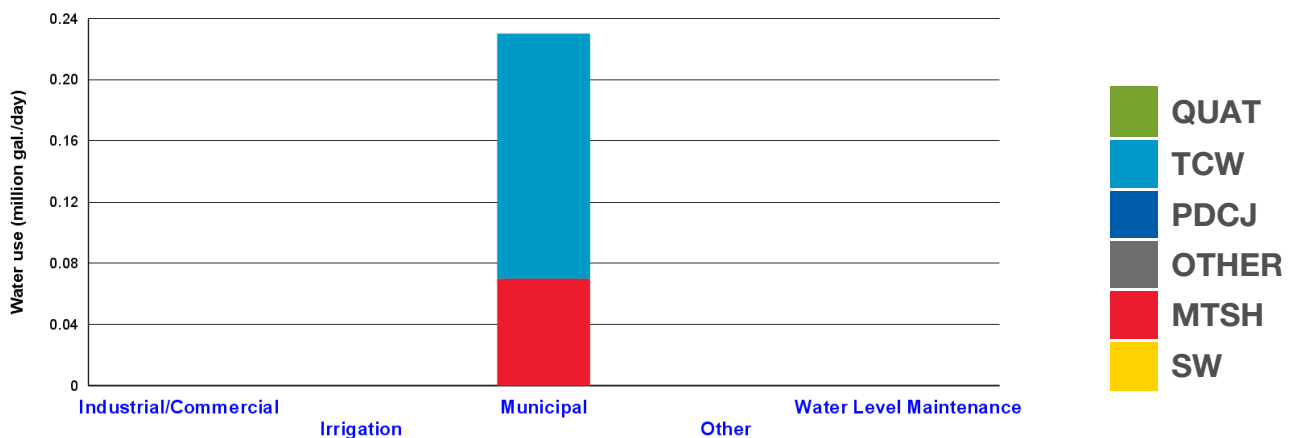
Available approaches to meet current and future demand

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Reclaimed wastewater
5. Enhanced recharge
6. Surface water sources

Number of active public and private DNR-permitted wells and surface water intakes that provide water to residents and businesses in the community

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	0
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	0
Tunnel City-Wonewoc (TCW)	2	0	0
Multi-aquifer (MULTI)	0	0	0
Surface Water (SW)	0	0	0

Amount of water used, on average, by water appropriation permit holders in key water use categories (chart will be blank if no DNR-permitted wells or intakes provide water in the community)



Municipal Water Use

Municipal water treatment: Radionuclides removal, Iron removal, Fluoride , Corrosion control - Lead/Copper, Iron/Manganese Removal, Disinfection, Iron/Manganese Sequestration

Rate structure: Increasing Block

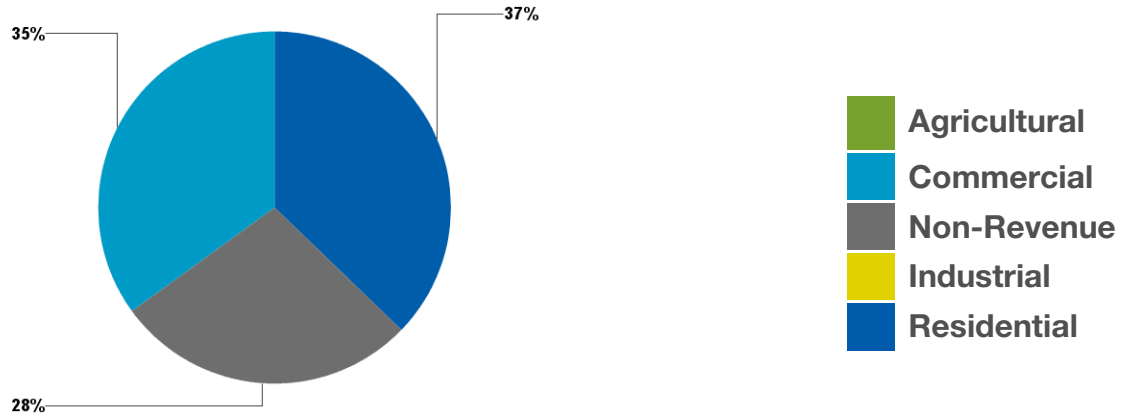
Permitted amount in 2012: 110 (million gallons/year)

Reported use in 2012: 58 (million gallons/year) 0.16 (million gallons/day)

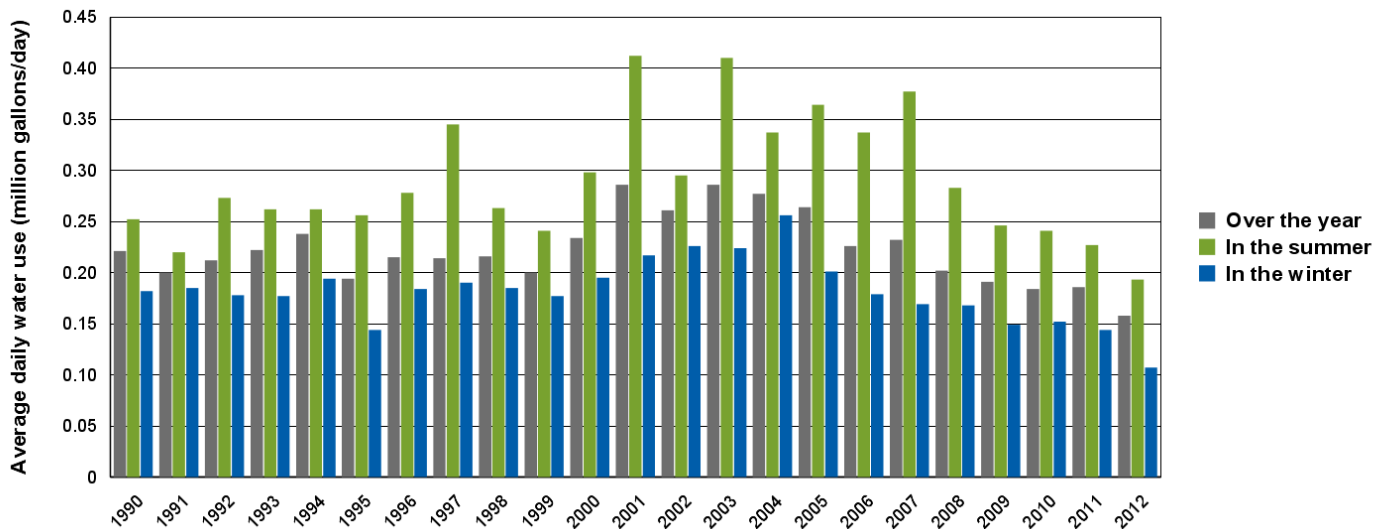
Note: *this may be higher than permitted amount if, for example, water is purchased from a neighbor*

Residential water use per person in 2012: 33 gallons per person per day

Water use by major categories in 2012



Historical municipal water use in the community



Projected municipal water use

	2020	2030	2040
Population Served	1,870	2,090	2,320
Total Population	1,870	2,090	2,320
Projected Average Daily Water Use (Million Gal./Day), Plus or Minus 20%	0.22	0.25	0.27
Total Per Capita Water Use (Gal./Person/Day)	118	118	118
What per capita water use would be, if population grew without changing total water use:	84	76	68

Water resource plans and permits that address the following issues support more sustainable water supplies

- State and federal requirements, such as Safe Drinking Water Act standards, conditions identified on water appropriation permits issued by the DNR, water quality permits issued by the MPCA and others
- Potential for water use conflicts and well interference
 - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant vulnerability to contamination
 - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
 - The county geologic atlas is more than twenty years old

Note: Local studies may be underway or completed to provide more information about these issues.

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

As appropriate, incorporate the following actions into plans and programs, consistent with your organization's roles and responsibilities

- Acknowledge the issues above and support partnerships to address them in local water supply plans and water appropriation permit applications.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropolitan Council Water Conservation Toolbox can support these efforts.
- Promote the evaluation of water conflict and well interface as part of the water appropriation permit request and review process. Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an analysis of existing water level/water withdrawal data to identify where future drawdowns could affect domestic wells.
- Collaborate with partners, including MDH, to support local actions that prevent the spread of contamination. This may include implementation of source-water protection plan measures to mitigate public health risks. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers in the area may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of contaminant plumes.
- Work with partners to identify opportunities for sharing information, reducing duplicate work, and partnering on projects that improve understanding about aquifer productivity and extent.

- Support collaborative efforts to periodically review local water supply risks and potential alternatives to mitigate those risks. Technical advances, regulatory adjustments and sub-regional developments can present new opportunities for local water suppliers to enhance the resiliency, sustainability, and affordability of their water supplies.
- Continue to work with local, state and federal agencies, as required.

Note: The actions listed above may be underway or completed, and information may be available from local public water suppliers, planners, or water resource managers.

Additional information and guidance is provided in the Local Planning Handbook. Metropolitan Council staff can also provide technical and planning assistance.